**Around 4 billion people** or at least 50% of the world's population live under highly water-stressed conditions for at least one month a year, withdrawing 40% of its water supply.

**Water-stress** occurs when the demand for water exceeds the available amount during a certain period or when poor quality restricts its use.

Globally, 2 billion people (26% of the population) lack safe drinking water, and 3.6 billion (46%) lack proper sanitation.

Governance issues exacerbate water problems. Urbanization, population growth, and shifting water patterns worsen supply-demand gaps.

A worldwide consensus is forming for sustainable water management through ecosystems protection, circular economies,* data-driven technologies, and climate-resilient infrastructure.

*This approach focuses on innovations for water reuse, wastewater recycling, and reduced water consumption.

Sources: European Environment Agency, 1999; Water Resources Institute, 2019; UN Water, 2021; FAO, as cited in World Bank, 2020; UN General Assembly 2023

**PHILIPPINE CONTEXT**

In the Philippines where numerous and complex water-related challenges and hazards abound, universal access to safe water and sanitation has yet to be achieved.

The Philippines possesses ample water resources: 421 rivers, 221 lakes, and significant groundwater. Its yearly rainfall averages 2,400 mm, providing 146 billion m³ of freshwater annually. Yet, variations in rainfall, geographic disparities, growing water demand, and periodic El Niño patterns cause frequent shortages.

**Groundwater-Stressed Areas and River Basins**

The NWRB has pinpointed 21 groundwater-stressed zones and 15 water-stressed river basins due to factors like current water availability, high demand from urbanization and tourism, climate change effects on water, and water quality worries. About 27% of the Philippine population live in these areas.

Globally, 2 billion people (26% of the population) lack safe drinking water, and 3.6 billion (46%) lack proper sanitation.

**Water Stressed Areas (146 billion m³)**

- Surface Water: 125.8 billion m³
- Groundwater: 20.2 billion m³
- Annual Water Resources Potential/Water Supply: 146 billion m³

*El Niño is associated with the warming of the ocean surface in the central and eastern tropical Pacific Ocean. It occurs on average every two to seven years, and episodes typically last nine to 12 months.

**Allocated Water by Consumptive Use as of December 2022**

- Irrigation: 80%
- Industrial: 8.14%
- Municipal: 9.68%
- Other purposes: 2%

*This does not include unregulated/illegal groundwater withdrawal.

In terms of consumptive use, irrigation is the largest consumer of water at 80%, followed by municipal/domestic use, industrial, and other purposes.

In 2015, the Philippines, along with 192 United Nations member states, committed to the Sustainable Development Goals, including achieving universal access to safe water and sanitation by 2030.

**Status of the Philippines’ Water, Sanitation, and Hygiene (WASH)**

- **2017 (baseline)**
  - Families with basic service level of drinking water: 95.9%
  - Families with access to basic sanitation: 73.6%
  - Families practicing open defecation: 5.7%

- **2022**
  - Families with basic service level of drinking water: 96.3%
  - Families with access to basic sanitation: 84%
  - Families practicing open defecation: 2.6%

- **2028 PDP Target**
  - Families with basic service level of drinking water: 97.5%
  - Families with access to basic sanitation: 98.2%
  - Families practicing open defecation: 0%

Based on the 2022 Annual Poverty Indicators Survey (APIS), 96.3% (25.9 million families) had accessible drinking water from improved sources within a 30-minute roundtrip. Yet, 2.4% (646,608 families) use unsafe sources like surface water and unprotected wells/springs.

Regarding sanitation, 84% (22.6 million families) had basic service or used improved facilities not shared with another household, while 2.6% (688,981 families) still practiced open defecation.

The NWRB has identified 21 groundwater-stressed zones and 15 water-stressed river basins due to factors like current water availability, high demand from urbanization and tourism, climate change effects on water, and water quality worries. About 27% of the Philippine population live in these areas.

**Allocated Water by Consumptive Use as of December 2022**

- Irrigation: 80%
- Industrial: 8.14%
- Municipal: 9.68%
- Other purposes: 2%

*This does not include unregulated/illegal groundwater withdrawal.

In terms of consumptive use, irrigation is the largest consumer of water at 80%, followed by municipal/domestic use, industrial, and other purposes.

In 2015, the Philippines, along with 192 United Nations member states, committed to the Sustainable Development Goals, including achieving universal access to safe water and sanitation by 2030.

**Status of the Philippines’ Water, Sanitation, and Hygiene (WASH)**

- **2017 (baseline)**
  - Families with basic service level of drinking water: 95.9%
  - Families with access to basic sanitation: 73.6%
  - Families practicing open defecation: 5.7%

- **2022**
  - Families with basic service level of drinking water: 96.3%
  - Families with access to basic sanitation: 84%
  - Families practicing open defecation: 2.6%

- **2028 PDP Target**
  - Families with basic service level of drinking water: 97.5%
  - Families with access to basic sanitation: 98.2%
  - Families practicing open defecation: 0%

Based on the 2022 Annual Poverty Indicators Survey (APIS), 96.3% (25.9 million families) had accessible drinking water from improved sources within a 30-minute roundtrip. Yet, 2.4% (646,608 families) use unsafe sources like surface water and unprotected wells/springs.

Regarding sanitation, 84% (22.6 million families) had basic service or used improved facilities not shared with another household, while 2.6% (688,981 families) still practiced open defecation.

http://legacy.senate.gov.ph/publications/sepo_publications.asp
ISSUES AND CHALLENGES

Degradation of watersheds
- Over 130 critical watersheds in the country need immediate protection and rehabilitation to minimize soil erosion and improve water yield.
- 11 of the 18 major river basins have less than 20% forest cover.

Infrastructure and investment constraints
- Investments in infrastructure have not been comprehensively planned and coordinated.
- An estimated amount of Php1.07 trillion is required to achieve universal access to water supply and sanitation (WSS) by 2030.

Inefficiency in water use
- About 25% of the water delivered by the national irrigation systems is wasted.

Low service coverage of local water districts (LWDs)
- 38% or 622 out of 1,617 non-NCR cities and municipalities lack WSS coverage. Private investment hesitates in lower-class LGUs, affecting water supply expansion; thus extending LWD coverage is vital.

39% or 343 out of the 875 formed LWDs are non-operational due to lack of sufficient water supply, incomplete water pipeline infrastructure, and the absence of a constituted Board of Directors.

Sources: PAGASA, World Bank

Climate change
- Climate change affects the frequency and intensity of El Niño episodes.
- Large rainfall variability and longer drier periods will affect the amount of water in watersheds and dams.
- The frequency of flooding is expected to increase in Luzon, while less frequent but high-intensity floods are expected in Mindanao.

Sources: PAGASA, World Bank

Water pollution
- 43% or 180 out of 421 rivers are polluted mainly due to untreated domestic sewage and industrial and agricultural wastes.
- In 2021, 56% (13 of 23) of water bodies classified for public water supply exceeded guideline values for fecal coliform.
- An average of 50,058 cases of water-borne diseases were reported annually from 2010-2019.

Sources: DENR Report to WEPA, DENR, PSA

Increasing water demand due to population growth and urbanization
- Urban population in the Philippines increased by 7.20 million in 2020.
- Total population is projected to reach 115 million by 2025.
- Under a “business-as-usual” scenario, the country is likely to experience a high degree of water shortage by 2040.

Sources: PSA, PWSSMP, World Resources Institute

Institutional fragmentation and governance gaps
- Over 30 agencies lack coordination in water roles (regulation, management, policy-making). No central body oversees the full water resource cycle.
- Scattered and limited WSS data hampers planning and monitoring, weakening the sector.
- LGUs require better technical capacity for WSS duties (irrigation, water supply, drainage, flood control) per the Local Government Code.

In April 2023, EO No. 22 established the Water Resources Management Office under DENR to unify and regulate sustainable water resource management.

Source: NEDA (PWSSMP)

POLICY OPTIONS

Balancing current and future water needs demands diverse solutions across sectors. Several Senate bills tackle water-related concerns on fragmented institutions, watershed protection, fair access, water quality, and sustainability.

Department of Water Resources
- Senate Bill Nos. (SBN) 87, 102, 1021, 1244, 1395, 2013, and 2412

Water Regulatory Commission
- SBHs 102, 1021, 1428, and 2013

Water Resources and Management Authority
- SBHs 185 and 268

Sustainable Forest Management Act
- SBHs 257, 988, and 2320

Final Forest Limits Act
- SBHs 664, 886, and 1955

Protection of Watersheds for Irrigation Act
- SBN 96

Construction of a Potable Water Supply System in Every Barangay
- SBN 310

Safe Drinking Water Act
- SBN 1048

Water Sustainability Act
- SBN 16

Rainwater Harvesting and Management
- SBHs 990, 545, 454, 128, 342, and 1687

The bills seek to streamline all water-related functions in the government and create a Department responsible for the comprehensive and integrated development and management of water resources and their optimal allocation among competing uses.

It is proposed that a regulatory body with overall authority and powers that cover all service providers, whether private or public be created. The Commission shall be tasked to promulgate and enforce just and reasonable technical standards, classifications, and measurements of service in WSS.

The bills aim to establish an Authority which shall be responsible for the comprehensive and integrated development and management of water resources of the country.

The proposed measure seeks to optimize the utilization of forest resources, including water, to support sustainable development by providing equitable access and benefit sharing to stakeholders.

The bills delineate the specific limits of forestlands and all areas within it including watersheds, freshwater and swamps, among others, for the protection, conservation, and development of forest resources.

The bill seeks to ensure the protection, conservation and rehabilitation of watersheds supporting the National Irrigation System.

The bill mandates a 3-year program by DSWD, DOH, and DPWH for the construction of potable water systems in all barangays. These agencies will prioritize problem areas, consulting LGUs and addressing water-borne diseases.

The bill requires the physical, bacteriological, chemical, and over-all examination of quality of water from existing sources every two months, amending the Sanitation Code of the Philippines. It directs water service providers to prepare water safety plans to be approved by the DOH.

This proposed measure aims to update and consolidate all existing frameworks for water management to ensure unhampered access to safe and clean sources of water and guarantee their availability for the future generations.

SBHs 990, 545, and 454 mandate rainwater harvesting facilities in Metro Manila developments; SBN 128 extends this nationwide. SBN 342 requires catchment in Metro Manila and major city barangays. SBN 1687 stipulates rainwater harvesting in homes, industries, schools, and agriculture.

http://legacy.senate.gov.ph/publications/sepo_publications.asp