SDG 6 Country Acceleration Case Study

Bhutan

2025

United Nations | UN WATER

SDG 6 Country Acceleration Case Studies

UN-Water coordinates the work of the United Nations (UN) on water and sanitation. UN-Water is comprised of 36 UN entities (Members) and 51 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 global water-related challenges.

Over the last several years, we are seeing modest progress toward Sustainable Development Goal 6 (SDG 6) as demonstrated by a majority of SDG 6 global indicators. Nevertheless, this progress has been slow, fragmented, and under-resourced. Falling short on water and sanitation targets undermines achievement of the sustainable development agenda and can even threaten hard-won development gains in other areas such as health, gender, jobs, environment, food security, education, energy, resilience, economic development and stability.

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. UN-Water case studies aim at understanding 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 more SDG 6 targets.

The case studies are meant to enable the replication in other countries of what has worked and encourage continued action to achieve SDG 6 in the showcased countries. The 2030 Agenda for Sustainable Development and in particular the SDG 6 targets form an overarching lens for each case study to capture interlinkages and opportunities.

Starting in 2022, UN-Water has published three country case studies each year. 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 UN custodian agencies. In 2025, the Expert Group selected Bhutan, Rwanda and Saudi Arabia for the case studies.

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. This case study includes inputs from background interviews with a variety of stakeholders, conducted online and in-person, as well as a multistakeholder preparatory meeting, held in Thimphu in March 2025. 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 changes. Very often these are political, institutional or behavioural, and they span the five global accelerators identified 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
- **2024:** Cambodia, Czechia, Jordan
- **2025:** Bhutan, Rwanda, Saudi Arabia

More information: www.unwater.org/publications/country-acceleration-case-studies

Table of contents

View of the Pukkana Dzong, Bhutan.
Photo: Arghya Mondal

Executive summary

Fifteen years ago in Bhutan, three quarters of the population did not have access to safe drinking water. Today, that situation has reversed, with three in four people now having access to safe drinking water. Since 2010, the country has advanced at a pace ten times faster than during the 2000s. How has this been possible? This case study explores the main drivers behind Bhutan's rapid acceleration, starting from leadership at the national level to the dedicated efforts of water caretakers in rural communities. At the same time, Bhutan still faces many challenges, principally to reach the remaining quarter of the population and sustain the achievements made so far in the long run. The key factors and drivers that may be replicated in other countries include:

- **Water is a national priority.** The Royal Government of Bhutan has been prioritizing water and sanitation for over three decades;
- **A legal and policy framework is in place.** Several policy and legal documents have been adopted and are regularly updated, providing clear guidance and support;
- **Plans and programmes are implemented progressively.** Actions are typically piloted for several years before being scaled up across the country;
- **The water sector is well coordinated.** Among institutions, there is a clear division of labour, as well as a multistakeholder platform to coordinate efforts on water supply, sanitation and hygiene (WASH);
- **Local authorities are empowered to lead water and sanitation initiatives.** This is supported by the building of technical expertise and by enhanced financial resources;
- **The sources of financing for water supply are diversified.** They include loans, grants from development partners, government co-funding and community cost-sharing;
- **The level of corruption is low.** The government ensures that resources are effectively delivered to communities through regular review and auditing;
- **A water testing facility is available in every district.** Water is tested at regular intervals; data is recorded and shared through official channels;
- **Data is used to prioritize action.** Policy and planning documents and processes use data to identify priority areas and settlements for intervention;
- **Water caretakers play a key role at the local level.** Communities hire a water caretaker paid by water users to maintain infrastructure in working condition;
- **Experience-sharing has inspired action.** Study visits to neighbouring countries and regional dialogue have proven useful to inspire progress on the ground.

The experience of Bhutan is highly relevant for others. Countries aiming to expand access to safe drinking water, especially in rural and mountainous regions, can draw inspiration from Bhutan's achievements in overcoming geographical and logistical barriers in areas which are often considered the most difficult for service delivery. For advancing sanitation, Bhutan presents a compelling example of how to mobilize household investment, while maintaining a no-subsidy approach, demonstrating that significant progress can be achieved through community ownership and behavioural change. In areas of youth engagement in the water sector, Bhutan's De-suung National Service serves as a powerful example of how to build skills, foster civic responsibility and contribute to national development goals.

1. Country context

Bhutan is a small landlocked country located in South Asia. The population is almost equally divided between urban and rural areas (Table 1). A lower-middle income country, Bhutan's Gross Domestic Product (GDP) is 3,711 United States dollars (USD) per capita. In terms of GDP, the size of the Bhutanese economy has more than doubled in the last 20 years, while the country has been pursuing so-called Gross National Happiness (GNH) (see box below) for more than 50 years. Bhutan has been a constitutional monarchy since 2008, with the King of the Nation serving as head of state, and a prime minister as head of government. Elections are held every five years. The country is divided into 20 districts, which are further divided into urban municipalities and village blocks.

Water governance has undergone institutional transformation. The water sector is overseen by the Ministry of Energy and Natural Resources through the Department of Water, which is responsible for overall policy, planning and management of water resources in the country. The design and implementation of water infrastructure falls under the Ministry of Infrastructure and Transport, while drinking water quality surveillance is the responsibility of the Ministry of Health. Municipalities have specific competences for urban water supply. In rural areas, many informal water user associations manage the water supply system. Basin-level management is at nascent stage.

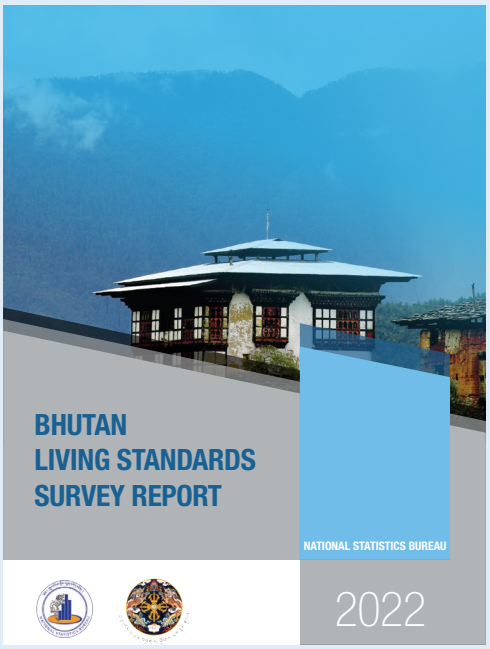
Table 1: Overview of water-related key data

Population	786,385 (56% rural) Source: United Nations Population Division (2024), World Bank (2023)
Gross domestic product	3,711 USD per capita/year (lower-middle income) Source: World Bank (2023, current USD)
Renewable freshwater resources	100,588 m³ per capita/year (0% external) Source: Food and Agriculture Organization (FAO) Aquastat (2021)
Major basins	Amochu, Wangchu, Puna-Tsangchu, Mangdechhu, Drangmechhu
Glacier volume	150 km³ Source: United States Geological Survey (2020)
Wetland extent	26.5 km² Source: Freshwater Ecosystem Explorer (2016-2018)
Forest area	71.6% of land area Source: FAO (2022)
Water withdrawal	94.0% agriculture, 5.0% domestic, 1.0% industry Source: FAO Aquastat (2021)
Irrigated area	28.3% of cultivated land Source: FAO Aquastat (2022)
Hydropower	100.0% of electricity generation Source: International Renewable Energy Agency (IRENA) (2024)
Drought risk	Low-medium to medium-high Source: World Resources Institute (WRI) Aqueduct 4.0
Flood risk	High to extremely high Source: WRI Aqueduct 4.0

Gross National Happiness

The fourth King of Bhutan, Jigme Singye Wangchuck, proposed the philosophy of Gross National Happiness (GNH), as opposed to the pursuit of GDP growth. The concept was included in the 2008 Constitution. A GNH Index was developed in 2011 to measure progress, based on the results of the Bhutan Living Standards Survey, which is carried out every five years. Access to improved drinking water and sanitation facilities is part of the index. Results are meant to inspire policymaking through the Centre for Bhutan and GNH Studies. Until 2022, this role was fulfilled by a GNH Commission, chaired by the Prime Minister. GNH screening tools were developed for policies and projects.

More information: https://bhutanstudies.org.bt



Bhutan is water-rich. With yearly renewable internal freshwater resources in excess of 100,000 m³ per capita according to the Food and Agriculture Organization of the UN (FAO), Bhutan is among the most water-rich countries in the world. Still, there are parts of the country that experience drought and, according to the 2018 National Water Resources Inventory, the flow of about 25 per cent of tapped water sources is declining, while about 1 per cent of sources have already dried up. At the same time, the country is prone to natural disasters, including flooding, mudflows, landslides, avalanches, glacial lake outburst floods (GLOFs), as well as earthquakes, which threaten not only population but also water infrastructure.

Bhutan terrain is predominantly high mountains and forest. Most of Bhutan's renewable freshwater resources are generated within the country. The neighbouring Indian states of Assam and West Bengal depend on water flowing from Bhutan. The whole country is part of the Brahmaputra transboundary river basin. According to the 2019 Bhutan Glacier Inventory and 2021 Bhutan Glacier Lakes Inventory, there are about 700 glaciers and 567 glacier lakes, accounting for 1.64 per cent and 0.14 per cent of the country's total land area respectively. According to the 2025 UN World Water Development Report, climate change is causing an overall increase of glacial melt and water flow. Lower and smaller glaciers are disappearing, which can result in significant decrease of water flow in some areas. Bhutan is mostly covered with forest and as per the 2022 National Forest Inventory, the forest coverage is 69.71 per cent of the country. Furthermore, the constitution of Bhutan 2008 mandates that a minimum of 60 per cent of land area must remain under forest cover at all times.

Agriculture is the primary consumer of water in the country. According to FAO, agriculture represents more than 90 per cent of water withdrawals. This occurs even though the cultivated area covers less than 3 per cent of the country's total area. Water withdrawals for domestic use account for around 5 per cent of total water uses. Industrial use is extremely limited. At the same time, Bhutan generates all its electricity through hydropower, which also represents one of the country's main exports. All hydropower plants in the country are run-of-river. So far, no reservoir has been built for hydropower, irrigation or other purposes. This means that the country cannot count on such reservoirs to address the seasonality of hydropower generation and to mitigate the risk of flooding.

The world's first carbon-negative country

Reliance on hydropower makes the carbon footprint of electricity production in Bhutan very low. Bhutan exports a significant amount of hydropower to India; its forests serve as a major carbon sink. Adding the amount of carbon dioxide emissions avoided in neighbouring countries thanks to the export of clean electricity to the amount of greenhouse gases absorbed by its forest, Bhutan is the first country in the world that absorbs more carbon dioxide emissions than it produces and is therefore carbon-negative. Bhutan is leveraging its carbon assets to trade its credits on carbon markets.

More information: https://blogs.worldbank.org

The Gelephu Mindfulness City

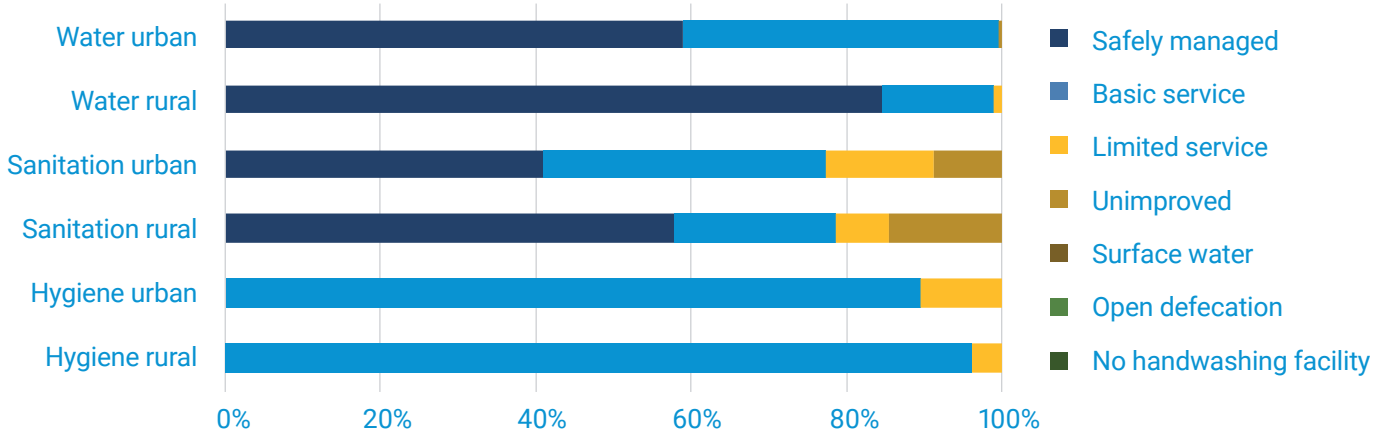
Bhutan is developing a new city near the border with India which will pioneer water treatment and reuse approaches as part of its role as a hub for innovation, economic development and environmental sustainability in the region.

More information: https://gmc.bt

In 2000, less than one person out of four was using safely managed drinking water services. Now, this figure has more than tripled (Figure 1). In rural areas, pipes are now connecting sources with villages and households. More than 84 per cent of households now have water on premises and supply can be considered safely managed. In urban areas, the proportion of households with water on premises goes up to 99 per cent, but only in 58 per cent of occurrences can supply be considered safely managed. The whole population now has access to sanitation, mostly twin leach pits. Thanks to concerted action from government, development partners and civil society organizations the country was declared open defecation-free in 2022.

Wastewater treatment remains limited. According to the World Health Organization (WHO), around 40 per cent of the domestic wastewater flow is currently treated. This is related to the limited development of the sewage system, sludge collection and wastewater treatment plants, also due to the mountainous terrain. As a result, the risk of contamination can be high for both people, cattle and the environment, particularly for cities and settlements located downstream and in valley bottoms. Limited information is available about industrial or other uses.

Figure 1: Household WASH coverage (2022)



Source: UN-Water SDG 6 Data Portal

2. What was achieved

Bhutan has accelerated progress on safe drinking water (SDG indicator 6.1.1). In 2022, 73 per cent of the population was using safely managed drinking water services in Bhutan, up 47 percentage points in the period since 2010, while in the previous ten years the same figure improved by only 4 percentage points (Figure 2). This means that in the period since 2010 the country has been making progress around ten times faster than in the 2000s in terms of proportion of the population gaining access to safe drinking water. According to available data, this represents one of the most remarkable accelerations on SDG target 6.1 in the world. Looking at the most recent disaggregated data, in urban settings water is almost always available on premises, while in rural areas more than one household out of ten does not have access to drinking water on premises. At the same, over the last decades, access to contamination-free drinking water increased more rapidly in rural areas than in cities, where it reaches 58 per cent of the population, according to the latest data from the WHO/UN Children's Fund (UNICEF) Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP).[1]

Bhutan has made one of the most remarkable accelerations on water in the world.

The country has shown progress in multiple dimensions. The proportion of population using safely managed sanitation services has also improved from 46 per cent in 2010 to 51 per cent in 2022 (SDG indicator 6.2.1a), while those with a hand-washing facility with soap and water at home is 93 per cent (SDG indicator 6.2.1b). The country also made progress in terms of water-use efficiency and integrated water resources management. The value added from the use of water by people and the economy went up from 3 USD/m³ in 2009 to 5 in 2021 (SDG indicator 6.4.1), according to FAO data. The degree of implementation of integrated water resources management has also increased between 2017 and 2020 (SDG indicator 6.5.1). However, no data is available for 2023. This indicates that Bhutan's progress has not been confined to drinking water, but spans across the sector.

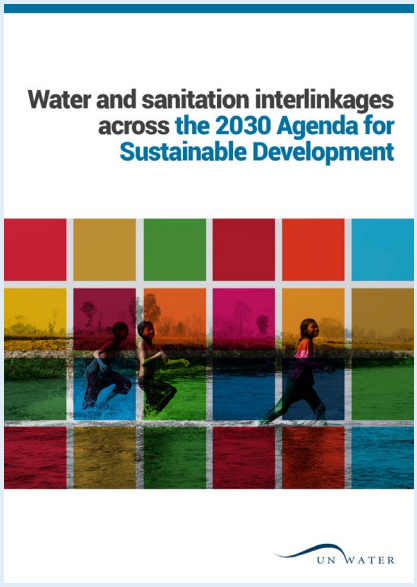
Bhutan's progress spans many SDG 6 targets.

Interlinkages across the SDGs

Progress on water and sanitation also has positive impact on other SDGs, particularly the following ones:

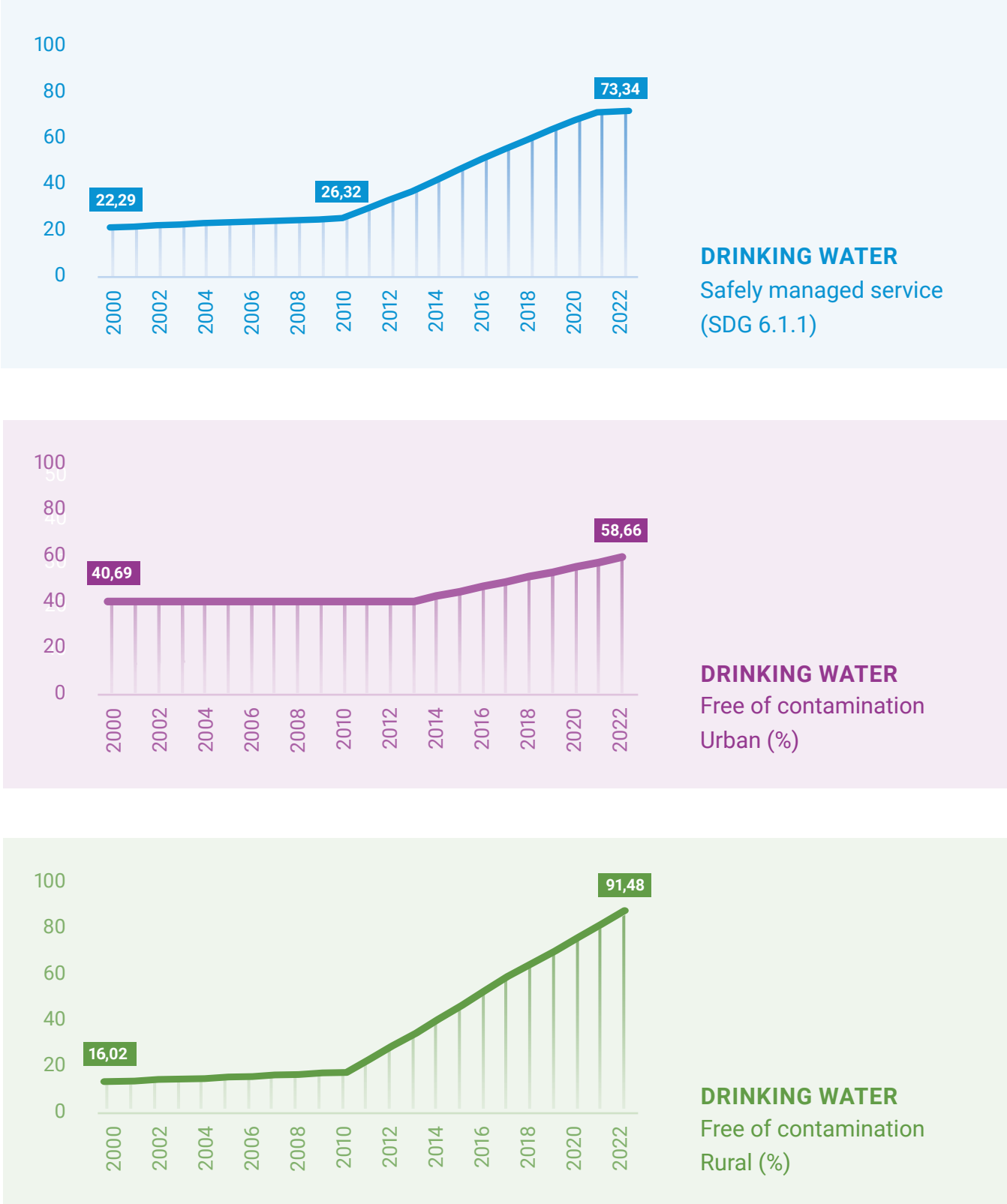
- **SDG 1** No poverty
- **SDG 2** Zero hunger
- **SDG 3** Good health and well-being
- **SDG 4** Quality education
- **SDG 5** Gender equality
- **SDG 8** Decent work and economic growth
- **SDG 10** Reduced inequalities

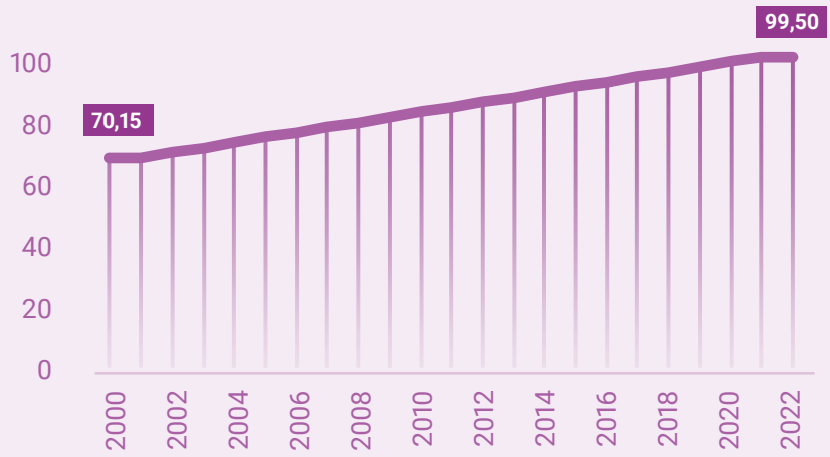
More information: www.unwater.org/publications



1. Updated data from JMP is expected to be published in July 2025.

Figure 2: Progress on SDG indicator 6.1.1 in Bhutan





DRINKING WATER
On premises
Urban (%)

DRINKING WATER
On premises
Rural (%)

Source: UN-Water SDG 6 Data Portal

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 fecal and priority chemical contamination. Improved water sources include piped water, boreholes or tubewells, protected dug wells, protected springs and packaged or delivered water.

The description of other SDG 6 indicators is available at www.unwater.org/our-work/integrated-monitoring-initiative-sdg-6

3. Understanding the achievement

This section describes how and why progress took place, examining the direct and indirect factors that enabled the observed progress, paying attention to which factors could be replicated in other countries. Five drivers have been identified in the case of Bhutan: governance, financing, data and information, capacity development and youth. They correspond to four of the five global accelerators of the SDG 6 Global Acceleration Framework, plus youth that is specific to Bhutan. They are presented in order of relevance.

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 forms part of the UN System-wide Strategy for Water and Sanitation, which was launched in July 2024.

More information: www.unwater.org/our-work/sdg-6-global-acceleration-framework

Governance: well-coordinated priorities, policies and plans at all levels

Water is a national priority. The Royal Government of Bhutan and local governments provide leadership on water. Several initiatives, starting from the 1992 Royal Decree, laid down the basis for government investment in water supply in the subsequent five-year plans. Moreover, the democratization period of the country in the mid-2000s witnessed the rapid development of the water policy and legal framework, under the leadership of both the King and the national government. Water is also valued by the philosophy of GNH as a component of both health and good governance.

The legal and policy framework is clear. After the adoption of the 2007 Water Policy, several legal and policy tools were developed, including the 2011 Water Act, the 2014 Water Regulation, the 2016 Memorandum of Understanding between the erstwhile Ministry of Works and Human Settlement (now Ministry of Infrastructure and Transport) and the Ministry of Health, as well as the 2017 National Sanitation and Hygiene Policy. The country started making accelerated progress in this period, when the legal and policy framework was improved. For instance, in 2011, the requirement of special water use permits for water abstraction was introduced. These tools set priorities and clarified the roles of institutions, creating the conditions for high levels of investment.

Plans and programmes are implemented in a progressive manner. Bhutan has been developing five-year plans since the 1960s. The Rural Sanitation and Hygiene Programme has also been implemented in a progressive manner since 2008. It began with a pilot in three sub-districts; it was then upgraded to a district level programme and was eventually expanded to other districts. Each phase lasted a minimum of two years to allow for adequate feedback and learning. The 12th Five-Year Plan (2018-2023) prioritized the water sector through implementation of a Water Flagship Programme, which executed drinking and irrigation infrastructure in all districts across the country.

The water sector is well coordinated. Until recently, water infrastructure in urban areas was under the responsibility of the Ministry of Infrastructure and Transport, while rural areas were under the Ministry of Health. Since the 2016 Memorandum of Understanding, both ministries work together in both urban and rural areas within the respective mandates, with the former focusing more on water supply and public works and the latter on sanitation and hygiene. Pursuant to the 2023 Civil Service Reform Act, the Ministry of Energy and Natural Resources is responsible, through the Department of Water, for overall policy, planning and management of water resources in the country.

Local governments play a key role in water governance. Local communities and other stakeholders involved in water management are given the opportunity to participate in all stages of the decision-making process. In urban areas, municipal authorities set tariffs and user charges in an autonomous manner for each locality. Tariffs and charges must then be approved by the Ministry of Finance. Moreover, since the 1992 Royal Decree, local authorities are requested to give priority to sanitation development.

The B-WASH cluster

Since the early 2010s, the so-called B-WASH (Bhutan – Water, Sanitation and Hygiene) cluster has been bringing together all relevant stakeholders in the country. The Ministry of Infrastructure and Transport and the Ministry of Health have been alternating as chairs of the platform every two years. A two-day workshop is also organized every other year under B-WASH.

Source: B-WASH

The decentralization process started more than 20 years ago. Municipal authorities now have technical capacity and are able to deal with procurement.

Water is the highest priority for households. Since 2012, according to the last three Bhutan Living Standards Survey Reports, which were published in 2012, 2017 and 2022, when households are asked about welfare priorities and areas, water supply is ranked first at the national level. The need is felt more in rural than urban areas. This contributes to explaining why the government has been investing in this sector and why most progress was made in rural areas.

Finance: diversifying sources of investment

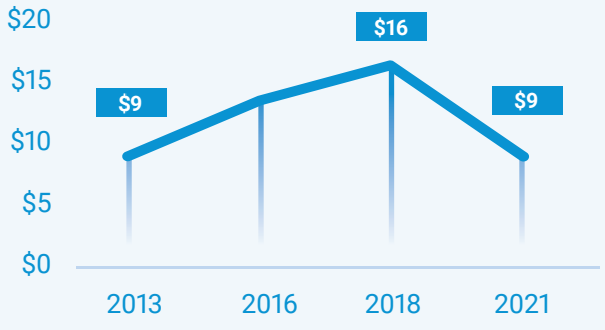
Bhutan diversifies its sources of financing for water supply. Large infrastructure is mostly financed through loans from international financial institutions, particularly the World Bank and Asian Development Bank. Smaller infrastructure is usually financed through grants from development partners, such as UNICEF and SNV Netherlands Development Organization, which can also cover technical assistance. Government co-funding and community cost-sharing are also important for the development of water supply. This can include in-kind contributions.

Users are contributing to cost recovery. In urban areas, water users pay a fee that contributes to regulating demand, as it covers only a small part of the cost of the operation and maintenance of water supply, sewerage and for wastewater treatment, plus a small fee for connection to the sewer system. Tariffs for drinking water are currently being piloted in rural areas of three districts with the support of the Green Climate Fund. However, the level of investment from government subsidies and user fees remains below what is necessary to develop and maintain water-related infrastructure and services.

A no-subsidy approach was adopted for sanitation. For more than a decade, the government has been working on demand creation for sanitation through awareness, with the support of development partners. As a result, there has been substantial progress on sanitation, mostly through household investment. The government and partners are working with the supply chain to develop a market for sanitation-related technical and financial services. In some cases, bulk purchases and other measures were implemented to reduce costs. As a result, public spending has focused more on water supply, schools, healthcare facilities, as well as sewage and wastewater treatment. However, the functionality and sustainability of many sanitation facilities require improvement.

WASH BUDGET

Annual government (million USD)



Source: UN-Water GLAAS Data Portal

Levels of corruption are low. Bhutan demonstrates strong governance practices that contribute to effective and equitable service delivery. According to Transparency International's Corruption Perception Index, Bhutan is among the 20 countries with the lowest levels of perceived corruption in the world. The governance system ensures resources are efficiently allocated and reach intended communities. The government maintains robust oversight mechanisms, including regular review and auditing processes, which enhance transparency and accountability. Moreover, the stability of the political system reduces the risk of predatory behaviour from the side of government authorities, fostering an environment of trust and integrity in public administration.

The Water Flagship Programme

This was among the most ambitious investments under the 12th Five-Year Plan (2018-2023). However, only $40 of the $60 million USD that were initially planned was finally disbursed due to the COVID-19 crisis. The programme was discontinued in the 13th Five-Year Plan, as its objectives had been achieved.

More information: www.adb.org/projects

Source: Royal Government of Bhutan

Data: testing facilities and information systems used to prioritize action

There is a water quality testing facility in every district. For drinking water to be safely managed it must also be free of contamination by faecal matter and priority chemicals. The Royal Centres for Disease Control under the Ministry of Health test water quality not only when new sources are identified but also at regular intervals. Data is recorded and shared with the relevant authorities. In case of problematic results of tests, follow-up is ensured through meetings at the level of the village block to ensure that the problem is dealt with in an effective manner. However, human resources dedicated to the auditing of water quality monitoring are limited. For many years, WHO has supported the development and update of water safety plans in all districts. Human and financial resources are not sufficient for the country to keep doing so.

Data is used to prioritize action. Policy and planning documents and processes use data to prioritize districts and village blocks for drinking water, sanitation, irrigation and disaster risk reduction, including for the Water Flagship Programme. For instance, the 2016 National Integrated Water Resources Management Plan makes extensive use of data, indicators and composite indexes for prioritization purposes. Moreover, an inventory of tapped water sources was conducted in 2018 and identified 7,399 sources, of which 69 have dried up and 1,586 are drying. Efforts to improve springshed management and revive springs, as successfully achieved in Lholing, focus on those sources that have dried up or are drying. For the same reason, an inventory of water resources is currently being carried out. The data of the Living Standards Survey, which is updated every five years, is also used for policymaking and planning. River water quality monitoring is being supported by the UN Educational, Scientific and Cultural Organization (UNESCO).

Capacity development: training and retaining human resources

Public institutions and development partners provide training at all levels. Training is targeted at human resources across sectors, including government officials, water operators, municipality plumbers, water caretakers and water user associations. These efforts are often supported by the Royal Civil Service Commission, which takes care of human resources in public institutions,

The Water and Sanitation Information System (WASIS)

WASIS is an information system for water and sanitation that was established in 2016 to gather data from different sources for the whole country, including the regular monitoring of water quality. Different levels of access to data are provided at the local and national level. WASIS also allows monitoring change over time. The integration and updating of data have sometimes proven to be difficult. SNV has been working with water authorities to simplify the system using the SDG indicator framework and improve the user-friendliness of data entry at the local level. Engineers across the country were also trained in data entry.

and by development cooperation projects. However, the outmigration of skilled labour is becoming problematic, especially after the COVID-19 crisis.

Water caretakers play a key role at the local level. Each community hires a water caretaker, in charge of operation and maintenance of water infrastructure. Water user groups, which are informal platforms, collect fees from users and use them to pay for the caretaker and minor maintenance. The capacity development of caretakers and plumbing tools are often supported through funding from various projects. Salaries and renumerations for caretakers are often increased to attract and retain skilled personnel.

Exposure visits and regional dialogue have inspired action. Study visits to neighbouring countries, such as Thailand and Nepal, have inspired progress on water and sanitation. Regional processes promoted positive competition among countries of the South Asian Association for Regional Cooperation (SAARC), for instance through the South Asian Conference on Sanitation (SACOSAN) to achieve Open Defecation Free (ODF) status, which Bhutan achieved in 2022. Technology transfer is also important. For instance, Bhutan introduced approaches such as ecological sanitation and safe toilet technology. Students often travel abroad to receive higher education on water-related issues.

Recognition is provided for achievement. For instance, recognition in the form of religious statues have been provided to the communities that achieve goals; certificates of achievement are issued to deserving individuals and organizations. Awards can be supported by national authorities, as well as development partners and philanthropic organizations.

International celebrations

International observances, initiatives and celebrations, such as World Water Day, Global Hand Hygiene Day, Menstrual Hygiene Day, World Toilet Day, World Wetlands Day, and International Volunteer Day, provide opportunities to raise awareness and promote action at all levels. These celebrations are often used to give awards.

Source: Bhutan Toilet Organization

Youth: De-suung National Service

At the height of the COVID-19 crisis, youth volunteers were mobilized for the development of water infrastructure through the De-suung National Service. To ensure meaningful engagement of youth during the COVID-19 crisis and inspired by His Majesty's Royal Address on 12 September 2020, the De-suung National Service mobilized thousands of young volunteers to ensure safe and reliable drinking water for communities across Bhutan. Dressed in their orange uniforms, so-called De-suups dedicated months to working in remote areas, constructing and managing vital water infrastructure. Between 2021 and 2024, 44 water projects were completed, providing clean water to schools, irrigation systems and entire villages, thanks to youth engagement.

De-suups gained technical skills in water engineering, construction and smart technology. The introduction of innovative solutions, such as sensor-based monitoring and climate-smart water systems supported by the Asian Development Bank, allowed volunteers to learn and implement sustainable practices. The initiative also fostered a sense of achievement among participants, as communities expressed their appreciation for the life-changing impact of their services. Large-scale projects, such as the Gelephu Mindfulness City Landmark Water Project and the Omshari Landmark Irrigation Project, showcased the transformative power of youth-led infrastructure development.

Beyond water management, De-suung has expanded into broader water-related initiatives, including food self-sufficiency through reforestation efforts. Funded by the Royal Government of Bhutan alongside local contributions, the De-suung National Service promotes sustainability, with more than 90 per cent of its camps built from recycled materials. Partnerships with the World Food Programme and international trainers from Japan and the Republic of Korea have further strengthened capacity development, ensuring that De-suups are equipped with world-class skills. With a competitive application process, the programme has grown from an initial volunteer group of 250 to over 50,000 volunteers today, demonstrating the popularity of youth-driven national service.

Gyalsung training programme

This programme has further strengthened Bhutan's approach to capacity development, particularly in the water sector. Designed to equip youth with specialized skills, the programme has introduced three training cohorts focused on plumbing and water infrastructure maintenance. Through hands-on training and mentorship, participants acquire practical expertise in system installation, repair and sustainable management techniques. Many of those who complete the programme continue working in the water sector, contributing to ongoing projects and national water security efforts. By fostering technical proficiency and career pathways, Gyalsung strives to extend the spirit of youth-driven service into long-term professional engagement.

More information: https://gyalsung.bt

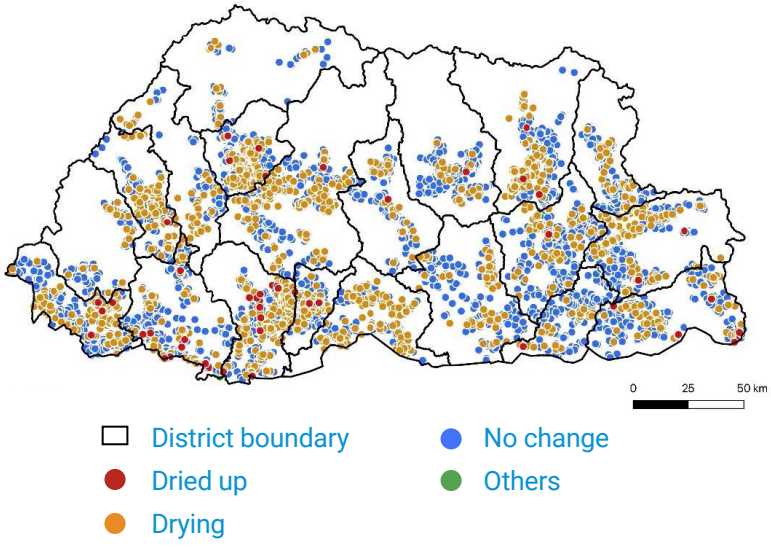
Source: Gyalsung

4. Recommendations for accelerated action in Bhutan

Some recommendations emerged from the analysis of the drivers of progress towards SDG 6, particularly from interviews and published material. Moreover, the SDG 6 Global Accelerator Framework also provides some indications of where action may be required to make further accelerated progress.

Bhutan should consider investing in innovation. For the country, it would have not been possible to achieve progress on SDG 6, including accelerated progress on safe drinking water supply, had it not employed four of the five accelerators identified in the SDG 6 Global Accelerator Framework, namely data and information, governance, financing, capacity development and innovation. The available evidence shows that this progress is the result of many actions, ranging from leadership, a clear policy and legal framework, careful planning, diversified sources of financing, water quality testing, data used for planning and prioritizing, as well as capacity development at all levels, from government staff to water caretakers at the community level and youth. To date, there is limited evidence of progress driven by innovation, which is the fifth accelerator. Investment in innovative approaches may generate further acceleration for the achievement of SDG 6, such as the Gelephu Mindfulness City.

Status of water sources



Source: Watershed Management Division (2021)

Bhutan would benefit from improving the operation and maintenance of water and sanitation infrastructure to sustain achievements on SDG 6 in the long run. In fact, if the investment in operation and maintenance is not sound, the investments made in recent years may turn out to be short lived, as the infrastructure may quickly wear out. Moreover, the country must get ready for climate change by disaster-proofing infrastructure and anticipating water scarcity and dry spells, as evidenced by the UN Office for Disaster Risk Reduction (UNDRR). In this regard, Bhutan should keep investing in improved watershed and springshed management. Groundwater access and aquifer management should also be further assessed and regulated. The conservation of water sources must be further promoted from both a quantity and quality perspective. It is important to move out of latrines and leaching pits in rural areas and further develop sewerage in urban areas. The country should keep investing in wastewater treatment and water reuse to preserve water quality. The capacity of local governments in water resource and wastewater management should continue to improve.

Other recommendations that emerged from the case study include the urgent need to address the high level of attrition rates of skilled personnel in the water sector, ensuring proper training of new recruits and further developing retention policies of human resources. In this regard, the youth volunteers from the De-suung National Service and Gyalsung Training Programme constitute an invaluable reservoir of talent. Moreover, there is a need to improve access to sanitation in public spaces, open fields and along roads. Furthermore, additional data and information is needed on key SDG 6 indicators, such as up-to-date data on indicator 6.5.1 (degree of implementation of integrated water resources management), and, given that all rivers in Bhutan are shared with other countries, indicator 6.5.2 data (progress on transboundary water cooperation).

5. Replicability in other countries

The experience of Bhutan is highly relevant for others. Countries aiming to accelerate progress on access to safe drinking water should study Bhutan's approach, particularly its success in rural areas and mountainous regions, where such progress is often considered to be most difficult. Similarly, countries seeking to make significant progress on sanitation can learn from Bhutan's strategy of mobilizing household investment, while maintaining a no-subsidy approach. Finally, countries and organizations looking to engage youth in the water sector should look at the De-suung National Service as source of inspiration.

Opportunities for experience sharing

Bhutan is engaged at the regional level. SAARC, International Centre for Integrated Mountain Development (ICIMOD) and other regional processes provide useful platforms to share the experience of Bhutan not only for transboundary cooperation but also about its progress towards SDG 6.

Bhutan actively participates in global water and environment processes, such as the UN High Level Political Forum on Sustainable Development, World Water Week and the Ramsar Convention on Wetlands.

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