NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY



Philippine Water Supply and Sanitation Master Plan

Abridged Version



Philippine Water Supply and Sanitation Master Plan Abridged Version

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Acronyms

APIS	Annual Poverty Indicators Survey	INFRACOM -SCWR	NEDA Board Committee on Infrastructure – Sub-Committee on Water Resources
BWSA	Barangay Waterworks and Sanitation Association	IPCC	Intergovernmental Panel on Climate Change
СВО	Community-Based Organization	iWASH	Integrated Safe Water, Sanitation, and Hygiene
COA	Commission on Audit	IWRM	Integrated Water Resources Management
CPC	Certificate of Public Convenience	JV	Joint Venture
DA	Department of Agriculture	KPI	Key Performance Indicator
DBM	Department of Budget and Management	KRA	Key Reform Agenda
DENR	Department of Environment and Natural Resources	LGC	Local Government Code
DILG	Department of the Interior and Local Government	LGSF-AM	Local Government Support Fund – Assistance to the Municipalities
DMA	District Metered Area	LGU	Local Government Unit
DOF	Department of Finance	LWUA	Local Water Utilities Administration
DOH	Department of Health	LSSP	Local Sustainable Sanitation Plan
DPWH	Department of Public Works and Highways	M&E	Monitoring and Evaluation
DWR	Department of Water Resources	MDG	Millennium Development Goal
EMB	Environmental Management Bureau	MFI	Microfinance Institution
EO	Executive Order	MIS	Management Information System
FIES	Family Income and Expenditure Survey	MOA	Memorandum of Agreement
GFI	Government Financial Institution	MWSS	Metropolitan Waterworks and Sewerage System
HLURB	Housing and Land Use Regulatory Board	MWSS-RO	Metropolitan Waterworks and Sewerage System – Regulatory Office
HUC	Highly Urbanized City	NCR	National Capital Region
IA	Implementing Agency	NDHS	National Demographic and Health Survey
IEC	Information, Education, and Communication	NEDA	National Economic and Development Authority
IRR	Implementing Rules and Regulations	NGO	Non-Governmental Organization

NPC	National Power Corporation	RBCO	River Basin Control Office
NRW	Non-Revenue Water	RBO	River Basin Organization
NSSMP	National Sewerage and Septage Management Program	RDC	Regional Development Council
NWMC	National Water Management Council	RWH	Rainwater Harvester
NWRB	National Water Resources Board	SALINTUBIG	Sagana at Ligtas na Tubig Para sa Lahat
O&M	Operation and Maintenance	SB	Sangguniang Bayan
OBA	Output-Based Aid	SDG	Sustainable Development Goal
OP	Office of the President	TIEZA	Tourism Infrastructure and Enterprise Zone Authority
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration	TOR	Terms of Reference
PAWD	Philippine Association of Water Districts	UN	United Nations
PD	Presidential Decree	URAF	Unified Resource Allocation Framework
PDP	Philippine Development Plan	VGF	Viability Gap Funding
PDRS	Project Development and Other Related Studies	WD	Water District
PFI	Private Financial Institution	WDM	Water Demand Management
РНО	Provincial Health Office	WMO	World Meteorological Organization
PMO	Project Management Office	WQMA	Water Quality Management Area
PNSDW	Philippine National Standards for Drinking Water	WRC	Water Regulatory Commission
PPP	Public-Private Partnership	WRI	World Resources Institute
PSA	Philippine Statistics Authority	WSP	Water Service Provider
PSC	Project Steering Committee	WSS	Water Supply and Sanitation
PSSR	Philippine Sustainable Sanitation Roadmap		
PWSSIS	Philippine Water Supply and Sanitation Information System		
PWSSMP	Philippine Water Supply and Sanitation Master Plan		
PWSSR	Philippine Water Supply Sector Roadmap		

Currency Equivalents, Units, and Measures

%	percent
CMD	cubic meters per day
km	kilometer
km²/sq. km.	square kilometer
km³	cubic kilometer
L/s/ha	liters per second per hectare
lpcd	liters per capita per day
lps	liters per second
m	meter
m³	cubic meter
m³/d/ha	cubic meters per day per hectare
m³/mo	cubic meters per month
MCM/year	million cubic meters per year
mg/L	milligrams per liter
mm	millimeter
PHP	Philippine Peso
PHP/m³	Philippine Peso per cubic meter
psi	pounds per square inch
т	ton

Part of the distribution line of the Water Supply System of the Municipality of Dalaguete, Cebu

Executive Summary

The Philippine Water Supply and Sanitation Master Plan (PWSSMP) serves as the national action plan to achieve universal access to safe, sufficient, affordable, and sustainable water supply, hygiene, and sanitation by 2030. Linked to the national water supply and sanitation (WSS) targets, the PWSSMP is grounded on the realities of every region, with insights from over 1,000 representatives across the country.

The PWSSMP defines the activities, responsible agencies, and budget necessary to support the WSS sector in addressing the needs of the country. The proposed policies, as well as economic, environmental, and engineering solutions have all factored in different levels of development to match the specific realities and requirements on the ground. These solutions also recognize that situations, conditions, and challenges vary from one community to another.

Sector Overview

The gap between available water supply and demand continues to widen in the country. Some areas are already experiencing water stress and water scarcity. The water crisis is projected to worsen by 2040 if the sector remains business as usual.

About 12.40 million people are limited to getting water from unsafe sources. Some areas do not have water service providers (WSPs). Most WSPs are not financially and technically capable of delivering the required services to a growing population, let alone expanding their coverage. In addition, only 515 or 68.9 percent of the country's 748 water districts (WDs) are operational at varying levels of efficiency and coverage.

Because of inadequate improved sanitation facilities, more than four million people are constrained to practice open defecation. An additional two million are limited to using unprotected pit latrines or buckets. These conditions expose them to higher risks of contracting foodborne and waterborne diseases. These risks result in hiah incidences of water-related diseases, such as typhoid and acute bloody diarrhea. In addition, these illnesses have economic repercussions on our people and the country.

Besides degrading the quality of life in affected localities, unhygienic circumstances also spawn poor living and working environments that exert downward pressure on economic productivity.

Climate change aggravates the sector's challenges, such as higher water demand with increasing global temperatures, rainfall variability, sea level rise, and extreme weather events, leaving the country more vulnerable to longer droughts and floods. WSS infrastructure, especially in coastal communities, is extremely susceptible to the disruptive and destructive impacts of these climate hazards.

The WSS sector remains fragmented, and the efforts of many government agencies remain uncoordinated. The lack of oversight makes the programs of the sector prone to exploitation from political factions at the expense of long-term goals and the communities' welfare.

The need for a unifying apex body for the WSS sector and the enforcement of its reforms are both urgent and imperative.

Vision and Development Outcomes

Every Filipino must have access to sustainable and affordable safe water supply as well as adequate safely managed sanitation services.

With only 87.7 percent of the population having access to safe water and 73.8 percent to basic sanitation as of 2015, achieving the sectoral goals of 95.0 percent access to safe water and 97.0 percent access to basic sanitation by 2022, and universal access to WSS services by 2030, is a challenge. The national standards set for water quality, availability, and pressure must be met.

WSS providers must focus on customeroriented business and financial models to sustain their operations. Local government units (LGUs) can enhance the well-being of their constituents with appropriate, reliable, and efficient WSS services.

Open defecation must be eliminated by 2022. Sewerage and septage management services must be available, starting with highly urbanized cities (HUCs).

Furthermore, developing reliable WSS information systems supports the initiative to unite the sector.

Priority Reforms and Investment Program

The Philippine Development Plan (PDP) 2017–2022 identifies the creation of an apex body as the key to institutionalizing reform. The PWSSMP introduces the eight key reform agenda (KRA), each designed as a cluster-type solution to complement infrastructure investments.

The eight KRA focuses on the following:

- Establishing effective WSS sector institutions;
- Strengthening the regulatory environment;
- Creating and ensuring effective WSS services;
- Balancing water supply and demand;
- Building climate resiliency;
- Enabling access to funding and financing;
- Managing data and information; and
- Driving research and development.

The implementation of the reform programs and activities in the areas mentioned above will create the enabling environment that the sector needs to achieve its target goals. The said implementation will spur infrastructure development in the WSS sector through interventions backed by robust investments, which will benefit households that do not have access to safe water and improved sanitation.

Investment Program and Financing Plan

The total budget required to achieve WSS universal access is estimated at PHP 1.07 trillion over 11 years (2020–2030). Around PHP 0.73 trillion is required to achieve the PDP targets. Another PHP 0.34 trillion is needed to achieve universal access by 2030.

These figures also include non-physical investments amounting to PHP 1.13 billion that would cover the implementation of the PWSSMP reform programs.

Implementation, Monitoring, and Evaluation Arrangements

The execution of the PWSSMP includes four phases. Phase 1 (2019), or the pre-investment phase, includes the approval and adoption of the PWSSMP and Investment Program, which will not require any investment costs. The Investment Program covers the projects in Phase 2 (2020 to 2023) and Phase 3 (2024 to 2030). Phase 4 (beyond 2030) will cover the remaining projects and activities that may be implemented beyond 2030 up to the culmination of AmBisyon Natin 2040. Implementing these projects require commitment and collaboration among agencies in the WSS sector, with a strong champion being key to coordinating all efforts. While the envisioned apex body is being considered, a project management office (PMO) can assume this role in the interim.

The Philippine WSS Information System (PWSSIS) and regional offices will monitor the progress of the infrastructure projects, while the National Economic and Development Authority (NEDA) and PMO will monitor the progress of the KRA.

Table of Contents

Acknowled	gements	V		
Acronyms .		vi		
Currency Equivalents, Units, and Measures vii				
Executive S	Summary	X 		
	intents	XII		
LIST OF 1 ADI	BS	XIII		
List of Figu	res	Xiii		
Chapter 1:	Introduction	2		
1.1	Background	2		
1.2	Strategy	4		
1.3	Principles	4		
1.4	Program Logic Model	5		
Chapter 2:	Sector Overview	6		
2.1	Background	6		
2.2	Water Resources	8		
2.3	Sector Performance	10		
2.4	Issues and Challenges	18		
Chapter 3:	Vision and Development Outcomes	20		
3.1	Vision	20		
3.2	Sector Goals and Outcomes: Benchmarks and Targets	20		
3.3	Key Performance Indicators	21		
Chapter 4:	Priority Reforms, Programs, and Activities	24		
4.1	Policy Directions	24		
4.2	Key Reform Agenda (Soft Components)	25		
4.3	Key Reform Agenda Action Plan	32		
Chapter 5:	Investment Program and Financing Plan	59		
5.1	Investment Requirements	59		
5.2	Financing Plan	61		
5.3	Plan Timeline	67		
Chapter 6:	Implementation, Monitoring, and Evaluation Arrangements	74		
6.1	General Oversight and Guidance	74		
6.2	Management and Supervision	75		
6.3	Project Execution	75		
6.4	Framework of Collaboration	76		
6.5	Mechanisms and Processes (General)	77		
Glossary a	nd Bibliography	83		

	List of Tables	Page
Table 1:	IWRM of the WSS Sector	5
Table 2:	Service Level against Classification of Source of Water	11
Table 3:	Water Service Providers Registered under Listahang Tubig (2018)	13
Table 4:	Key Performance Indicators (KPIs) of WSPs, National Average	14
Table 5:	Operating Performance of Water Districts	15
Table 6:	Sanitation Service Ladder	16
Table 7:	WSS Issues and Challenges	18
Table 8:	Sector Goals and Benchmarks	20
Table 9:	Proposed Benchmarks for the Water Supply Sector	22
Table 10	Proposed Benchmarks for the Sanitation Sector	23
Table 11	: Eight Key Reform Agenda	25
Table 12	: Total Investment Requirements from 2020–2030	59
Table 13	: Total Amount of Non-Physical Investments for 2020–2023	60
Table 14	Projects under the Priority Investment Program	68
Table 15	: Priority Investment Program	69
Table 16	Proposed Strategic Interventions for Water Supply	70
Table 17	: Scope of Works Requiring Capital Investments Required for the Water Supply Targets	70
Table 18	Proposed Strategic Interventions for Sanitation	71
Table 19	Management and Supervision for PWSSMP Implementation	75

List of Figures

Page

Figure 1: WSS Targets for 2020, 2022, and 2030	2
Figure 2: IWRM Principles Adopted in the PWSSMP Framework	4
Figure 3: Program Logic Model	5
Figure 4: Water Resources Potential by Administrative Region	7
Figure 5: Total Water Resources Potential	8
Figure 6: Water Availability per Capita per Annum (Using 2015 Values for Population)	9
Figure 7: Main Source of Water Supply of the Population (2015 FIES, PSA)	10
Figure 8: Levels of Service in Terms of Percentage by Region (2015 FIES)	11
Figure 9: Proxy Value of Data for Safe and Accessible Drinking Water Using Available Secondary Data	12
Figure 10: Access to Safe and Accessible Drinking Water per NDHS	12
Figure 11: Components of Sanitation Infrastructure	16
Figure 12: Access to Basic Sanitation Data from Available Sources	17
Figure 13: PWSSMP Results Framework Diagram	25
Figure 14: Breakdown of Water Supply Investments, 2020–2023	61
Figure 15: Grant Allocation for Water Supply Projects	62
Figure 16: Financing Plan for Water Supply Sector Investments (in PHP Billion), 2020–2023	63
Figure 17: Flow of Funds for Water Supply Investments (in PHP Billion) 2020–2023	63
Figure 18: Breakdown of Sanitation Investments, 2020–2023	64
Figure 19: Grant Allocation for Sanitation Projects	65
Figure 20: Funding and Financing Allocation for Sanitation Projects (in PHP Billion)	66
Figure 21: Proposed Flow of Applications for Financing Sanitation Projects	66
Figure 22: Proposed Flow of Funds for Sanitation Projects (in PHP Billion)	67

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Introduction

"The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of + other human rights."¹

1.1 Background

The Philippine Water Supply and Sanitation Master Plan (PWSSMP) is a national action plan that seeks to enable the government and its partners in the private sector to achieve universal access to water supply and sanitation (WSS) from 2019 to 2030.

The PWSSMP sets the direction towards achieving the WSS-related targets stipulated in the Clean Water Act of 2004, Philippine Development Plan (PDP) 2017– 2022, and the United Nations (UN) Sustainable Development Goals (SDG). Figure 1 presents the sector targets and the prescribed period for target completion.

In setting the direction towards achieving the WSS targets, the PWSSMP:

- Proposes strategies and policy reforms based on current and potential issues (see Chapter 4);
- Identifies priority short-, medium-, and long-term programs and projects (see Chapter 5);

- Combines the investment for the Philippine Water Supply Sector Roadmap (PWSSR) and the Philippine Sustainable Sanitation Roadmap (PSSR) into one comprehensive plan (see Chapter 5); and
- Formulates a monitoring and evaluation (M&E) system (see Chapter 6).

This document is **the abridged version of the PWSSMP** that presents a summary and the salient points of the Plan.

The original version includes the following:

- Detailed financing plan and investment program;
- Seventeen regional roadmaps: regionspecific data, targets, and proposed projects;
- PWSSMP data book: maps showing the existing major WSS infrastructure; and

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WSS database management system.



¹ General Comment No. 15 on the Right to Water, 2002, UN Committee on Economic, Social, and Cultural Rights (UN

CESCR)



1.2 Strategy

The overall strategy of the PWSSMP is to establish a living plan that is comprehensive, participatory, and operational.

1.3 Principles

Access to water and sanitation is a human right.

The PWSSMP affirms the UN declaration of the human right to water. In addition, the Philippine Constitution emphasizes that "The State values the dignity of every human person and guarantees full respect for human rights."² The three main actors in the human rights-based approach are the following:

- Local government units (LGUs) and water districts (WDs) as duty bearers (as water service providers [WSPs] or regulators): Create conditions for the realization of all human rights for all, especially the most vulnerable, by providing goods, services, institutions, and resources based on human rights standards, norms, and principles;
- Water users as claimholders: Exercise rights responsibly and claim entitlements to goods, services, institutions, and resources necessary for quality of life consistent with humanity and dignity; and



 Economic, social, and political interest groups or power blocs as other actors: Influence claimholders and duty bearers.

The WSS sector must follow the Integrated Water Resources Management (IWRM) principle.

The PWSSMP uses the IWRM principle for a comprehensive and integrated approach in describing the sector and addressing the gaps towards ultimately achieving the national targets and commitments. As such, the following interlinked systems have been considered:

- Natural Resources System (NRS), which is governed by the climatic and physical conditions of the Philippines affecting its water resources, and considers the country's water resources regions;
- Socioeconomic System (SES), which is defined by the demographic, social, and economic conditions that determine the demand for WSS; and
- Administrative and Institutional Systems (AIS) which are formed and bound by the constitutional, legal, and political systems governing WSS in the country.

The interface and interaction of the three systems that define the multifaceted nature of the WSS sector have been considered:

- Use of and impact on water: reflected by balancing the supply (natural resources system) and demand (socioeconomic systems), as well as the impact of the use and improper management of wastewater;
- WSS infrastructure: reflected by the responses of the administrative and institutional systems to properly and sustainably address WSS sector gaps; and
- Policies, **Regulations**, and Management: established and promulgated by administrative and institutional systems to promote the sustainable of limited water use resources.

² Article 2, Section 11 of the 1987 Philippine Constitution

Figure 2: IWRM Principles Adopted in the PWSSMP Framework

WSS Framework

The WSS Sector Assessment was undertaken and validated at the regional consultation workshops, which led to the development of the PWSSMP Framework (as shown in Figure 2).

To achieve the WSS national targets and commitments, the vision statement underscores sustainable and affordable safe water supply as well as adequate safely managed sanitation services for all.

Table 4: IMDM of the MCC Coster

The objective statements of each system and interface relative to IWRM principles are presented in Table 1.

1.4 Program Logic Model

The Program Logic Model (see Figure 3) sets the direction towards achieving its sectoral objectives by addressing the issues and challenges of each component of the WSS sector, ultimately contributing to AmBisyon Natin 2040.

Components of the WSS Sector	Objective Statements
Natural Resources System	Efficient management of finite water resources and water ecosystems
Socioeconomic System	Promoting socioeconomic growth through WSS
Administrative and Institutional Systems	Enabling administrative and institutional arrangements
Use of and Impact on Water	Responsible use and balanced demand and supply
WSS Infrastructure	Sufficient, responsive, and sustainable WSS infrastructure and services
Policies, Regulation, and Management	Setting WSS-related policies, regulations, and management in place



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Sector Overview

2.1 Background

The Philippine WSS sector has a myriad of challenges to overcome before it can fulfill its obligation to assure every Filipino of adequate and affordable WSS services.

As shown by official government data below, the sector is still a long way from achieving the level of development and efficiency necessary to bridge existing gaps and address weaknesses in water supply and demand management.

The following facts, circa 2015, are as revealing as they are instructive:

- Despite the country's abundant water resources, it has experienced water stress³ with overall water availability per capita per year of 1,446 cubic meters;
- Approximately 87.7 percent of the national population have access to safe water supply, while 12.3 percent (12.40 million people) do not;
- Less than 50.0 percent of the country's total number of households have piped water in their premises, with some still getting unsafe water from the tap;
- Approximately 332 municipalities are considered waterless, which means more than half of their residents do not have access to safe water;
- Approximately 73.8 percent of households have access to on-site or offsite water treatment facilities; and
- More than four million people do not have access to toilet facilities and are constrained to resort to open defecation.

A realistic estimate of the currently available freshwater that can serve the growing population cannot be determined until an updated comprehensive assessment and inventory of the country's water resources is conducted.

Furthermore, water supply is unevenly distributed across the archipelago on account of rainfall variability as well as the size and features of each island. Available supply cannot cope with the demand for clean water of the country's rapidly increasing population, migration, and economic growth.

In addition to the challenge of providing safe and adequate water supply, surface water and groundwater in some areas are contaminated because of open defecation and improper management and disposal of human excreta and blackwater.

Weak or inadequate operation and maintenance (O&M) practices also expose piped systems to contamination through illegal tapping and pipe leaks. Unhealthy sanitation and hygiene practices expose communities to waterborne diseases.

The Philippine WSS sector is fragmented, owing mainly to the weak cooperation among different agencies and LGUs in regard to WSS programs, activities, and projects. Investments in infrastructure and capacity-building have not been comprehensively planned and coordinated.

The National Economic and Development Authority (NEDA) is creating a unifying framework for planning, implementation, and funding in the WSS sector.

³ UN Water considers an area is experiencing water stress when annual water supplies drop below 1,700 m³ per person. The values for water availability per capita per year cover domestic water supply and water uses for other sectors (e.g., agricultural, industrial, commercial, power).

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2.2 Water Resources

2.2.1 Climate and Rainfall

The climate in the Philippines is tropical and monsoonal with an average temperature of 27° C throughout the year. The humidity is relatively high and is generally above 70.0 percent all year round.

The country's climate is classified into four types⁵ which are based on rainfall variability, the influence of the country's topography, and air stream direction.

Rainfall in the country ranges from 1,000 to 4,000 mm per year with an average of 2,400 mm. Of this number, 1,000 to 2,000 mm are collected as runoff by more than 421 principal river basins, 59 natural lakes, and numerous small streams.

2.2.2 Water Resources Potential

The country has a total water resources potential of 145,990 MCM/year. This sum considers the total surface water potential of 125,790 MCM/year (taken at 80.0 percent dependability) and the total groundwater potential of 20,200 MCM/year (see Figure 5).

Figure 4 shows the country's water resources potential per administrative region.

⁵ Type I – Two pronounced seasons: dry from November to April and wet the rest of the year

Type II – No dry season with a very pronounced maximum rainfall from November to April and wet the rest of the year

Type III – Seasons not very pronounced: relatively dry from November to April and wet the rest of the year

Type IV – Rainfall more or less evenly distributed throughout the year ⁶ Managing Water Report under Uncertainty and Risk, UN World Water Development Report 4 (Volume 1)

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Figure 5: Total Water Resources Potential

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2.2.3 Water Use

Based on awarded water permits by the National Water Resources Board (NWRB), water use was recorded at approximately 212,800 MCM annually as of 2017. Approximately 130,500 MCM (61.3 percent of the total) are allocated for power generation and are categorized as non-consumptive use, along with approximately 350 MCM allocation for recreational use. The remaining 82,000 MCM are reserved for consumptive use.

For comparison, the irrigation sector is the greatest consumer of water among all the sectors (at 76.0 percent allocation). The domestic or municipal sector consumes only 8.0 percent.

2.2.4 Water Availability, Water Stress, and Water Scarcity

Hydrologists typically assess scarcity by looking at the population-water equation. Per UN Water, "An area is experiencing water stress when annual water supplies drop below 1,700 m³ per person. When annual water supplies drop below 1,000 m³ per person, the population faces water scarcity, and below 500 m³, 'absolute scarcity."⁶

Figure 6 shows the water availability per capita per year by region and highlights the level of water availability, stress, and scarcity. Based on the country's population in 2015, its average water availability was only 1,446 m³ per capita per year nationwide. This indicates that the country is experiencing water stress.

The values for water availability per capita per year cover domestic water supply and water consumed by other sectors (e.g., agricultural, industrial, commercial, and power).

Climate change, economic development, urbanization, and population growth will affect future water availability in the country. A study by the World Resources Institute (WRI) has predicted that the Philippines will experience a high degree of water shortage by 2040 under a "business-as-usual" scenario (Luo, Young, and Reig, 2015).

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2.2.5 Climate Risks and Geological Hazards

The country is often battered by various climate hazards (induced by rainfall variability, increasing temperature, and sea level rise). In recent decades, it has experienced extreme weather conditions, such as temperatures above 35°C, more intense rainfalls, and typhoons stronger than the 30-year average of an area.

The Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) has predicted that there will generally be an increase in rainfall by 2020 and 2050. The same models project an increased peak rainfall during the wet season and longer dry conditions during the dry season. However, some parts of the country show decreasing total rainfall. This rainfall variability translates directly into changes in water supply dynamics.

Changing rainfall patterns could mean lower flows, resulting in water shortages. Intense rainfall may not replenish the groundwater as much as when rainfall is spread evenly across the year. A lower than average or prolonged dry days during the dry months may affect soil porosity and vegetation, which leads to reduced soil infiltration and aroundwater recharge. lower Higher temperatures will increase evapotranspiration and cause longer and more intense droughts. Extreme rainfall induces surface runoffs that could trigger landslides.

The World Meteorological Organization (WMO) recorded the highest sea level rise (three times the global average) over the last century in the Philippines in 2015. The rising sea levels can contaminate freshwater sources and damage water-related infrastructure in the coastal areas.

2.3 Sector Performance

2.3.1 Water Supply

Access by Source and Levels of Service

The 2015 Family Income and Expenditure Survey (FIES) conducted by the Philippine Statistics Authority (PSA) reported that only 87.7 percent of the population⁷ had access to water sources classified as safe. The rest of the population (12.3 percent) drew water from unsafe sources such as dug wells, lakes, peddlers, rain, and unprotected springs, rivers, and streams. Figure 7 illustrates the distribution of the main sources of water by the percentage of the population.

Water supply can also be classified according to the level of service. NEDA defines these as follows:⁸

- Level I (point source): This service level provides a protected well or a developed spring with an outlet but without a distribution system. Hence, the users fetch water from the nearest source. Rural areas (where houses are thinly scattered) are generally adaptable to Level I sources. These sources serve an average of 15 households within a radius of 250 meters.
- Level II (communal faucet system or standpost): This refers to a piped system



 ⁷ n=22,730 households
 ⁸ NEDA Board Resolution No. 12, Series of 1995 whose components include a source, a reservoir, a piped distribution network, and communal faucets. Each communal or public faucet usually serves four to six households within a radius of 25 meters. Users still go to the supply point (communal faucet) to fetch water. This simple piped system is generally suitable for rural and urban fringe areas where houses are densely clustered.

 Level III (waterworks system): This system includes a source, a reservoir, a piped distribution network, and individual household taps. It is generally suited for densely populated urban areas where the population can afford individual connections. Table 2 provides a matrix of the service level compared with the classification of sources of water (i.e., whether safe or unsafe sources) according to the PSA.

Approximately 43.6 percent of the population is provided with water service from Level III systems, 11.2 percent from Level II systems, and 45.2 percent from Level I systems. Figure 8 shows the population served according to the levels of service by region in 2015.

Service Level	Source of Water	Classification (Safe/Unsafe)
Level III	Own faucet community water system	Sofo ocuroo
	Own tube/piped deep well	Sale source
Level II	Shared faucet community water system	
	Shared tube/piped deep well	Safe source
	Piped shallow well	
Level I	Protected spring, river, stream, etc.	
	Unprotected spring, river, stream, etc.	
	Dug well	
	Lake, river, rain, and others	Unsale source
	Peddler	
	Other sources	

Table 2: Service	Level against	Classification	of Source of Water



Figure 8: Levels of Service in Terms of Percentage by Region (2015 FIES)

Access to Drinking Water

Access to safe and affordable drinking water is one of the indicators stressed in the SDGs. At the time of the preparation of this document, the country has no instrument by which data on access to safe drinking water nationwide can be generated. The closest equivalent of such data is the PSA's National Demographic and Health Survey (NDHS).

The 2013 NDHS classifies sources of drinking water as improved and unimproved. However, this classification does not measure the water quality, noting that water from improved sources may be contaminated while in transit and in storage. The report also indicated the percentage of the sample using an appropriate treatment method (e.g., boiling, bleaching, filtering, and solar disinfection).

The NDHS measures the time spent to obtain water, but there is no available data on the accessibility of drinking water. The time spent to obtain water, however, may be related to the accessibility of water users to the source. Per the findings of the NDHS and responses of the respondents, a proxy value for safe and accessible drinking water may be derived using the following assumptions (see also Figure 9):

- Bottled water is considered safe and does not need any treatment.
- Respondents whose water source is bottled water need not treat their drinking water.
- An appropriate treatment method is sufficient to make water safe for drinking.
- The percentage of respondents doing appropriate treatment methods includes those whose drinking water does not include bottled water.
- It is considered accessible when water is drawn from a source available in the premises or if fetching water takes less than 30 minutes.

Figure 10 plots the data on safe and accessible drinking water gathered from NDHS.







⁹ Safe water percentage is based on access to improved sources. Accessible water is based on percentage of households with water in premises and those that spend less than 30 minutes (roundtrip) in obtaining water.

By Type of Service Providers

The NWRB created a national water survey of all WSPs called Listahang Tubig.¹⁰ The survey provides data on the levels of service by management type. As of December 2018, a total of 24,821 WSPs have been registered in its database (see Table 3).

Table 3: Water Service Providers Registered under Listahang Tubig (2018)

Management Type	No.	Percentage	Level I	Level II	Level III
Barangay Waterworks and Sanitation Association (BWSA)	6,620	26.7%	2,980	2,498	1,142
Rural Waterworks and Sanitation Association (RWSA)	1,418	5.7%	62	619	737
Cooperative	403	1.6%	46	90	267
Unnamed WSPs	7,878	31.7%	7,486	303	89
LGU-Run Utility	4,184	16.9%	1,147	1,608	1,429
Water District	634	2.6%	19	4	611
Homeowners' Association	377	1.5%	168	77	132
Real Estate Developer	107	0.4%	8	8	91
Industrial Locator	45	0.2%	3	3	39
Peddler	211	0.8%	108	80	23
Ship Chandler	4	0.0%	1	2	1
Private Operator	1,779	7.2%	711	268	800
Refilling Station	1,161	4.7%	1,122	24	15
Grand Total	24,821	100%	13,861	5,584	5,376

¹⁰ can be accessed through http:// listahangtubig.cloudapp .net/

Technical and Operating Performance

The Listahang Tubig summarizes the operational data of WSPs registered in the database. Some WSPs do not upload their

data annually, and not all information are provided. Only data as of 2013 are nearly complete (Table 4). The collated data provide benchmarks for service, efficiency, and financial indicators.

Table 4: Key Performance Indicators (KPIs) of WSPs, National Average

Areas	KPI	Description	National Average
Service Indicators	Service coverage	This measures the percentage of the population in a service area covered by a WSP. It also indicates a service area's possible expansion or saturation.	27.0 percent
	Consumption per capita	This measures the average consumption per person per day. It indicates if a WSP is able to meet the water needs of a user.	98 lpcd
	Average consumption per month	This refers to the national average water consumption per month of a household.	14 m ³ / month
	Average tariff	This is the resulting average tariff computed by the WSP and total water sales divided by total billed volume.	PHP 18.00/m ³
	Service hours per day	This is the average number of hours a WSP operates per day.	19 hours/ day
Efficiency Indicators	Non-revenue water (NRW)	The NWRB mandates that the percentage of NRW should not exceed 25.0 percent.	22.0 percent
	Average production cost	This refers to the per cubic meter production cost of water.	PHP 13.00/m ³
	Operating ratio, before depreciation and interest	This measures the proportion of expenses to revenues. The ideal values are less than 0.70.	1.00
	Staff employees per 1,000 connections	This measures efficiency in utilization of personnel and if WSPs are appropriately staffed as compared to other WSPs of comparable size.	40
	Collection period	This measures the number of days within which to collect receivables. The benchmarking average is 1.7 months.	2 months
	Connections per staff ratio	This measures the average number of customers served per employee.	80
Financial Indicators	Current ratio	This measures the capacity to pay current liabilities from current assets. The NWRB's acceptable value is 2.00.	9.19
	Return on assets or return on investments	This measures the capacity of each peso to generate profits. The NWRB's threshold is 12 percent.	6.0 percent
	Return on equity	This measures the amount of profits generated by each peso invested by owners. The threshold provided by private financial institutions (PFIs) is 8.0 percent.	20.0 percent
	Debt service ratio	This determines a WSP's ability to generate enough income in its operations to cover payment of its debt. This ratio also indicates its ability to pay its loans. The threshold given by PFIs is 1.2.	2.66

Water Districts

Based on 2016 data, the country has 748 active WDs, of which 515 (68.9 percent) are operational and 233 (31.1 percent) are non-operational.

WDs operate and maintain their water supply systems and submit financial reports and monthly data sheets to the Local Water Utilities Administration (LWUA), who then reviews and imposes tariffs based on these documents.

In addition, the WDs' performance is measured by a set of KPIs with respect to marketing, efficiency, profitability, and cost-Their performance effectiveness. is monitored WD through the Industrv 2015, the World Bank Average. In conducted a study to assess the operating and financial performance of 45 sample WDs. The findings are shown in Table 5.

LGU-Run Utilities

A study¹¹ in 2013 found that LGU-run utilities typically encountered technical and management challenges related to operations.

LGU-run utilities report an average of 19 hours of water availability per day. Production is not measured, and the absence of commercial protocols is quite prevalent. For example, accounts are not ring-fenced, connections are not metered, collection efficiency is low, and the number of staff employees per 1,000 connections is only around 34. Only 21.0 percent of these sample LGU-run utilities reported water potability tests.

The capacity-building system of LGU-run utilities has not been established. Because

LGU-run utilities often do not have staff members with the required skill set, regular training of trainers and participants is necessary.

Metropolitan Waterworks and Sewerage System (MWSS) Concessionaires

MWSS concessionaires cover WSS services in the National Capital Region (NCR) and parts of Region III and IV-A. The Manila Water Company, Inc. handles the East Zone concession, and Maynilad Water Services, Inc. handles the West Zone concession. These two concessionaires service around 17,276,280 people, or 93.2 percent of Mega Manila's population according to the 2015 census.

Privately-Owned and Managed Water Utilities

Most water privatization contracts outside Mega Manila are between LGUs and large companies. However, some small-scale, often informal, local operators provide services to a city or a municipality. In addition to Manila Water and Maynilad, other big private operators include Prime Water and Balibago Waterworks. There is no accessible financial and technical information, however, on the WSPs they operate.

These private utilities generally operate more efficiently than most LGU-run water utilities, given their stronger capital base and ability to recover their operating costs from tariffs.

Category, Connections	Sample WDs	Category, Connections	Sample WDs
No. of Samples	45	Collection Efficiency	91.0%
Percentage of Population Served	54.0%	Current Ratio	5.00
Active Service Connection per Employee	238	Debt Service Ratio	6.30
Operating Ratio	80.0%	Debt to Equity Ratio	40.0%
NRW	25.0%	Net Income Margin	19.0%
Average Collection Period	39 days		

 Table 5: Operating Performance of Water Districts

¹¹ De Vera, Antonio et al., Developing the Institutional Framework for the WSS sector and Identifying Investment Plans and Programs – Final Report

Source: MWSS, World Bank, 2015

2.3.2 Sanitation

The SDGs, which have evolved from the Millennium Development Goals (MDGs), have expanded the definition of the term *access to sanitation*.

MDGs simply involved access to basic sanitation or the availability of sanitary toilets. On the other hand, SDGs have qualified "access" by designating sanitary toilets as either *safely managed*, *limited*, or *unimproved*.

Figure 11 illustrates the components of sanitation infrastructure. The SDGs define adequate and equitable sanitation to include collection, treatment, and disposal or reuse.

Sanitation service has three data attributes:

- Facility refers to the structure or infrastructure for the sanitation service;
- Usage refers to the availability of the facility for households; and
- Management refers to the proper disposal of excreta (i.e., on-site or transported and treated in an off-site facility).

Basic sanitation refers to a level of service where the sanitation facility is private (not shared with other households) and where the excreta are separated from human contact (e.g., using a toilet fixture). However, the excreta may or may not be safely managed (e.g., with or without a septic tank). Table 6 below tabulates the service ladder of sanitation against its three data attributes.

Table 6: Sanitation Service Ladder

		Service Ladder					
		No Service	Unimproved Sanitation	Limited Sanitation	Basic Sanitation	Safely Managed Sanitation	
Description/Definition		Open Defecation*	Use of pit latrines without slabs or platforms, hanging latrines or bucket latrines	Use of improved facilities** shared between two or more households	Use of improved facilities which are not shared with other households	Use of improved facilities which are not shared with other households and where excreta are safely disposed of on-site or transported and treated off-site	
Attributes	With toilet/ latrine facility	No	Yes	Yes	Yes	Yes	
	Usage (private/ shared)	N/A	Maybe private or shared	Shared	Private (not shared)	Private (not shared)	
	Management***	N/A	No	Maybe	Maybe	Yes	

*Open defecation refers to the disposal of human feces in fields, forests, bushes, open bodies of water, beaches, and other open spaces or with solid waste.

** Improved facilities include flush or pour-flush toilets, piped sewer systems, septic tanks or pit latrines, ventilated improved pit latrines, composting toilets, and pit latrines with slabs.

***Excreta are safely disposed of on-site or transported and treated in an off-site facility.



¹² Base diagram is taken from Philippine Sanitation Sourcebook and Decision Aid. PSA provides data on basic sanitation in the following surveys and reports:

- Annual Poverty Indicators Survey (APIS): A part of the survey is determining the type of toilet facility the family is using (e.g., own toilet, shared toilet, close pit, open pit);
- 2015 FIES: The report includes the number of households with electricity, main sources of water supply, and toilet facilities by income decile;
- NDHS; and
- Philippine Census.

The availability, values, and trend of access to basic sanitation data over the past 14 years are shown in Figure 12.

Septage and Sewerage Services

Households and communities are responsible for constructing their own toilets and septic tanks in compliance with the National Building Code. For sanitary toilets and on-site treatment systems to be considered safely managed, wastewater and septage (sludge content of the septic tanks) from these systems should be treated and disposed of properly.

These on-site systems must be maintained by a service provider offering sanitation service (which includes desludging or emptying of septic tanks) and sewerage service, sometimes collectively referred to as wastewater or fecal sludge management service. This service includes collection or conveyance, on-site or off-site treatment, and final disposal of wastewater, fecal sludge, or septage.

Outside Mega Manila, sanitation service providers are principally comprised of WDs, LGU-run water utilities, private sector service providers, and cooperative-run service providers. Private service providers are known for their famous monikers— *Malabanan* and *Pozo Negro*. Their services are generally part of a private business enterprise. However, some of these private desludgers do not have their own treatment facilities or access thereto.

As of writing, there has been no known survey of sanitation service providers outside Mega Manila. Unofficial data shows that there are about 36 septage treatment facilities constructed all over the country at various stages of operation. LGUs offer some sanitation services, but most are by WDs.

As of 2015, only around 17.0 percent¹³ and 12.0 percent¹⁴ of the country's population had access¹⁵ to septage collection and sewerage system services, respectively. Those that are connected to and serviced by these providers are fewer at an estimated 3.0 percent¹⁶ of the population.



Figure 12: Access to Basic Sanitation Data from Available Sources

¹³ PWSSMP Inventory, MWSS Data ¹⁴ Ibid. ¹⁵ For septage and sewerage systems, access is defined as having a service available to users. A household is considered to have access if it is within the franchise or coverage areas of existing sanitation systems and can connect to and tap into them This number may be different from the number of those that are actually connected or have actually tapped into the systems. ¹⁶ MWSS Regulatory Office (MWSS-RO) Evaluation of Concessionaires' 2017 KPI and Business Efficiency Measures (BEMs) Report

2.4 Issues and Challenges

This master plan summarizes the most important issues and challenges faced by the WSS sector per component.

	-
Components of WSS Sector and Their Objective Statements	Issues and Challenges Water Supply Sanitation
Natural Resources	 Some potential water sources are polluted or contaminated.
Efficiently Managed	 Water sources are insufficient in some areas. Other sources are drying up because of over- extraction or sensitivity to weather patterns and climate change.
Resources and Water Ecosystem	 Assuming business as usual, the country will have experienced high water stress due to high total water withdrawal against projected renewable water resources by 2040.
	 Rainfall variability and extreme weather events (usually attributed to climate change) make water resource management more difficult.
	 Excessive groundwater extraction has led to saltwater intrusion and groundwater-related subsidence.
Socioeconomic System	 Increasing population and economic growth increase the demand for water and the generation of waste and wastewater.
WSS Promoting	 Rising temperature (due to climate change) will increase water usage.
Growth	Climate change increases the risk of waterborne diseases and transmission of malaria.
Use of and Impact on Water	 The quality of water resources is deteriorating because of unmanaged wastewater entering the water ecosystem.
Responsible Use and Balanced	 There is a lack of awareness and concern about the effects of unmanaged waste and wastewater on watersheds, water sources, and water ecosystems.
Supply	 There is a lack of appropriate technologies, or the application thereof, to optimize the use of water resources.
	 There is no clear policy promoting water demand management (WDM) to maximize available water supply. This includes water efficiency and water conservation for all users, the use of the right quality of water for its intended use, the use of economic instruments and other incentives/ disincentives to effect behavioral change.
Administrative and Institutional System	 There is no single body focused on WSS, resulting in a fragmented sector with multiple water institutions and no clearly defined institutional roles with respect to sanitation issues.
Enabling Administrative and Institutional Arrangements	 There is no apex body to oversee the whole cycle with respect to the use of the country's water resources – from the source, to the quantity and manner to which water is used, to sanitation and treatment, and ultimately, back to the source. Also, the absence of river basin organizations (RBOs) makes it impossible to carry out a holistic planning approach.
-	 NWRB does not have the appropriate institutional structure to complement its mandate as a policy- making body, water resource regulator, and economic regulator.¹⁷
	 WSS data gathered by the PSA are limited.
	 LGUs lack the capacity and capability to perform their obligation of ensuring WSS services per the Local Government Code (LGC).¹⁸

Table 7: WSS Issues and Challenges

¹⁷The regulatory stick of NWRB is not exercised when financing from their institution is unavailable.

¹⁸ LGUs that run water utilities often lack the technical and financial capacity to operate, maintain, and expand their services. Furthermore, in some LGUs, WSS is not a priority.

Table 7 (continued): WSS Issues and Challenges

Components of WSS Sector and Their Objective Statements	Issues and Challenges Water Supply Sanitation
Policies,	 The sector's economic regulatory framework is severely fragmented,¹⁹ poorly enforced, and has low²⁰ coverage. Also, there is no regulatory oversight on Joint Venture (JV) arrangements.
Management	 Poor enforcement of and compliance with policies and laws (i.e., Clean Water Act, and other resource-, economic-, environment-related policies) can be observed.
WSS-related Policies, Regulations, and	 The sector lacks an independent water agency with the power to grant and revoke licenses, as well as the authority to set standards and targets for private and public WSPs.
Management	 WSS data and information used for decision making are limited, scattered among the different government agencies/offices that have water-related functions, and poorly managed and monitored.²¹
	 Implementation, monitoring, and management of WSS services and infrastructure are lacking.²²
	 There have been no directives or strategies to translate PDP/SDG targets and commitments into local programs and projects.
	 Issuance of water rights is not regulated. In addition, speculators hoard water permits.
	 Sanitation interventions are inadequate, not sustainable, and unbalanced in terms of implementation.²³
	 There are WSPs with inadequate management and O&M capability.²⁴
	 Water rates are too low in some areas, thus yielding no cost recovery.
	 Access to potential technologies is restrictive.²⁵
	 Water is being used as a political commodity. Arising conflicts between some LGUs and WDs affect the interest of water consumers.
	 Investments in WSS sector are insufficient.
WSS Infrastructure and	 Water supply systems (or structures) are not properly designed²⁶, constructed, operated, and maintained.
Resilient,	• There is a lack of water supply structures to optimize available resources, ²⁷ ensure water quality and sanitation, ²⁸ or provide access to water. ²⁹
Responsive, and Sustainable WSS Infrastructure and Services	 Funds are inadequate³⁰ or there is difficulty³¹ in accessing funds, yet there are programs and projects (National Sewerage and Septage Management Program [NSSMP], LWUA WD Development Sector Project) with very few takers.
	 Some WSPs are not operational and sustainable.³²
	 Some WSPs, including WDs and LGU-run utilities, fail to serve barangays within their franchise area and meet water supply and service delivery standards³³
	 Some WSPs are unfamiliar with new technologies and updated techniques.

¹⁹ Several economic regulatory agencies were formed to oversee the water sector, thus making them very inefficient with respect to their regulatory functions.

²⁰ Only 27.0 percent of the country's piped water utilities (mostly WDs and private utilities) are subject to economic regulation, leaving 73.0 percent without any standard guidelines for tariff setting or oversight on performance.

²¹ Issues on WSS data collection and management include, but are not limited to: (a) lack of an information and monitoring system on access and coverage; (b), lack of baseline data on WSS; (c) inadequate sector data that can guide policy and investment decision makers; (d), unavailability of current/ up-to-date water resources data; (e) very limited data on water quality and sanitation; and, (f) outdated data of most WSPs registered under NWRB's Listahang Tubig.

²² Monitoring of water quality and sanitary facilities is minimal or rarely done. There are no nationwide programs established b implement and monitor wastewater/fecal sludge collection and treatment tied to water pollution control. A lack of comprehensive and participatory planning at a local level, and a lack of proper community engagement can also be observed.

²³ The government has failed to invest on a scaled-up, sustained, and well-coordinated campaign that is deployed at the national and the local levels. Sanitation policies and programs are lopsided, i.e., emphasis is placed on the responsibility of WSPs but not on the participation of the public and sanctions for noncompliance.

²⁴ There is a lack of capacity with respect to O&M and WS improvement planning, and fundamentals on tariff-setting among some WSPs. Some LGU-run utilities, in particular, cannot increase rates and thus, are subsidized. To some extent, unqualified board members are appointed to head many WDs.

²⁵ Potential technologies entail many requirements and conditions, thus making such technologies expensive or difficult to adopt

²⁶ WSS infrastructure is not resilient to climate change and climate hazards. Furthermore, proper and comprehensive studies on intended water sources are not conducted before structures and conveyance pipes are constructed. Many (relatively) newly constructed water supply systems (mostly in rural areas) do not or poorly operate because water sources are not enough.

²⁷ Potential water sources may be located very far from communities and are expensive to develop.

²⁸ There is a lack of water laboratories and septage facilities in far-flung areas.

²⁹ Most surface water sources require high dams, tunnels, and long conveyance lines. Elevated communities have no access to water supply when a water source is located in a lower area. Water has to be transported to island communities that have limited or no potential water resources.

19

³⁰ National funds are inadequate for the maintenance, rehabilitation, and expansion of water systems.

³¹ Smaller and less or non-creditworthy WDs and LGU-run utilities find it difficult to comply with the stringent requirements to access funds and financing. ³² WSPs are not operated as business enterprises. There are WSPs with high NRW (e.g., 60.0 percent or more).

³³ Some WSPs need to address consumer-related issues such as unsatisfactory service, limited coverage of franchise areas, and inefficient water supply delivery.



Vision and **B** Vision and Development Outcomes

3.1 Vision

"All Filipinos have access to sustainable and affordable safe water supply, and to adequate safely managed sanitation services by 2030."

3.2 Sector Goals and Outcomes: Benchmarks and Targets

The PWSSMP's vision is set on the universal access to WSS services by 2030. It is in accordance with the direction towards achieving the PDP targets by 2022. Table 8 details the sector goals and targets per the SDG, PDP, and Clean Water Act of 2004.

Hierarchy of Objectives	National Targets and Commitments	Baseline	Source of Data
Goal	Universal (100.0 percent) and equitable access to safe and affordable drinking water by 2030	92.0 percent	NDHS, 2017
	Universal access to adequate and equitable sanitation by 2030	69.0 percent	NDHS, 2017
Outcomes	Increase to 95.0 percent in the percentage of households with access to safe water supply by 2022	88.0 percent	FIES, 2015
	Increase to 97.0 percent in the percentage of households with access to basic sanitation by 2022	74.0 percent	FIES, 2015
	By 2020, all LGUs (1,634) will have developed septage management systems.	3.0 percent (52 of 1,634)	PWSSMP Inventory
	By 2020, the 17 highly urbanized cities (HUCs) will have developed sewerage systems.	6.0 percent (1 of 17)	PWSSMP Inventory
	By 2020, approximately 43.60 million people will have had access to septage treatment facilities	41.0 percent (17.93 of 43.60 million)	PWSSMP Inventory
	By 2020, approximately 3.20 million people will have had access to sewerage treatment facilities.	24.7 percent (3.20 of 12.98 million)	PWSSMP Inventory
	By 2020, PHP 26.30 billion will have been invested in sanitation improvement projects.	No data available	
	By 2020, approximately 346 million kilograms of BOD will have been diverted from the environment per year as a result of the sewerage and septage management projects.	No data available	

Table 8: Sector Goals and Benchmarks
3.3 Key Performance Indicators

The normative content of the human right to WSS guides the assessment of the minimum baseline requirements for providing WSS services to the populace. The said content is divided into five categories:

- availability;
- physical accessibility;
- quality/safety;
- affordability; and
- acceptability.

Aside from ensuring that access targets are met, it is equally important that the quality and sustainability thereof are maintained.

With regard to water supply, the following standards must be met:

- Water quality meets the requirements set by the Philippine National Standards for Drinking Water (PNSDW) as updated and stipulated in Department of Health (DOH) Administrative Order No. 2017-0010;
- Water must be reliable and available 24 hours a day; water pressure (for Level III connections) must not be less than 7 m. However, in most small WSPs, economic reasons prevent 24-hour daily water service. Availability depends on system pressures (e.g., during peak hours) and the capacity of available water sources. In these cases, monitoring and recording of the average number of hours of water availability must be done. Collected data are paramount in establishing an average at the national level, which may serve as a benchmark for operating WSPs; and

 Sustainability of water supply is manifested by ensuring that the minimum average per capita consumption is maintained (i.e., at least 20 lpcd for Level I, 40 lpcd for Level II, and 80 lpcd for Level III).

Concerning sanitation, the following should be complied with:

- Various access targets set by the PDP, SDGs, and Clean Water Act are achieved;
- Morbidity rate caused by water-related illnesses and diseases is significantly reduced;
- Biochemical Oxygen Demand (BOD) removed from the ecosystem is increased;
- Volume of wastewater collected and treated is increased; and
- Treatment plant capacity utilization is maximized.

In addition to the Plan's goals, improvements in the service quality and sustainability of WSPs shall be measured and monitored. Table 9 and Table 10 show the proposed benchmarks to guide local governments and service providers on their respective targets.

Table 9: Proposed Benchmarks for the Water Supply Sector

Key Performance Indicator	Source of Data	2015 Baseline	2022 Target	2030 Target
Percentage of households with no access to safe water	PSA	12.8%	6.6%	0.0%
Percentage of households with access to Level III systems	PSA, Regional Consultations	43.6%	58.3%	77.1%
Percentage of households with access to Level II systems	PSA, Regional Consultations	11.2%	15.0%	14.0%
Percentage of households with access to Level I systems	PSA, Regional Consultations	32.4%	20.1%	8.9%
Percentage of WSPs providing water that meets PNSDW requirements	No data available			
Percentage of Level III WSPs achieving 7 m minimum water pressure	No data available			
Percentage of WSPs that have ample water sources to serve franchise beneficiaries	No data available			
Percentage of Level III WSPs with an average per capita consumption equal to or less than 120 lpcd	No data available			

Table 10: Proposed Benchmarks for the Sanitation Sector

Key Performance Indicator	Source of Data	2015 Baseline	2022 Target	2030 Target
Percentage of households with access to improved facilities	DOH/PSA	94.0%	100.0%	100.0%
Percentage of households practicing open defecation	DOH/PSA	4.0%	0.0%	0.0%
Percentage of households with septic tanks (on-site system)	DOH/PSA	74.0%	97.0%	100.0%
Percentage of households with access to septage collection services	DOH/PSA	17.0%	69.0%	100.0%
Percentage of households with access to a sewerage system	DOH/PSA	12.0%	23.0%	60.0%
Percentage of households connected to a sewerage system	DOH/PSA	3.0%	20.0%	50.0%
Percentage of HUCs with sewerage service	DOH/PSA	53.0%	94.1%	100.0%
Percentage of non-HUCs with septage service	DOH/PSA	0.7%	61.2%	100.0%
Percentage of WSPs complying with national standards for sanitation (e.g., DENR, DOH and LGUs)	LGUs/DENR- EMB/DOH	17.0%	67.0%	100.0%
Volume of BOD removed from the ecosystem, ³⁴ in tons (T)	LGUs/ Department of Environment and Natural Resources- Environmental Management Bureau [DENR- EMB]/ DOH	65.40	233.20	514.10
Volume of wastewater collected and treated, in tons (T)	LGUs/DENR- EMB/DOH	2.95	3.32	3.81
Treatment plant capacity utilization	LGUs/DENR- EMB/DOH	For septage and sewerage treatment facilities, percent utilization starts high after the first year and reaches full capacity towards the end of the 3–5 year cycle.		

³⁴ In addition to reduced BOD content of wastewater released to the environment, water quality of effluents must also comply with the minimum standards provided in DENR Administrative Order No. 2016-08 (Water Quality Guidelines and General Effluent Standards of 2016).

Priority Reforms, Programs, and Activities

4.1 Policy Directions

"The primary strategy for the water resources sector is to address its fragmented structure through the creation of an apex body and the formulation of master plans that will foster coordinated efforts across the country." — PDP 2017–2022

Creation of an Apex Body

The PDP identified the creation of an apex body for the water supply, sewerage, and sanitation subsectors as a primary strategy to address the fragmented structure and uncoordinated efforts of government units and agencies across the country. The continued fragmentation in the management and regulation of WSS services impedes the implementation of long-term solutions to decades-old sectoral issues and hinders the attainment of universal access targets.

The apex body shall address the fundamental governance and institutional issues of the sector by being the single entity in charge of the overall policy-making, planning, programming, and management of the country's water resources. It will coordinate, monitor, and evaluate sector performance and take appropriate action as needed.

The apex body will enable future plans, programs, and projects to be anchored on an integrated and coordinated approach. Said approach will promote a synchronized, sustainable, and science-based management of the country's water resources. This shall address the following:

- imbalance in water resource utilization;
- reduced water availability;
- declining water quality,
- recurrent flooding; and
- other water-related issues in many parts of the country.

Creation of an Independent Economic Regulatory Body

The creation of an independent economic regulatory body shall address the fragmented, poorly enforced, and lowcoverage regulatory regime in the WSS sector. This single entity shall consolidate the economic regulatory powers of various water agencies into one national body that shall have the power to grant and revoke licenses, as well as the authority to set standards and targets for both private and public water utilities.

The proposed measure has the following objectives:

- Achieve universal access to improved WSS services for the entire country through an effective economic regulatory system that can compel expansion and improvement of service;
- Encourage private sector participation in the provision of WSS services;
- Protect the interests of consumers;
- Regulate wastewater (i.e., sewerage and septage) tariffs; and
- Address the conflicts of interest inherent in the current regulatory agencies.

4.2 Key Reform Agenda (Soft Components)

Eight key reform agenda (KRA) have been identified prioritizing specific interventions for the WSS sector. These are based on important issues and challenges confronting the sector. Figure 13 illustrates the PWSSMP results framework with the eight KRA while Table 11 summarizes the focus of each KRA.



Figure 13: PWSSMP Results Framework Diagram

Table 11: Eight Key Reform Agenda

Key Reform Agenda	Focus
KRA 1: Establishing Effective WSS Sector Institutions	Addressing the fragmented WSS sector.
KRA 2: Strengthening the Regulatory Environment	Regulating and managing water resources and WSPs, including water tariffs.
KRA 3: Creating and Ensuring Effective WSS Services	Ensuring appropriate and sustainable operations of WSS service providers.
KRA 4: Balancing Water Supply and Demand	Managing and maximizing finite water resources with end-users.
KRA 5: Building Climate Resiliency	Adapting to climate change.
KRA 6: Enabling Access to Funding and Financing	Improving availability and acquisition of funds / financing for WSS services.
KRA 7: Managing Data and Information	Ensuring the availability and accessibility of reliable WSS data.
KRA 8: Driving Research and Development	Investing on research and innovations.

The eight KRA, including their specific objectives, and a summary of the proposed reforms and priority actions to achieve such objectives are discussed in more detail in the following sections.

4.2.KRA 1: Establishing Effective WSS Sector Institutions

Rationale and Objectives

KRA 1 establishes an effective WSS sector institution through the following objectives:

- Create an apex body to address the fragmented structure of the sector and institutionalize a science-based river basin approach that integrates the IWRM principles;
- Create master plans to foster coordinated efforts and guide the concerned Implementing Agencies (IAs) to attain universal access in the sector; and
- Strengthen NWRB and NEDA's coordination with partner institutions across different subsectors.

Top Priority Actions

NEDA to lead in addressing the institutional fragmentation in the absence of an apex body for the WSS that sector would coordinate development policies and plans following the IWRM principles (1.10).

Related to the above action, NEDA will then:

- Coordinate issuance of administrative guidelines, rules and regulations requiring all LGUs to adopt climateresilient and green technology, as well as promoting a rights-based planning approach (1.7);
- Coordinate the mandate of all WSPs to prioritize water supply provision with integrated sanitation services (1.3); and
- Develop an advocacy and communication plan to garner support for the prioritization of the sector's policy reforms and investment requirements (1.4).

The following are also considered top priority for this KRA:

- NEDA to lead the representation at the Office of the President (OP) to issue the Executive Order (EO) establishing the National Water Management Council (NWMC) (1.9); and
- NEDA to identify champions in the Upper and Lower Houses to sponsor the creation of an apex body for the WSS sector and support the deliberations based on the Executive Version (1.1).

Follow-Through Actions

The identified top priority actions will set the cornerstone for the following actions:

- NEDA to request and accomplish the establishment of an OP order for all government buildings and new construction projects, including those in resettlement areas, to have rainwater harvesters (RWHs); require all LGUs to issue ordinances requiring the use of RWHs and storage facilities for all new developments within their jurisdiction; and issue the use of water-efficient fixtures (1.8);
- The Department of the Interior and Local Government (DILG) and DOH to promote the formulation of a rightsbased provincial master plan as the basis for the preparation of local/ municipal WSS development plans (1.6);
- LWUA to formulate verified business plans and seek approval of its rationalized budget increase for LWUA's programs (1.5);
- NEDA and NWRB to map out the organizational setup for NWMC (1.2.2);
- NEDA and NWRB to come up with a Framework Plan (1.2.3);
- NEDA and NWRB to review the capacity requirements of NWMC's organization (1.2.4);
- NEDA to pursue the establishment of the NWMC, pending the creation of an apex body for the WSS sector(1.2); and
- NEDA to spell out the Implementing Rules and Regulations (IRR) for NWMC (with NWRB as Vice-Chairperson)

(1.2.1).

The culmination of this KRA is the Creation of an apex body for the WSS sector (1.11).

4.2.2 KRA 2: Strengthening the Regulatory Environment Rationale and Objectives

KRA 2 aims to strengthen the existing regulatory environment consistent with the PDP through the following objectives:

- Pursue institutional reforms to encourage and guide investments in the WSS sector;
- Create an independent economic regulatory body for the WSS sector for transparent and consistent regulation;
- Expedite the processing of water permits by deputizing and capacitating local or regional agents; and
- Review and strengthen existing laws and regulations on water resources.

Top Priority Actions

- NEDA to identify champions in the Upper and Lower Houses to sponsor the creation of an apex body for the WSS sector and an independent economic regulator for WSS, and support the deliberations based on the Executive Version (2.1).
- LWUA to strengthen its enforcement of economic regulations, especially on service expansion (2.9), which will require the following sub-tasks:
 - NEDA to review and improve NEDA JV Guidelines to be responsive to WD conditions (with considerations on the Local Water District Manual on Categorization, Re-Categorization and Other Related Matters (LWD-MaCRO)] (2.2); and
 - NWRB, LWUA, and DILG to review current cost recovery framework and tariff setting methodologies (WDs, LGU-run water utilities, private sector) to cover sanitation services (2.3).
- DILG to issue guidelines for LGUs to adopt a cost-based methodology that

will promote financial sustainability (2.4), which will also require:

- NWRB, LWUA, and DILG to review current cost recovery framework and tariff setting methodologies (WDs, LGU-run water utilities, private sector) to cover sanitation services (2.3).
- NWRB to continue updating its data in Listahang Tubig (2.8a) with the following sub-task:
 - NWRB to assess the quantity and quality of all water resources (2.6).
- NWRB to coordinate the review and assessment for existing guidelines for issuing water permits and Certificates of Public Convenience (CPC) of NWRB and NIA (2.7). The pre-requisite actions for which are as follows:
 - Review and rationalize NWRB guidelines for granting of water permits and CPCs to private operators (2.7.1);
 - Review existing water permits and CPCs to weed out speculators, and check and verify water rights (i.e., volume granted should not exceed volume required); NWRB to require the following in water permit applications: Memorandum of Agreement (MOA) with WD for private bulk water supplier (intending to sell to WD), and Sangguniang Bayan (SB) resolution (for LGU level Certificate of Public Convenience [CPC]) (2.7.2); and
 - Review water permits granted to NIA to free up water sources for water supply (2.7.3).

Follow-Through Actions

The follow-through actions for this KRA to ensure sustained development are the following:

- LWUA, NWRB, and MWSS Regulatory Office (MWSS-RO) to capacitate and increase its tariff review staff (2.5);
- DILG to issue a Memorandum Circular to LGUs to be guided by tariff setting methodologies for water supply and wastewater management services (2.11); and
- NWRB to establish benchmarking system results (2.8b).

The milestone of this KRA is the creation of the Water Regulatory Commission (WRC) (2.10).

4.2.3 KRA 3: Creating and Ensuring Effective WSS Services

Rationale and Objectives

KRA 3 focuses on interventions for WSPs and service providers. It aims to address the issues and challenges that hinder the effective delivery of WSS services to its target beneficiaries and franchise areas.

KRA 3 ensures effective and sustainable WSS services with cost-efficient and welldesigned WSS structures, and adequate institutional capability to efficiently operate and maintain WSS systems. This area proposes the following measures:

- Enable the government to enhance the capacities of concerned entities in developing and managing water-related projects;
- Support plans to broaden the scope of the NSSMP to improve the response from LGUs and WDs;
- Assist WDs by expanding the coverage of reliable water service at affordable rates and by reducing NRW while ensuring economically viable operations; and
- Expand and upgrade sewerage and sanitation infrastructure.

Top Priority Actions

- LWUA to classify at what reform stage the WDs are (i.e., critical, recovery, stable, and expansion) (3.2a);
- LWUA to assess the viability of nonoperational WDs towards their operationalization (3.3);
- NWRB to capacitate WDs and LGUrun WSPs on tariff setting and formulation of business plans (3.7);
- DILG to evaluate the effectiveness of other programs, especially those directed at poor and waterless municipalities, in accelerating access to WSS services, (e.g., Sagana at Ligtas na Tubig Para sa Lahat [SALINTUBIG], Local Government Support Fund–Assistance to the Municipalities [LGSF-AM], and other

programs for WSS-related community -based organizations [CBOs]) (3.1);

- DILG to put up central management systems (develop a template on how LGUs could come up with this setup) (3.6a);
- DILG to keep BWSAs (LGU responsible for technical standards) (3.6b);
- DILG to encourage the operation of WSPs as economic enterprises by LGUs and/or with private partners (3.4); and
- DILG, DOH, and LWUA to conduct capacity needs assessment of WSPs and LGUs within their respective jurisdictions and prepare training/ mentoring programs internally or in partnership with other service providers (3.8). This will require NEDA to:
 - Lead the preparation of the capacity development agenda for the national agencies involved in WSS activities (3.8.1); and
 - Compile a compendium of reference materials, toolkits, knowledge products for planning, project development, utility reform, etc. (3.8.2).

Follow-Through Actions

The follow-through actions are based on the identified priority actions:

- LWUA to set KPI targets for service coverage, performance, and financial sustainability (3.2b); and
- DILG to develop and conduct a pilot implementation of a business/ management model where the government and CBOs enter a partnership/arrangement to operate and maintain a water utility (3.5).

4.2.4 KRA 4: Balancing Water Supply and Demand

Rationale and Objectives

KRA 4 focuses on interventions in addressing water scarcity and managing the finite water resources with end-users. It balances demand and supply while safeguarding the water ecosystem through the following measures:

- Explore policies and projects to promote efficient water utilization;
- Prioritize surface water source development for water-critical areas;
- Incorporate groundwater recharge systems in the development of surface water sources for critical areas wherever possible and in accordance with prescribed standards;
- Use and design eco-efficient water infrastructure to address any mismatch between water demand and supply; and
- Develop new water sources to protect watersheds that are critical to existing and potential water sources.

Top Priority Actions

- DILG and LWUA to encourage WSPs implementation of NRW reduction programs (leak detection) to achieve standard performance improvement program (4.3), which will require:
 - WSPs to control and establish district metered areas (DMAs) and install mother meters (4.6).
- NEDA to coordinate issuance of administrative guidelines, rules and regulations requiring all LGUs to require green technology (4.9);
- NWRB to conduct resource assessment and recommend which areas should shift from groundwater to surface water sources (4.4). The following are identified sub-tasks for NWRB:
 - Rationalize water permit system (4.4.1);
 - Review existing water permits to weed out speculators (4.4.2); and
 - Review and update pricing system for resource extraction (4.4.3).

 NWRB to develop and implement a communication strategy for WDM and wastewater management (4.7).

Follow-Through Actions

The following are subsequent actions from the top priority actions:

- NEDA to request and accomplish the establishment of an OP order for all aovernment buildinas and new construction projects, including those in resettlement areas, to have RWHs; require all LGUs to issue ordinances requiring the use of RWHs and facilities for all new storage developments within their jurisdiction: and issue the use of water-efficient fixtures (4.2);
- NWRB, LWUA, and DILG to initiate shift to surface water and bulk water development (4.8);
- NWRB to strengthen implementation of resource management and allocation of water resources policies, systems, and database (4.10);
- DILG and LWUA to identify an award and recognition program for good performing WSPs (4.11);
- LWUA and DILG to provide rewards for best performing WSPs (4.1); and
- Enter into co-management agreements with other agencies, LGUs, and multi-stakeholder organizations such as RBOs and Watershed Councils to protect and rehabilitate the watersheds within their areas following the IWRM principles (4.5).

4.2.5 KRA 5: Building Climate Resiliency

Rationale and Objectives

KRA 5 focuses on interventions in addressing issues and challenges related to climate change. It intends to build a climate-resilient WSS sector through the following measures:

- Consider disaster risk reduction and climate change adaptation strategies to ensure climate -resilient facilities; and
- Enable the government to enhance the capacities of concerned entities in developing and managing water-related projects.

Top Priority Actions

- The Department of Public Works and Highways (DPWH) to revise the Referral Codes of the National Building Code of the Philippines to include policies and standards for water efficiency in building design/ construction. (5.6);
- DPWH to issue and require design standards, guidelines and specifications for climateresilient hydraulic structures (5.8);
- DPWH to issue a Department Order requiring retention/retarding basins for flood control and drainage systems (5.2); and
- NEDA to coordinate issuance of administrative guidelines, rules, and regulations requiring all LGUs to require green technology (5.4).

Follow-Through Actions

The identified top priority actions will reinforce these follow-through actions:

- WSPs to design WSS infrastructure based on the DPWH Design Guidelines, Criteria and Standards and Standard Specifications for climate-resilient hydraulic structures. (5.1b);
- NEDA to request the establishment of an OP Order for all (NGAs and LGUs) government buildings and facilities to utilize green technologies, including groundwater infiltration (5.3);
- NEDA to review all major WSS proposed projects to check if climate considerations were already integrated (5.7);
- LWUA and DILG to require WSPs to prepare WSS Emergency Response Plans, and to coordinate with the LGU on the development of their Disaster Risk Reduction and Management (DRRM) and Contingency Plans (5.5);

- LWUA and DILG to ensure the installation of RWHs and storage facilities (5.10);
- DPWH and WSPs to construct new WSS infrastructure in low-risk areas (5.1a); and
- DPWH to ensure implementation of climateresilient hydraulic structures and retention/ retarding basins for flood control and drainage systems. (5.9).

4.2.6 KRA 6: Enabling Access to Funding and Financing

Rationale and Objectives

KRA 6 focuses on interventions geared towards the improvement of access to funding and financing for WSS services through the following:

 Establish a unified resource allocation framework (URAF) with a definite scope and streamlined process to consolidate and offer financial resources to WSS projects.

Top Priority Actions

- LWUA to review and rationalize government financing policies to harmonize with URAF principles (6.2);
- DPWH to adopt the URAF principles for the inclusion of funding and coverage of NSSMP (6.4);
- The Department of Finance (DOF) to develop and recommend for adoption policies to crowdin PFIs (6.3); and
- NEDA to pursue the implementation of the URAF in the sector in accordance with the PWSSMP. URAF has the following fundamental criteria for allocating resources (6.1):
 - a. Poverty incidence;
 - b. Level of access; and
 - c. Incidence of waterborne diseases.

Prior to this, NEDA is expected to:

- Establish the URAF Technical Working Group (TWG) to be the focal technical team that will implement URAF, draft the implementing guidelines of the URAF, and develop an investment program to achieve SDG 6 targets (6.1.1); and
- Develop standard appraisal tools such as a viability gap funding (VGF) model for rationalizing national government grants (6.1.2).

Follow-Through Actions

The follow-through actions for this KRA are as follows:

- NEDA to build the capacity of national institutions to effectively carry out mandates and new roles under the URAF (6.5); and
- DOF and the Department of Budget and Management (DBM) to support budget requirements (6.6).

4.2.7 KRA 7: Managing Data and Information

Rationale and Objectives

KRA 7 focuses on interventions in addressing issues and challenges related to availability, accessibility, reliability, and use of WSS data and information. It ensures the availability and accessibility of reliable and sound WSS data for planning, programming, and policy formulation, consistent with the PDP 2017– 2022.

Top Priority Actions

- Develop database of WSS information system that can be used for strategic planning, policy formulation, program/project development, and M&E (7.8);
- NWRB and NEDA to develop and deploy a comprehensive WSS management information system (MIS) (7.3);
- NWRB and NEDA to develop and streamline programs for the establishment of baseline data (e.g., pertaining to SDG, coverage, safely managed sanitation services, and other relevant indicators) (7.4);
- NEDA to develop communication strategy for the sector development plans and programs (7.6), which will also require NEDA to:
 - Facilitate an inter-agency discussion on the communication strategy for the programs of NWRB, DILG, DOH, and LWUA (7.5).
- NEDA, with support from agencies, to integrate a database for the WSS sector that shall act as a repository of all WSS data *(7.2)*. This action has the following sub-tasks:
 - Formulate guidelines and framework(s) for the harmonization and integration of WSS data (7.1);
 - NWRB and NEDA to link the data repository with PSA (7.2.1);
 - NWRB and NEDA to identify official/credible sources of data such as PSA, PAGASA, etc. (7.2.2); and
 - NWRB and NEDA to map out current sources of WSS data such as PWSSMP database, NWRB

Listahang Tubig, WD data from LWUA, water supply-related data from DILG, and sanitation-related data from DOH and DPWH (7.2.3).

Follow-Through Actions

The identified priority actions will justify the followthrough action:

 NWRB, DILG, DOH, and LWUA to develop information, education, and communication (IEC) programs for their respective advocacies. (7.7)

4.2.8 KRA 8: Driving Research and Development

Rationale and Objectives

KRA 8 focuses on interventions related to research and development, innovative solutions, technologies, or policies that restrict the use of potential technologies concerning WSS. It explores new technologies in water supply.

Top Priority Actions

- NEDA to promote the conduct of research and development studies based on priority research and development agenda (i.e., tie-up with academe, WSS partners, and experts) (8.3); and
- NWRB to formulate research and development agenda based on priority needs of key partner agencies and stakeholders. The agenda should include, among others, technology on lowering energy costs and increasing water efficiency; sanitation technology options for challenging contexts (e.g., high water table, flood-prone, etc.); low-cost and decentralized septage systems; and policies such as raw water pricing and tradeable water regime (8.1).

Follow-Through Actions

The identified priority actions will justify the followthrough action:

 Create a Research and Development Division under the envisioned NWMC Planning Department with the immediate task of formulating the WSS research and development agenda based on needs (8.2).

4.2.9 Other Actions

The KRA Action Plan of the PWSSMP also identified other actions that will aid in achieving the goal of each KRA, albeit relegated into lower priorities. These are presented in Chapter 4.3.

4.3 Key Reform Agenda Action Plan

Simultaneous with the implementation of PWSSMP and investment program are various activities and actions identified in the eight KRA. The action plan and corresponding action tree for the respective KRA are presented below.

KRA 1: Establishing Effective WSS Sector Institutions

Key Actions	Driver	Support Agencies	Timeline
A. Priority Actions			
1.1 Identify champions in the Upper and Lower Houses to sponsor the creation of an apex body for the WSS sector and support the deliberations based on the Executive Version.	NEDA	NWRB, LWUA, DILG, DPWH, DOH	2019– 2020
 1.2 Pursue the establishment of the NWMC pending the creation of an apex body for the water sector: 1.2.1 Spell out the IRR for NWMC (with NWRB as Vice-Chairperson). 1.2.2 Map out the organizational setup for NWMC (NWRB). 1.2.3 Come up with a Framework Plan. 	NEDA	NWRB, DOH, DILG	2020
1.2.4 Review the capacity requirements of NWMC's Organization.			
1.3 Coordinate the mandate of all WSPs to prioritize water supply provision with integrated sanitation services.	NEDA	DILG, LWUA, LGUs, DOH, WDs, DPWH, MWSS	2019– 2020
1.4 Develop an advocacy and communication plan to garner support for the prioritization of the sector policy reforms and investment requirements.	NEDA	NWRB, LWUA, DILG, DOH	2019– 2020
1.5 Formulate verified business plans and seek approval for a rationalized budget increase for LWUA's programs.	LWUA	NEDA, DBM	2020– 2021
1.6 Promote the formulation of a rights-based provincial master plan as the basis for the preparation of local/municipal WSS development plans.	DILG, DOH	NEDA, LWUA, NWRB, LMP, LPP, LGUs	2020 onwards
1.7 Coordinate the issuance of administrative guidelines, rules, and regulations requiring all LGUs to adopt climate-resilient and green technology, as well as to promoting a rights-based planning approach.	NEDA	DILG, DPWH	2019– 2020
1.8 Request and accomplish the establishment of an OP order for all government buildings and new construction projects, including those in resettlement areas, to have RWHs; require all LGUs to issue ordinances requiring the use of RWHs and storage facilities for all new developments within their jurisdiction; and issue the use of water-efficient fixtures.	NEDA	DPWH, Housing and Land Use Regulatory Board (HLURB)	2019– 2020

Key A	ctions	Driver	Support Agencies	Timeline
1.9	Lead the representation at the OP to issue the EO establishing the NWMC.	NEDA	NWRB	2019– 2020
1.10	Address institutional fragmentation in the absence of an apex body for the WSS sector that would coordinate development policies and plans following the IWRM principles.	NEDA	NWRB	2019– 2021
1.11	Create an apex body for the WSS sector.	NEDA	NWRB, LWUA, DILG, DPWH, DOH	2020– 2021
B. Oth	er Actions			
1.12	Establish a WSS Data Center.	Apex Body (NWMC/ Department of Water Resources [DWR]); NEDA (interim)	DOH, LWUA, DILG, NWRB, DPWH, MWSS	2020– 2021
1.13	Develop and conduct a pilot implementation of the integrated provision of WSS services in selected water utilities.	LWUA, DILG, DOH	NEDA	2020– 2021
1.14	Develop and conduct a pilot implementation of a local WSS governance framework that enables LGUs to realize their obligation of ensuring access to WSS and where the LGUs shall drive the effective provision of WSS services. Consider the creation of a local WSS development office that will help plan and coordinate WSS activities and coordination at the local level with national agencies.	DILG	NEDA, DOH	2020
1.15	Develop a strategy and program that will prioritize investments in far-flung and security risk areas.	NEDA	LWUA, DILG, NAPC, and selected LGUs	2020
1.16	Come up with a Joint Memorandum Circular (JMC) on an integrated water and sanitation planning process at the local level (municipal) based on the Local Sustainable Sanitation Plan (LSSP) from the DOH, and Integrated Safe Water, Sanitation, and Hygiene (iWASH) from the DILG, and in line with the development of provincial master plans and regional WSS roadmaps.	NEDA	DILG, DOH	2020– 2022
1.17	Recommend improvements/changes to certain governmental regulations (mainly Commission on Audit [COA], DBM, DENR, and NWRB) that will enable WDs to be run efficiently and effectively as commercial enterprises. There are certain governmental regulations that hamper the operational procedures of the WDs which could be reviewed and streamlined.	LWUA	NEDA, COA, DBM, DENR, NWRB	2021
1.18	Propose amendments to Presidential Decree (PD) 198 and certain regulatory guidelines of various agencies that impact WD operations.	TBD	TBD	TBD

KRA 1: Establishing Effective WSS Sector Institutions Action Tree

FOLLOW-THROUGH ACTIONS



Legend:

- KRA Milestone - Top Priority Actions



KRA 2: Strengthening the Regulatory Environment

Key A	ctions	Driver	Support Agencies	Period
A. Prio	prity Actions			
2.1	Identify champions in Upper and Lower Houses to sponsor the creation of an apex body for the WSS sector and an independent economic regulator for WSS, and support the deliberations based on the Executive Version.	Apex body (NWMC/DWR), NEDA	Legislative champions, DILG, LWUA, NWRB, MWSS -RO, DPWH, DOH, Economic Zone Authorities, Tourism Infrastructure and Enterprise Zone Authority (TIEZA)	2019– 2020
2.2	Review and improve the NEDA JV Guidelines to be responsive to WD conditions (with considerations on the LWD-MaCRO).	NEDA	LWUA, Philippine Association of Water Districts (PAWD)	2019– 2020
2.3	Review the current cost recovery framework and tariff setting methodologies (WDs, LGU-run water utilities, private sector) to cover sanitation services.	NWRB, LWUA, DILG	NEDA w/ selected LGUs, development partners, CDA, private sector	2020
2.4	Issue guidelines for LGUs to adopt a cost-based methodology that will promote financial sustainability.	DILG	Not Applicable	2020
2.5	Capacitate and increase its tariff review staff.	LWUA, NWRB, MWSS-RO	NEDA, DBM	2019– 2021
2.6	Assess the quantity and quality of all water resources.	Apex body (NWMC/DWR)	NEDA	2019 onwards
2.7	Coordinate the review and assessment of existing guidelines for issuing water permits and CPCs of NWRB and NIA.	NWRB	NEDA, NWRB, LGUs, LWUA, NIA, Department of	2019– 2020
	2.7.1 Review and rationalize NWRB guidelines in regard to the granting of water permits and CPCs to private operators.2.7.2 Review existing water permits and CPCs to weed out speculators, and check and verify water rights		Agrarian Reform (DAR)	
	(i.e., volume granted should not exceed volume required); NWRB to require the following in water permit applications: MOA with WD for private bulk water supplier (intending to sell to WD), and SB resolution (for LGU level CPC).			
	2.7.3 Review water permits granted to NIA to free up water sources for water supply.			
2.8a	Continue updating Listahang Tubig.	NWRB	Not Applicable	2019 onwards
2.8b	Establish benchmarking system results.	NWRB	Not Applicable	2020
2.9	Strengthen its enforcement of economic regulations, especially on service expansion.	LWUA	NEDA	2019– 2021

Key A	ctions	Driver	Support Agencies	Period
2.10	Create the WRC.	NEDA	Legislative Champions, DILG, LWUA, NWRB, MWSS -RO, DPWH, DOH, Economic Zone Authorities, TIEZA	2019– 2021
2.11	Issue Memorandum Circular to LGUs to be guided by tariff setting methodologies for water supply and wastewater management services.	DILG	lwua, doh, dpwh	2019– 2021
B. Oth	er Actions			
2.12	Submit Annual Data Report of all water utilities as input to Annual Benchmarking Report of all WSPs.	Apex body (NWMC/ DWR) / NEDA/NWRB (interim)	DILG, LWUA, CDA	Annual
2.13	 Formulate a policy on the imposition of fees or charges deemed necessary, for water resources conservation and protection, such as: a. Polluter's Fee, which shall be based on the net waste load depending on the wastewater charge formula pursuant to R.A. 9275, or the Clean Water Act; b. Raw water price, determined by the Apex Body, which shall take into account, the scarcity of water; and c. Appropriate structures for payment of environmental services. 	Apex body (NWMC/ DWR) / NWRB (interim)	Not Applicable	2020 onwards
2.14	Disseminate and monitor compliance of WSPs with standards.	Apex body (NWMC/DWR), DILG, LWUA, NWRB, DOH	Union of Local Authorities of the Philippines (ULAP), LPP, LCP, LMP	2019 onwards
2.15	Publish all hearing decisions in the NWRB website.	NWRB	Not Applicable	2019– 2020
2.16	Align WD business plans to KPIs.	LWUA	Not Applicable	2020– 2021
2.17	Continue LGU competitiveness awards and recognition	DILG	Not Applicable	2019 onwards
2.18	Conduct learning events to harmonize economic regulations at the regional roundtable discussions (RTD) (sharing and alignment).	TBD	Not Applicable	TBD
2.19	Improve tariff formula to take into consideration WDM, small WSPs, poor communities, power cost adjustment, and consumer price index (CPI).	NWRB, LWUA, MWSS, Independent Regulatory Body, WSPs	DOF, NEDA	2019– 2020

KRA 2: Strengthening the Regulatory Environment

Action Tree

FOLLOW-THROUGH	ACTIONS		2.10 - Create the WRC.	2.5 - LWUA, NWRB, and MWSS-RO to capacitate and increase its tariff review staff.
TOP PRIORITY ACTIONS	Lead Agencies: Support Agencies: Period:	NEDA, LWUA, NWRB, DILG MWSS-RO, DPWH, DOH, Economic Zone Authorities, TIE- ZA, NIA, DAR, LGUs 2019–2021	2.1 - NEDA to identify champions in the Upper and Lower Houses to sponsor the creation of an apex body for the WSS sector and an independent economic regulator for WSS, and support the deliberations based on the Executive Version.	2.9 - LWUA to strengthen its enforcement of economic regulations, especially on service expansion.
-TASKS		2 N to	.2 - NEDA to review and imp IEDA JV Guidelines to be respor to WD conditions (with consideration in the LWD-MaCRO).	prove hsive tions

SUB-

Legend:

- KRA Milestone - Top Priority Actions



KRA 3: Creating and Ensuring Effective WSS Services

Key A	ctions	Driver	Support Agencies	Period
A. Prie	prity Actions			
3.1	Evaluate the effectiveness of other programs, especially those directed at poor and waterless municipalities, in accelerating access to WSS services, (e.g., SALINTUBIG, LGSF-AM, and other programs for WSS-related CBOs).	DILG	NEDA, LWUA	2020– 2021
3.2a	Classify at what reform stage the WDs are (i.e., critical, recovery, stable, and expansion).	LWUA	NEDA, DILG, DPWH, DOH, CDA, Non- Governmental Organizations (NGOs), DBM	2020– 2021
3.2b	Set KPI targets for service coverage, performance, and financial sustainability.	LWUA	NEDA, DILG, DPWH, DOH, CDA, NGOs, DBM	2020– 2021
3.3	Assess the viability of non-operational WDs towards their operationalization.	LWUA	NEDA	2020– 2021
3.4	Encourage the operation of WSPs as economic enterprises by LGUs and/or with private partners.	DILG	LGUs	2020– 2021
3.5	Develop and conduct a pilot implementation of a business/ management model where government and CBOs enter a partnership/arrangement to operate and maintain a water utility.	DILG, select LGUs	CDA, NEDA, LWUA, NGOs, development partners	2021
3.6a	Put up central management systems (develop a template on how LGUs could come up with this setup).	DILG, LGUs	NWRB	2020– 2021
3.6b	Keep BWSAs (LGU responsible for technical standards).	DILG, LGUs	NWRB	2020– 2021
3.7	Capacitate WDs and LGU-run WSPs on tariff setting and formulation of business plans.	NWRB	LWUA, DILG	2020– 2021
3.8	 Conduct capacity needs assessment of WSPs and LGUs within their respective jurisdictions and prepare training/ mentoring programs internally or in partnership with other service providers. 3.8.1 Lead the preparation of the capacity development agenda for the national agencies involved in WSS activities. 3.8.2 Compile a compendium of reference materials, toolkits, knowledge products for planning, project development, utility reform, etc. 	DILG, DOH, LWUA	NEDA	2020– 2021

Key A	ctions	Driver	Support Agencies	Period
B. Oth	ner Actions			
3.9	Conduct a capacity needs assessment of LWUA and WDs.	LWUA	NEDA, DBM	2020– 2021
3.10	Develop and implement a responsive capacity-building program for LWUA and WDs.	LWUA	NEDA, DBM	2020– 2021
3.11	Conduct a capacity needs assessment of selected LGUs, the regional water and sanitation (WatSan) hubs, and of the DILG.	DILG	CDA, NEDA	2020– 2021
3.12	Develop a capacity-building program for LGU-run water utilities and Regional WatSan Hubs, and study the needed reforms for DILG to enable it to respond to the needs of the LGU-run water and sanitation utilities.	DILG	CDA, NEDA	2020– 2021
3.13	Study the feasibility of setting up Regional Training Centers for WDs and LGU-run water and sanitation utilities.	NEDA	LWUA, DILG, CDA, Regional Water and Sanitation (WatSan) Hubs, or <i>RHubs</i>	2020– 2021
3.14	Develop and implement capacity-building programs, including disaster risk reduction (DRR), designed for WSS personnel and officials.	DILG, LWUA, DPWH, Private Sector, Office of Civil Defense (OCD), Climate Change Commission (CCC), DOH	NEDA, CCC, DBM, LGUs	2019 onwards
3.15	 For Public-Private Partnership (PPP): a. Formulate decision tools to guide WDs and LGUs to determine appropriateness of PPP as a service provision option. b. Disseminate materials/templates for PPP project development and procurement. 	NROs, PPP Center, LWUA	Not Applicable	2020– 2021

c. Develop guidelines for PPP contract management.

KRA 3: Creating and Ensuring Effective WSS Services **Action Tree**



- Top Priority Actions

3.5 - DILG to develop and conduct a pilot implementation of a business/ management model where government and CBOs enter a partnership/arrangement to operate and maintain a water utility.

			_
3.1 - DILG to evaluate the effectiveness of other programs, especially those directed at the poor and waterless municipalities, in accelerating access to WSS services (e.g., SALINTUBIG, LGSF-AM, and other programs for WSS-related CBOs).	3.6a - DILG to put up central management systems (develop a template on how LGUs could come up with this setup).	3.6b - DILG to keep BWSAs (LGU responsible for technical standards).	3.4 - DILG to encourage the operation of WSPs as economic enterprises by LGUs and/or with private partners.

KRA 4: Balancing Water Supply and Demand

Key A	ctions	Driver	Support Agencies	Period
A. Prie	prity Actions			
4.1	Provide rewards for best performing WSPs.	LWUA, DILG	DPWH, DOH, LGUs	2019 onwards
4.2	Request and accomplish the establishment of an OP order for all government buildings and new construction projects, including those in resettlement areas, to have RWHs; require all LGUs to issue ordinances requiring the use of RWHs and storage facilities for all new developments within their jurisdiction; and issue the use of water-efficient fixtures.	NEDA	DPWH, HLURB/ DHSUD	2019
4.3	Encourage WSPs implementation of NRW reduction programs (leak detection) to achieve standard performance improvement program.	DILG, LWUA	LGUs, LWUA, DILG, NWRB	2019– 2021
4.4	Conduct resource assessment and recommend which areas should shift from groundwater to surface water sources. 4.4.1 Rationalize water permit system.	Apex body (NWMC/ DWR), NWRB LWUA, DILG	NEDA	2020– 2021
	4.4.2 Review existing water permits to weed out speculators.4.4.3 Review and update pricing system for resource outraction			
4.5	Enter into co-management agreements with other agencies, LGUs and multi-stakeholder organizations such as RBOs and Watershed Councils to protect and rehabilitate the watersheds within their areas, following the IWRM principles.	DENR, RBOs, LGUs	LGUs, NGOs, RBOs, watershed management councils, NWRB	2019 onwards
4.6	Control and establish DMAs and install mother meters.	WSPs	LGUs, LWUA, DILG, NWRB	2019– 2021
4.7	Develop and implement a communication strategy for WDM and wastewater management.	NWRB	NEDA, NWRB, LWUA, DILG, DOH	2019– 2020
4.8	Initiate shift to surface water and bulk water development.	NWRB, LWUA, DILG	NEDA	2020
4.9	Coordinate issuance of administrative guidelines, rules, and regulations requiring all LGUs to require green technology.	NEDA	DILG	2020
4.10	Strengthen implementation of resource management and allocation of water resources policies, systems and database.	NWRB	NEDA	2020
4.11	Identify an award and recognition program for good performing WSPs.	DILG, LWUA	NEDA	2020– 2021

Key Actions	Driver	Support Agencies	Period
B. Other Actions			
 4.12 Develop strategic WSS communication plans and IEC campaigns targeting the public on the following: a. Proper sanitation; b. WDM (water efficiency, water conservation, rainwater harvesting, reuse of treated wastewater, reduction of NRW); and c. Promotion of WSPs' services, plans, and programs. 	DENR, LWUA, MWSS, NEDA, NWRB, WSPs, DOH, DILG	Not Applicable	2019– 2021
4.13 Strengthen and coordinate policy making and planning for flood management by integrating stormwater/urban drainage as well as appropriate retention/retarding basins to help mitigate the detrimental and catastrophic effects of flooding.	Apex body (NWMC/DWR)	Not Applicable	2020– 2021
4.14 Develop encouraging conservation measures and/or ordinance that will reduce per capita consumption.	LGUs, LWUA, DILG, NWRB	Not Applicable	2019– 2021

Action Tree



Legend:

- Top Priority Actions

TOP PRIORITY



KRA 5: Building Climate Resiliency

Key A	ctions	Driver	Support Agencies	Period
A. Priority Actions				
5.1a	Construct new WSS infrastructure in low-risk areas.	DPWH, WSPs	DILG, LWUA, LGUs, DOH	2019 onwards
5.1b	Design WSS infrastructure based on the DWPH Design Guidelines, Criteria and Standards and Standard Specifications for climate-resilient hydraulic structures.	DPWH, WSPs	DILG, LWUA, LGUs, DOH	2019 onwards
5.2	Issue a Department Order requiring retention/retarding basins for flood control and drainage systems.	DPWH	NEDA, DENR, NWRB	2019– 2020
5.3	Request the establishment of an OP Order for all (NGAs and LGUs) government buildings and facilities to utilize green technologies, including groundwater infiltration.	NEDA	DENR, DILG, CCC	2019– 2020
5.4	Coordinate issuance of administrative guidelines, rules and regulations requiring all LGUs to require green technology.	Apex body (NWMC/ DWR), DILG	NEDA, DENR, CCC, DOH, DPWH	2019
5.5	Require WSPs to prepare WSS Emergency Response Plans, and to coordinate with the LGU on the development of their DRRM and Contingency Plans.	lwua, dilg	OCD, CCC, LGUs	2019– 2022
5.6	Revise the Referral Codes of the National Building code of the Philippines to include policies and standards for water efficiency in building design/construction.	DPWH	Not Applicable	2019
5.7	Review all major WSS proposed projects to check if climate considerations were already integrated.	NEDA	DPWH	2019 onwards
5.8	Issue and require design standards, guidelines and specifications for climate-resilient hydraulic structures.	DPWH	NEDA	2020
5.9	Ensure implementation of climate-resilient hydraulic structures and retention/retarding basins for flood control and drainage systems.	DPWH	Not Applicable	2020– 2021
5.10	Ensure the installation of RWHs and storage facilities.	LWUA, DILG	DPWH	2020– 2021
B. Other Actions				
5.11	Develop risk mitigation measures for vulnerable WSS infrastructures in high risk areas (i.e., including conflict areas).	LGUs	DILG, OCD, DOH	2019 onwards

KRA 6: Enabling Access to Funding and Financing

Key Actions	5	Driver	Support Agencies	Period
A. Priority A	Actions			
6.1 Imple PWS alloc	lement the URAF in the sector in accordance with the SSMP. URAF has the following fundamental criteria for cating resources:	NEDA	DOF	2020
a. b. c.	Poverty incidence; Level of access; and Incidence of waterborne diseases.			
6.1	 1.1 Establish the URAF TWG to be the focal technical team that will implement URAF, draft the implementing guidelines of the URAF, and develop an investment program to achieve SDG 6 targets. 1.2 Develop standard appraisal tools such as a VGF model for rationalizing national government grants. 			
6.2 Revi harm	iew and rationalize government financing policies to monize with URAF principles.	LWUA	NEDA, DOF	2019
6.3 Deve	elop and adopt policies to crowd-in PFIs.	DOF	NEDA, Government Financial Institutions (GFIs)	2019– 2020
6.4 Adop cove	pt the URAF principles for the inclusion of funding and erage of NSSMP.	DPWH	NEDA Board, DBM	2019– 2020
6.5 Build out r	d the capacity of national institutions to effectively carry mandates and new roles under the URAF.	NEDA	DOF, DBM	2020
6.6 Sup	port budget requirements.	DOF, DBM	Not Applicable	2020
B. Other Actions				
6.7 Put rega ensu Cons as ca	up regulations, for LGUs that are given grants, arding KPIs and appropriate institutional setups to ure that greenfield investments are sustainable. asider the initial investment by the national government capitalization, which is leveraged by external financing.	NEDA, GFIs, DILG	Not Applicable	2021
6.8 Have have payr (requ able	e an appropriate policy with LWUA on debt overhang, e measures in place, such as suspending debt ments or a moratorium for not imposing penalties juiring WDs to have a balloon payment for them to be to borrow money to improve or expand their services).	NEDA, GFIs, DILG	Not Applicable	2021
6.9 Purs and/ pove of wa	sue Presidential issuance directing national government /or local government interventions in areas with high erty incidence, low level of access, and high incidence vater-borne diseases.	Apex body (NWMC/DWR)	DILG, NEDA, LWUA, DOH, OP, DENR	2022 onwards
6.10 Revi imple	iew financing facilities with emphasis on its effective lementation.	DOF, NEDA, LWUA, GFIs, DILG	Not Applicable	2020– 2021

KRA 5: Building Climate Resiliency

Action Tree

5.1a - DPWH and WSPs to construct new WSS FOLLOW-THROUGH ACTIONS infrastructure in low-risk areas. 5.5 - LWUA and DILG to require WSPs to prepare WSS Emergency Response Plans, and to coordinate with the LGU on the development of their DRRM and Contingency Plans. 5.1b - WSPs to design WSS infrastructure based on the DPWH Design Guidelines, Criteria and Standards and Standard Specifications for climate-resilient hydraulic structures **FOP PRIORITY** Lead Agencies: DPWH, NEDA **5.6** - DPWH to revise the Referral ACTIONS Codes of the National Building Support DILG, LWUA, Code of the Philippines to include Agencies: DENR, NWRB policies and standards for water efficiency in building design/ Period: 2019-2020 construction.

Legend:

- Top Priority Actions



KRA 6: Enabling Access to Funding and Financing **Action Tree**



SUB-TASKS

Legend:

- Top Priority Actions



KRA 7: Managing Data and Information

Key Act	tions	Driver	Support Agencies	Period
A. Prior	rity Actions			
7.1	Formulate guidelines and framework(s) for the harmonization and integration of WSS data.	Apex body (NWMC/ DWR)/ NEDA (interim)	PSA, DOH, LWUA, NWRB, MWSS, DPWH	2019– 2020
7.2	 Integrate a database for the WSS sector that shall act as a repository of all WSS data. 7.2.1 Link the data repository with PSA. 7.2.2 Identify official/credible sources of data such as PSA, PAGASA, etc. 7.2.3 Map out current sources of WSS data such as PWSSMP database, NWRB Listahang Tubig, WD data from LWUA, water supply-related data from DILG, and sanitation-related data from DOH and DPWH. 	Apex body (NWMC/ DWR)/ NEDA (interim)	Doh, Lwua, Dilg, Nwrb, Dpwh, Mwss, Psa	2019– 2020
7.3	 Develop and deploy a comprehensive WSS MIS. 7.3.1 Completely and efficiently roll out the existing WSS information system at NWRB with support funding. 7.3.2 Train apex body and data custodians on WSS information system. 	Apex body (NWMC/DWR)/ NEDA (interim)	DOH, LWUA, DILG, NWRB, DPWH, MWSS, PSA, DBM	2019– 2021
7.4	Develop and streamline programs for the establishment of baseline data (e.g., pertaining to SDG, coverage, safely managed sanitation services, and other relevant indicators).	Apex body (NWMC/DWR)/ NEDA/NWRB (interim)	PSA, DOH, LWUA, DILG, DPWH	2020– 2021
7.5	Facilitate an inter-agency discussion on the communication strategy for the programs of NWRB, DILG, DOH, and LWUA.	NEDA	NWRB, DILG, DOH, LWUA	2019– 2020
7.6	Develop communication strategy for the sector development plans and programs.	NEDA	NWRB, DILG, DOH, LWUA	2019– 2020
7.7	Develop IEC programs for the respective advocacies of NWRB, DILG, DOH, and LWUA.	NWRB, DILG, DOH, LWUA	NEDA	2020– 2021
7.8	Develop database of WSS information system that can be used for strategic planning, policy formulation, program/ project development, and M&E.	NEDA	NWRB, LWUA, DILG, DPWH	2020– 2021
B. Othe	er Actions			
7.9	Determine extent of adoption/harmonization of UN definitions of SDGs.	PSA, NEDA	DOH, LWUA, DILG, MWSS, NWRB	2020– 2021
7.10	Develop common data report for all WSPs.	Apex body (NWMC/DWR)/ NEDA	DILG, LWUA, CDA	Annual

KRA 8: Driving Research and Development

Key A	ctions	Driver	Support Agencies	Period
A. Priority Actions				
8.1	Formulate research and development agenda based on priority needs of key partner agencies and stakeholders. The agenda should include, among others, technology on lowering energy costs and increasing water efficiency; sanitation technology options for challenging contexts (e.g., high water table, flood-prone, etc.); low-cost and decentralized septage systems; and policies such as raw water pricing and tradeable water regime.	Apex body (NWMC/ DWR) / NEDA/NWRB (interim)	DOH	2019– 2020
8.2	Create a Research and Development Division under the envisioned NWMC Planning Department with the immediate task of formulating the WSS research and development agenda based on needs.	Apex body (NWMC/DWR)/ NEDA (interim)	DOST, DBM	2019– 2020
8.3	Promote the conduct of research and development studies based on priority research and development agenda (i.e., tie-up with academe, WSS partners and experts).	Apex body (NWMC/DWR)/ NEDA (interim)	DOST, Academe	2019– 2021
B. Oth	er Actions			
8.4	Establish an improved accreditation process of WSS-related new technologies.	Apex body (NWMC/DWR)	DOST, Department of Trade and Industry (DTI)	2019– 2020
8.5	Establish and implement government financial support on local WSS-related inventions.	DBM, DOF	DOST, Academe	2019 onwards
8.6	Tap local inventors and scientists with attractive government support.	Apex body (NWMC/DWR)/ NEDA (interim)	DOST, Academe	2020 onwards
8.7	Develop and adopt advance infrastructure design and construction methodology solutions.	Apex body (NWMC/DWR)/ NEDA (interim)	DOST, DPWH	2021 onwards

KRA 7: Managing Data and Information

Action Tree



- Top Priority Actions


KRA 8: Driving Research and Development **Action Tree**

FOLLOW-THROUGH ACTIONS

TOP PRIORITY ACTIONS

8.2 - Create a Research and Development Division under the envisioned NWMC Planning Department with the immediate task of formulating the WSS research and development agenda based on needs.

8.3 - NEDA to promote the conduct of research and development studies based on priority research and development agenda (i.e., tie-up with academe, WSS partners, and experts).

Lead Agencies:NEDA, NWRBSupportDOH, DOST,Agencies:AcademePeriod:2019–2021

NWRB to formulate research and 8.1 _ development agenda based on priority needs of key partner agencies and stakeholders. The agenda should include, among others. technology on lowering energy costs and efficiency; increasing water sanitation technology options for challenging contexts (e.g., high water table, flood-prone, etc.); lowcost and decentralized septage systems; and policies such as raw water pricing and tradeable water regime.

Legend:

- Top Priority Actions

Investment Program and Financing Plan

5.1 Investment Requirements

The cost of infrastructure investments was derived from anticipated demand based on projected population, economic growth, and factored-in investments. This is to ensure the continuous delivery of WSS services of existing systems. The computation included the anticipated upgrade of existing service levels (e.g., Level I to Level II or Level III, basic and limited sanitation to improved sanitation, etc.).

Table 12 summarizes the total investment needs to meet the target of 95.0 percent access to water supply and 97.0 percent access to basic sanitation by 2022, and universal access by 2030. The WSS sector requires about PHP 1.07 trillion over 11 years (2020–2030) to achieve the targets set by the PDP and SDG.

Around PHP 0.73 trillion is required to achieve PDP targets by 2023.³⁵ Another PHP 0.34 trillion is needed to achieve universal access by 2030. These figures also include non-physical investments totaling PHP 1.13 billion that would cover the implementation of the PWSSMP reform programs.

Investment Requirements (in PHP Billion)	2020–2023	2024–2030	Total
Physical	733.66	334.53	1,068.18
<u>Water Supply:</u> Level III Level II Level I	278.07 234.11 37.56 6.40	233.01 216.95 15.32 0.74	511.08 451.06 52.88 7.15
<u>Sanitation:</u> Improved/Basic Septage Sewerage	455.59 349.50 48.89 57.20	101.52 84.02 6.00 11.50	557.11 433.52 54.89 68.70
Non-Physical	0.66	0.47	1.13
Eight KRA* Project Management	0.32 0.34	- 0.47	0.32 0.81
TOTAL (in PHP billion)	734.32	335.00	1,069.31

Table 12: Total Investment Requirements from 2020–2030

*Additional investments for the eight KRA for 2024–2030 will be defined at a later stage.

³⁵ One year added to implementation timeline from the original 2022.

5.1.1 Physical Investments

Physical investments comprise the required infrastructure to achieve the WSS access targets. Development cost intended to bridge sectoral gaps and improve levels of service of access determine the total investment requirements.

To achieve universal access to WSS services, approximately PHP 734.32 billion and PHP 335.00 billion in physical investments are needed for 2020-2023 and 2024-2030, respectively.

5.1.2 Non-Physical Investments

Non-physical investments needed by the sector total PHP 1.13 billion. This amount covers: (a) the implementation cost required to carry out programs and activities under the eight components of the KRA; and (b) the project management cost of the operational plan.

The former requires approximately PHP 323.00 million, which will be allotted to the activities conducted by concerned agencies. These agencies may include NEDA, LWUA, DILG, NWRB, DOH, NIA, National Power Corporation (NPC), Department of Energy (DOE), and the

proposed DWR. These agencies may employ consulting services to assist in program implementation, such as research, and consultative, development, and legal work.

The project management cost of the operational plan requires an additional PHP 335.30 million over four years. It entails the establishment of a PMO, which will be an inter-agency umbrella led by the NEDA Board Committee on Infrastructure–Sub-Committee on Water Resources (INFRACOM-SCWR), LWUA, DILG, NWRB, and DOH.

The PMO must be adequately staffed to evaluate proposed projects, assist in project preparation, organize and strengthen the implementing units for specific subprojects (WDs, LGUs. CBOs), and assist in technical and environmental concerns (e.g., water sources, review of proposals, environmental impacts, climate change adaptation works, economic and financial evaluation, and review of contracts).

Approximately PHP 469.00 million will be allotted to the PMO for project activities from 2024 to 2030, which will be distributed over seven years. Table 13 shows the total investment requirement per KRA.

Table 13: Total Amount of Non-Physical Investments for 2020–2023

		Non-Physical Investments	Amount in PHP Million
А		Implementation Cost of the Programs	322.70
	1	Establishing Effective WSS Sector Institutions	45.70
	2	Strengthening Regulatory Environment	52.60
	3	Creating and Ensuring Effective WSS Institutions	52.60
	4	Balancing Water Supply and Demand	26.50
	5	Building Climate Resiliency	35.80
	6	Enabling Access to Funding and Financing	44.80
	7	Managing Data and Information	33.60
	8	Driving Research and Development	31.10
В		Project Management Cost of the Operational Plan	335.30
		TOTAL	658.00

5.2 Financing Plan

financing plan for the required Α investments for the period 2020-2023 is shown in the following sections. Only the plan for the short term of PWSSMP has been detailed because financing mechanisms may change with the finalization of the URAF.

5.2.1 Funding and Financing Water Supply

Funds for implementing the Master Plan will be sourced mostly from public funds. However, increased collaboration with the private sector is considered to leverage loans from both government financing institutions (GFI) and PFIs. This is consistent with the reforms in the financing policies for the WSS sector under EO 279, s. 2004.

Pursuant to these reforms, LGU-run utilities availed themselves of loans and credit lines from the Municipal Development Fund Office, GFIs, and PFIs.

Approximately PHP 4.00 billion in loans have been approved to finance various WSS projects in 2015 (per 2015 COA Annual Financial Reports for LGUs). At least 30 eligible WDs were issued clearance to secure over PHP 6.00 billion in commercial loans for funding efficiency improvement programs in 2016. As shown in Figure 14, the financing plan shall be as follows:

- a) The PWSSMP lists 37.4 percent (PHP 103.99 billion) of water investments from GFIs, including 7.0 percent (PHP 19.45 billion) for Level III systems under LWUA.
- b) Private sector financing through commercial loans for funding project development costs of HUCs is assumed to be 42.7 percent (PHP 118.86 billion) of total water infrastructure investments.

In addition, private capital has been considered, with 6.3 percent (PHP 17.63 billion) of the investments coming from WSPs' partnerships with private operators. These partnerships have emerged owing to changes in the management and operational arrangements of WSPs.

The principles of the URAF (i.e., to maximize development financing through capital grants) have been adopted and made available to WSPs to keep usage charges affordable and implement target subsidies to benefit poor communities.

Moreover, WSPs that cannot afford to expand their service in outlying areas can access the 13.5 percent (PHP 37.59 billion) grant allocation for expansion of service coverage. This grant allocation aims to incentivize the operationalization of the 200 WDs³⁶ in low-income municipalities.



³⁶ www.lwua.gov.ph: 233 non-operational WDs as of December 2015 (NEDA INFRACOM) Tariff-setting policies adopt full cost recovery. Thus, capital grants through VGF³⁷ output-based aid (OBA),³⁸ or blended financing will ensure that poor communities can satisfy their basic needs without having to spend beyond 5.0 percent³⁹ of their family income.

Further identification of actual VGF, OBA, and blended finance beneficiaries must be established during the PWSSMP implementation. This evaluation is based on eligibility criteria and depends on achieving industry KPIs (e.g., service coverage).

The criteria for determining grant allocation include poverty incidence, waterborne and sanitation-related disease incidences, and universal access gaps. Figure 15 shows the proposed prioritization criteria, which will be further refined through the implementation of the URAF.

Water Supply Financing Plan

To achieve the universal concept of SDG 6 and mobilize additional financing, the PWSSMP has varied financing plans per level of service. To supplement development and commercial loans, VGF and OBA are available to less viable WSPs to fund their equity or manage their issues concerning tariff affordability.

Technical assistance grants for capacity development, project preparation and implementation, and O&M efficiency are included.

In addition, the PWSSMP provides leverage finance to WSPs that extend their services

to rural and urban fringe areas and to institutions that offer small and affordable loans for water service connections of the poor and marginalized population.

The proposed financing mechanisms per level of service are as follows:

Level III

- Grant financing (VGF and OBA) is based on criteria;
- Technical assistance grants are for nonoperational WDs and qualified LGU-run utilities;
- Financial assistance is to be given to WDs under LWUA's revised lending policies (BOT Res. Nos. 57-2017 and 92-2017);
- GFIs and PFIs, and commercial loan programs are available to eligible WSPs;
- Private capital funds for HUCs and WSPs may be disbursed under JV agreements;

<u>Level II</u>

- A 100.0 percent grant allocation is given to the Top 20 provinces with the highest poverty incidence; 50.0-50.0 percent loan grant mix, on the other hand, may be applied to the remaining provinces;
- Blended finance, through microfinance institutions (MFIs), is considered to fund users' equity (e.g., Water Credit and Water Connect Programs); and

³⁷ www.lwua.gov.ph: 233
 non-operational WDs as of December 2015
 (NEDA INFRACOM)
 ³⁸ VGF is defined as capital grants which reduce the need for commercial finance to keep tariffs at affordable levels.

³⁹ OBA, as defined by Global Partnership for OBA, is a results-based financing scheme designed to estimate access to and delivery of infrastructure and social services for the poor using performance-based incentives, rewards, or subsidies. It links the payment of aid or grant to the delivery of specific services.

⁴⁰Affordability threshold for combined water and sanitation tariffs per LWUA BOT Res. 59-2017

Poverty			
Top 20 poorest	Diseases		
provinces	Provinces with	Coverage	
	high waterborne and sanitation- related disease incidences	Provinces with service coverage below 30 percent	

Figure 15: Grant Allocation for Water Supply Projects

Level I

 100.0 percent grant financing is intended to support poor rural communities; target aid is also extended to community-based WSPs or institutions serving the rural areas, which may be implemented through the DILG's LGSF-AM Program, in partnership with MFIs, among others.

Figure 16 presents the computed distribution of investments per level of service following the financing plan mentioned earlier.

Flow of Funds

Figure 17 presents the flow of funds for water supply investments.

Funding for the WS subsector under development loans will come from LWUA, and GFIs/MFIs. Grants will be coursed through LWUA and DILG/LGUs, as well as the DOF-MFIs. HUCs and private WSPs will mostly take up funding from commercial loans.







Figure 17: Flow of Funds for Water Supply Investments (in PHP Billion), 2020–2023

5.2.2 Funding and Financing Sanitation

Achieving universal access to sanitation requires dedicated public funds and scaling up of private investments to enable the government and its development partners to integrate the implementation of water and sanitation infrastructure.

Similar to the strategy for water, the PWSSMP allocates 45.2 percent (PHP 205.87 billion) grant funds to move investments towards urban areas outside Manila. Development Mega financing through GFIs for basic and improved sanitation account for 43.2 percent (PHP 196.67 billion); investments for septage and sewerage programs implemented by LGUrun utilities, the private sector, or WDs amount to 10.2 percent (PHP 46.45 billion) sanitation the total investment of requirement (see Figure 18).

The PWSSMP has considered the following strategies based on the findings and deliberations in the regional consultation workshops:

a. Develop an estimated investment requirement by level of sanitation and province;

- b. Expand the NSSMP to provide technical grants for feasibility studies and other project preparation activities;
- c. Enhance access to development or commercial loans to finance the remaining balance after the 50.0 percent grant subsidy under the NSSMP. This strategy includes incorporation of sanitation projects in existing financing programs of GFIs, e.g., DBP's Lending Initiative for Sanitation (LINIS) Program;
- d. Create incentives for LGUs that have been consistent in complying with NSSMP guidelines; and
- e. Expand the NSSMP criteria for grant-loan mix available to other LGUs or WSPs.

Figure 19 shows the grant allocation scheme considered for sanitation investments. For LGUs implementing a septage/sewerage program, 50.0 percent will be provided as grant under the existing NSSMP. Under the PWSSMP, enhancement of financing for basic to improved sanitation is recommended. Grants at 25.0 percent (HUCs) and at 50.0 percent for other LGUs will be provided to communities poor through blended financing.



Figure 18: Breakdown of Sanitation Investments, 2020–2023



Figure 19: Grant Allocation for Sanitation Projects

Sanitation Financing Plan

The strategies for financing sanitation projects are listed below:

Basic/Improved Sanitation

- Establish mechanisms for 100.0 percent grant financing of the construction of sanitary toilets for poor households (estimated at 25.0 percent of the population) practicing open defecation or using unimproved sanitation facilities; and
- Develop blended finance through NGOs or institutions to extend small and affordable loans to households to fund users' equity (e.g., WaterCredit and WaterConnect Programs).

Septage Management

 Promote increased access to financing through VGF and concessional loans to fund project implementation, including equity. The rationale for this strategy is that the government carries the responsibility of ensuring proper septage management systems.

Under the PWSSMP, the NSSMP shall be subsumed under the URAF principles. As part of the NSSMP, a 50.0 percent grant fund may be supplemented with 50.0 percent development financing from GFIs to ensure tariffs remain within the affordability threshold. This scheme is aimed at mobilizing private financing of septage management programs for all cities and first -income class municipalities, in partnership with WDs, WSPs, or LGUs.

Sewerage Systems

- Develop specialized subsidy а mechanism to support large-scale and high-cost sewerage programs that will address efficient collection of sewage generated by households and buildings, and effluent commercial released from individual septic tanks. The NSSMP framework prioritizes HUCs with 50.0 percent capital grants and subsidies subject to program guidelines.
- Other priority areas, such as tourism zones, heritage sites, and qualified critical areas, may be eligible for a grant subsidy.

With the adoption of VGF under the URAF, GFIs may be utilized as a conduit for grants for sewerage projects. LWUA will continue to oversee project implementation and grant dispensation of WDs undertaking sanitation projects in partnership with LGUs. Figure 20 presents the computed funding per level of service and financing type for the total sanitation subsector investments.

Flow of Funds for Sanitation

A flowchart detailing the process of submission, evaluation, and approval of subsidy grant applications is shown in Figure 21.

For improved and basic sanitation infrastructure, it is recommended that GFIs and MFIs consider blended financing if they are to submit their proposals to DOF for review. Under the expanded NSSMP, three agencies, namely, the DILG, DPWH, and LWUA, will be tasked to disburse grant subsidies and financial assistance, facilitating a more robust dispensation of the grant money and increased number of evaluated applications. It is recommended that LGUs and LGU-run utilities submit their proposals to the DILG, while HUCs and

WDs may submit theirs to DPWH and LWUA.

Figure 22 presents the proposed flow of funds for sanitation projects. As previously discussed, grants will be coursed through LWUA, DPWH, DILG, and GFIs-MFIs. Development loans for improved sanitation may be accessed by LGUs from GFIs-MFIs. For septage and sewerage projects, loans may be accessed from GFIs and LWUA.



Figure 20: Funding and Financing Allocation for Sanitation Projects (in PHP Billion)



Figure 21: Proposed Flow of Applications for Financing Sanitation Projects



Figure 22: Proposed Flow of Funds for Sanitation Projects (in PHP Billion)

5.3 Plan Timeline

While the PDP and SDG targets will have been met by 2023 and 2030, respectively, the PWSSMP takes into account the state of the WSS sector beyond that period. In particular, further improvement of service access and upgrading of related infrastructure will consistently be pursued. Thus, the PWSSMP considers the following timeline:

- Short Term: 2020 to 2023
- Medium Term: 2024 to 2030
- Long Term: 2031 to 2040

Projects and activities contributing to the realization of sector targets and goals, especially for the short term, have been identified to facilitate their implementation alongside the operationalization of the PWSSMP. The assessment was made on the basis of the reform activities and their schedule of implementation.

The prioritization of short-term projects is based on: (a) the readiness of the projects (e.g., preliminary studies and assessment conducted, coverage area and project beneficiaries defined, project proponent/s organized and well-capacitated to operate and maintain WSPs to ensure sustainability); (b) funding or financial assistance having been secured; or (c) the project study area being included per immediate development plans of implementing entities (e.g., government agencies, etc.).

Proposed projects in the short term that have secured or likely to secure funding are included in the Priority Investment Program. The majority of the projects in the Priority Investment Program are based on pipeline projects as gathered from DILG and LWUA, which have been the main project and fund IAs in the WSS sector in recent years.

The consultations with LWUA and its roadmap determined the agency's plans and direction, aiding the prioritization of WD -covered areas for short-term projects. In addition, DILG's pipeline projects under SALINTUBIG and Bottom-up Budgeting programs for 2020 have been considered in the priority list.

As of 2018, feasibility studies for Mandamus, non-Mandamus, high NRW, and non-operational WDs were undertaken. The WDs with expected complete concept design and feasibility studies by 2019 have been included in the pipeline projects for 2020 (mobilization).

Also included under NEDA's Project Development and Other Related Studies (PDRS) Fund is the conduct of feasibility studies and/or concept designs for bulk water supply in selected provinces in the country. DILG will execute the project in collaboration with the appropriate LGUs. Initially identified and proposed projects in the short term are based on the key sector agencies' plans and directions in the immediate future. These are expected to increase and be expanded once the PWSSMP implementation is in full swing.

Programs, activities, and projects (PAP) to be determined thereafter shall be directed towards achieving WSS sector access targets per province and/or region. Targets not met in the short term (if any) shall be covered by PAPs that are slated for the medium and long terms.

5.3.1 Short-Term Investment Needs

As discussed in section 5.1.1, the required infrastructure investments for the period 2020–2023 total PHP 734.32 billion. Of this value, about PHP 62.00 billion worth of programs and projects have been initially identified and proposed, and included in the Priority Investment Program. The Priority Investment Program is scheduled for implementation in the short term.

Most of the items in the Priority Investment Program are based on concrete pipeline projects from LWUA and DILG. The projects' tangibility requires that they be implemented within the short-term planning horizon.

Each project under the Priority Investment Program has a total investment requirement upon which the projected disbursements for 2020 and 2021 are based. Activities for these first two years include project preparation such as feasibility studies, detailed engineering and design, and other work that shall be procured and conducted prior to the construction stage.

Activities related to soft components (e.g., capacity-building and IEC programs for the sanitation subsector), shall also be conducted in the same period. The budget requirement for project preparatory activities will be estimated using assumed percentages based on prevailing and historical industry trends and standards.

Table 14 lists and describes the schedule of programs included in the Priority Investment Program. Table 15 details their corresponding investment requirements and projected disbursements for 2020 and 2021.

5.3.2 Medium- to Long-Term Investment Needs

The WSS sector requires about PHP 1.07 trillion worth of physical and non-physical investments from 2020 to 2030 to achieve the targets set by the PDP and SDG. A large fraction of this amount is needed in the short term to reach the targets in inclusive years.

However, spending for the remaining and/or unrealized targets in the short term is expected to be carried over to the medium and long terms, and shall be combined with the required PHP 0.34 trillion worth of infrastructure investments with respect to universal access.

The base of the second state of the second sta	
I ania 14. Projects linder the Priority Investment Prod	iram

Projects	Description							
Schedule A	 WS improvement and expansion projects with pending requests for financial assistance from LWUA An ongoing evaluation of requests, with projected approval in 2019 							
Schedule B	 WDs under LWUA Master Plan available list WDs covered by Proposed Water Supply Expansion/Improvement and NRW Reduction Program 							
Schedule C	 WDs lined up for feasibility studies with regard to NRW reduction Expected FS completion in 2020 program for improvement activities to start in 2021 							
Schedule D	 Non-operational WDs lined up for FS with regard to operationalization Expected FS completion in 2002 Program for operationalization to start in 2021 							
Schedule E	DILG SALINTUBIG projects lined up for 2020							
Schedule F	 DILG Assistance to Municipalities projects lined up for 2020 (water and sanitation projects) 							
Schedule G	 Investment requirements for sanitation; percentage for FS derived 							
Schedule H	 Septage management projects for non-Mandamus WDs 							

Table 15: Priority Investment Program

	Identified Short-Term Projects		Total Investment Requirement (in PHP	Proje Disbur (in PHF	ected sement P Billion)	Remarks/Details
			Billion)	2019	2020	
1	Existing WDs		11.29	0.42	0.54	
1.1	With confirmed funding: ADB loan		3.24	0.07	0.11	Completion of FS and project preparation of four WDs (9.0 percent) in 2020, project construction work starts in 2021 (10.0 percent mobilization of four projects to be completed in three years)
1.2	With proposed projects:		8.05	0.35	0.43	
	Approved 2020 Budget		0.35	0.35		
	With Ongoing Evaluation/ Request	Schedule A	2.75		0.28	Assumed 10.0 percent in 2021 or under Official Development Assistance (thereafter)
	WUA Master Plan Available List for 2020	Schedule B	4.35		0.09	Feasibility studies and project preparation (9.0 percent) in 2021
	<i>With Feasibility Studies</i> <i>Completed by 2020</i>	Schedule C	0.60		0.06	An NRW Reduction Project FS will be completed in 2019; the project starts in 2021 (10.0 percent mobilization)
2	Non-operational		0.70	-	0.08	
2.1	With Feasibility Studies Completed by 2020	Schedule D	0.60		0.06	10.0 percent mobilization by 2021
2.2	SALINTUBIG Formed as LGU/WDs		0.10		0.02	10 LGUs at PHP 10.00 million (9.0 percent feasibility study and project preparation in 2021)
3	DILG		4.24	2.69	1.55	
3.1	2020 List of Projects	Schedule E	1.55	1.55		Water supply projects in various barangays and municipalities
3.2	2020 List of Assistance to Municipalities Projects	Schedule F	1.14	1.14		Potable water supply, rainwater catchment facility, health and
3.3	2020 Assumed Same Amount		1.55		1.55	sanitation projects
4	Sanitation		46.15	0.24	3.88	
4.1	Feasibility Studies of HUCs in 2020- 2021	Schedule G	44.65	0.24	1.67	Feasibility studies of sewerage projects in 2020-2021
4.2	6 percent Project Preparation for Basic and Improved Sanitation	-	-		1.96	44.0 percent government funds for basic and improved sanitation; assumed FS and project preparation (6.0 percent) in 2021
4.3	Septage Projects (LWUA Master Plan)	Schedule H	1.50		0.25	Establishment of septage management programs for 30 WDs at PHP 50.00 million per WD; five WDs scheduled in 2021
	Grand Total		62.38	3.35	6.05	

5.3.3 Strategic Interventions

Apart from the activities and reforms proposed in the eight key agenda (discussed in detail in the Master Plan), a number of other strategic interventions to achieve the WSS sector targets in 2023 and 2030 are discussed below. These shall help ensure that the proposed infrastructure projects are realized and are readily applicable and adoptable at the local level.

These interventions shall also be discussed in detail and shall be region-specific in the subsequent regional roadmaps included in this Volume.

Water Supply

The proposed strategic interventions for the water supply sector are presented in Table 16.

To meet the targets for access and coverage, and the normative content of water (service standards), the scope of works requiring capital investments needed in 2023 and 2030 are listed in Table 17.

Access to Safe Water	Planning and Development	Service Provision	Regulation	Promotion
95.0 percent Access to Safe Water by 2023	 Planning, program or project design Establishing laboratories and water quality testing centers Lobbying for the Region- al WSS Masterplan 	 M&E expansion Integration/ Amalgamation Automation Residuals management Mitigation Water potability main- tained at all times Providing 24/7 water 	 Arbitration Compliance with PNSDW 2017 Compliance training from DOH 	 Willingness to connect and pay Demand creation
Universal Access by 2030		 supply service Achieving 100.0 percent coverage 		

Table 16: Proposed Strategic Interventions for Water Supply

Table 17: Scope of Works Requiring Capital Investments Required for the Water Supply Targets

Service Level	2023	2030
Level III	 Construction of water treatment facilities Distribution network expansion Provision of service connections Development of a Water Safety Program Establishment of adequately equipped laboratory testing centers in strategic areas to serve all service levels clientele 	 Construction of water treatment facilities Distribution network expansion Provision of service connections Development of a Water Safety Program Automation of operations and major services
Level II	 Rehabilitation of existing water supply system to upgrade it to Level III 	 Rehabilitation of water supply system to upgrade it to Level III
Level I	 Upgrading to "safe level" those water sources found "unsafe" 	 Adoption of a rain water harvesting program in areas not reached by Levels II and III services

Sanitation

Table 18 presents specific strategic interventions for varying levels of access coverage for improved sanitation. This indicates that proposed interventions are specific and tailor-fitted to actual local conditions.

Capital investments for the sanitation targets will include programs in basic sanitation, septage management, and sewerage management.

For basic sanitation, it is recommended that DOH prescribe a national basic sanitation program for the entire country, looking into a combination of micro-financing and behavior change communication. A Department Administrative Order on standard septic tank use and design will also be released by DOH soon after the planned consultation activities are rolled out in the country's three major island groups (i.e., Luzon, Visayas, and Mindanao).

For septage management, a clustering approach will be recommended to reduce capital costs and attain economies of scale. Clustering of municipalities to be served by their dedicated proposed STP has been accomplished by the provinces' representatives in the regional consultations. Clusters shall be discussed in detail in the succeeding regional roadmaps.

Table	18: Proposed	Strate	egic In	terver	tions f	or Sanitation

Access to Improved Sanitation	Planning and Development Planning Program or Project Design Institution Building Training Financing Climate/Disaster Resiliency Policy	Service Provision Operations M&E Expansion Amalgamation Automation	<u>Regulation</u> Tariff/Pricing Resource Arbitration Registration, Permits, Rights	Promotions Social Preparation Advocacy Demand Creation Behavior Change
High Access Areas with 60.0 percent to 100.0 percent Improved Sanitation Coverage	 LSSP should be incorporated into the WSS Sector Plan, local development plan (LDP), annual investment program (AIP), and local health plan (LHP). A sewerage system program should be developed to provide service in the urban core coordinating with those in charge of the septage management program; project urban sprawl A NSSMP subsidy grant for sewerage and septage management programs (SMP) should be in place. Capacity development in regard to sewerage systems should be planned and integrated with other infrastructure. A sanitation ordinance covering sewerage system and septage management services should be passed, possibly integrating it into the environment code and Water Quality Management Areas (WQMA) action plan. 	 Sanitation programs should focus on implementing sewerage systems and completing septage management programs. Expansion of urbanized and urbanizing barangays should be pursued. M&E system should conform to PSA/ Census (covered by sewerage system, households desludged, and on- site systems). 	 Tariff should be computed using full cost recovery with infusion of capex subsidy for sewerage projects. LGU implementers have undergone compliance training given by DOH and DENR (particularly in sewerage systems), and the Dept. of Agriculture (DA) with respect to regulations/ guidelines governing disposal of by-products. Penalties should be strictly imposed on those not complying with certain requirements, including LGUs/ WDs by filing cases with the environmental ombudsman. 	 Promotions should focus on enjoining the public to connect to the sewerage system when made available stressing the importance of compliance and the benefits therefrom. Promotional efforts regarding WDM should be supported to minimize wastage and unnecessary use of water. Building buy-in for paying for sanitation services should be promoted.

Table 19	(continued)	Dropood	Stratogia	Interventione	for Sonitation
Table 10	(continueu)	. Floposeu	Silaleyic	interventions	IUI Samalium

Access to Improved Sanitation	<u>Planning and</u> <u>Development</u> <i>Planning</i> Program or Project Design Institution Building Training Financing Climate/Disaster Resiliency Policy	Service Provision Operations M&E Expansion Amalgamation Automation	<u>Regulation</u> Tariff/Pricing Resource Arbitration Registration, Permits, Rights	Promotions Social Preparation Advocacy Demand Creation Behavior Change
Medium Access Areas with 30.0 percent to 59.0 percent Improved Sanitation Coverage	 LSSP should be incorporated into the WSS Sector Plan, LDP, AIP, and local health plan. A septage management program should be developed to provide service to the entire population using a customized approach in rural areas. The NSSMP subsidy grant should be included in septage management programs. A sanitation ordinance covering septage management services should be passed, possibly integrating it with the environment code and WQMA action plan. 	 Sanitation programs should focus on implementing septage management programs and completing projects on basic sanitation and zero open defecation. Systems should be expanded to cover increase in population and additional buildings. M&E system should conform to PSA/ Census (covered by households desludged and on- site systems). Sewerage system programs should be introduced. 	 Tariff should be computed using full cost recovery with possible infusion of capex subsidy for septage management projects (with possible clustering of LGUs). LGU/WD implementers should have undergone compliance training given by DOH and DENR (particularly in septage management systems), and by DA regarding regulations/ guidelines on disposal of by- products. Strict penalties should be imposed on those not complying with certain procedures, including LGUs/WDs, by filing cases with the environmental 	 Promotions should focus on enjoining households to have their septic tanks desludged once SMP is in place. The importance of building the right septic tanks and the benefits of good sanitation should likewise be promoted. Building buy-in for paying for sanitation services should be promoted.

ombudsman.

Table 18 (continued): Proposed Strategic Interventions for Sanitation

Access to Improved Sanitation	<u>Planning and</u> <u>Development</u> <i>Planning</i> Program or Project Design Institution Building Training Financing Climate/Disaster Resiliency Policy	Service Provision Operations M&E Expansion Amalgamation Automation	<u>Regulation</u> Tariff/Pricing Resource Arbitration Registration, Permits, Rights	Promotions Social Preparation Advocacy Demand Creation Behavior Change
Low Access Areas with 0.0 percent to 29.0 percent Improved Sanitation Coverage	 LSSP should be incorporated into the WSS Sector Plan, LDP, AIP, and local health plan. A basic sanitation program should be developed and an ordinance thereon passed to make sure that every household/building has a toilet and septic tank and access to on-site treatment. Financial support should be pursued for basic sanitation programs – a combination of micro- finance and behavior change communication, possibly integrating OBA sweat equity, and sanitation vouchers. Interventions should be planned for rural and inaccessible areas; alternative on-site systems should be developed. 	 Sanitation programs should focus on implementing projects in basic sanitation and zero open defecation. M&E system should conform to PSA/ Census in place (covered by on-site systems). Septage management programs should be initiated. 	 LGU/WD implementers should have undergone compliance training initiated by DOH and DENR (particularly in basic sanitation systems). Compliance with Office of the Building Officials and Sanitary Inspectors regulations and guidelines should be required. Strict penalties should be imposed on those not complying with building regulations and laws on open defecation. 	 Promotions should focus on enjoining the public, households and building administrators to have their toilets and septic tanks properly installed The level of public awareness of the benefits of good sanitation should be raised. Public awareness of the health and environmental hazards of open defecation should be generated.

6 Implementation, Monitoring, and Evaluation Arrangements

The PWSSMP is ready for implementation using the current WSS institutional arrangements and practices. The eight KRA (soft components) improve the enabling environment of the WSS sector even as priority programs (hard components) are being pursued.

The implementation of the PWSSMP has the following guiding principles:

- The PWSSMP includes the creation of the apex body.
- A PMO must implement the initial activities of the PWSSMP while the creation of the apex body is underway.
- The infrastructure investment program can be implemented in two stages:
 - Stage 1 is to be implemented by the PMO. The apex body has to be set up with the objective of creating a new department (referred to in this document as The PMO shall implement the initial investment program as set in the PWSSMP during the transition and in support of the DWR.
 - Stage 2 is to be implemented by the DWR. With the PMO catalyzing the implementation of the PWSSMP in Stage 1 and building the capacity of the DWR, the next stage should have a smooth transition.
- The financing mechanisms in the previous chapter may change with the finalization of the URAF. The first phase of the infrastructure investments includes activities to allow the transition to the URAF.
- The pre-investment activities are required in implementing the investment program for PWSSMP. This section may take 12 months.

- The PWSSMP can be implemented in four phases:
 - Phase 1 (2019) includes the 12-month pre-investment activities;
 - Phase 2 (2020 to 2023) marks the start of the implementation by the PMO of the PWSSMP investment program from 2020–2023;
 - Phase 3 (2024 to 2030) is the continuation of the implementation of the PWSSMP investment program by the DOW starting 2024; and
 - Phase 4 (beyond 2030), on the other hand, considers the remaining projects and activities that may be implemented beyond 2030 and may lead towards the culmination of AmBisyon Natin 2040. While the PWSSMP considers the planning horizon of 2019-2030, continuous improvement of service access and accompanying infrastructure shall be pursued.

6.1 General Oversight and Guidance

While the apex body is still being created, NEDA shall be the executing agency with respect to the PWSSMP implementation. The DWR will be the IA backstopped by NWRB during the interim setup.⁴⁰

INFRACOM-SCWR will provide oversight and guidance. The project steering committee (PSC) must include NEDA, DPWH, DILG, DOH, DOF, DBM, and the DWR.

⁴¹ NWRB has the legal mandate but needs further support and institutional strengthening to be able to function as such.

6.2 Management and Supervision

The following offices shall manage the phases of implementation:

Table 19: Management and Supervision forPWSSMP Implementation

Phase	Management	Supervision
Phase 1 (2019)	NEDA	NEDA, OP
Phase 2 (2020 to 2023)	РМО	NWRB, NEDA, OP
Phase 3 (2024 to 2030) and Phase 4 (beyond 2030)	DWR	OP

The PMO can be placed under the oversight of NEDA or NWRB.

6.3 Project Execution

The PWSSMP will be implemented as follows:

- Phase 1 (2019) covers the pre-investment activities, and must be executed by NEDA as the PMO. This phase includes the approval and adoption of the PWSSMP and Investment Program.
- Phase 2 (2020 to 2023) implements the PWSSMP and Investment Program. Phase 2 shall execute investment programs from 2020 to 2023 to achieve the WSS targets as stipulated in PDP 2017–2022.
- Phase 3 (2024 to 2030) must be led by the DWR and must continue the implementation of Phase 2. Phase 3 shall execute investment programs from 2024 to 2030. This phase covers the remaining WSS gaps to achieve universal WSS services in the country. Implementation of any remaining and/or unfinished PAPs after said period may be executed beyond 2030 and shall be covered in Phase 4 (beyond 2030).

Phase 1 (2019): Pre-Investment Activities

The pre-implementation activities will include the following:

- Approval and adoption of the PWSSMP and Investment Program;
- Scope, program, and plan for finances;
- Rollout of the PWSSMP and Operational Plan; and
- PWSSMP and Investment Program preparation activities for the Priority Investment Program

Phase 2 (2020 to 2023) and Phase 3 (2024 to 2030): PWSSMP and Investment Program

The PWSSMP and Investment Program will include the following components:

- Pro-poor WSS infrastructure;
- PPP-friendly WSS investments;
- Integrated WSS investments;
- Support for WSS investments regarding climate-resilient structures; and
- Support for infra-expansion investments to increase coverage.

Two modalities are preferred but not imposed in implementing PWSSMP and Investment Program:

- Investments for WDs: For existing and potential WDs, the mode of implementation is that undertaken through LWUA.
- Investments thru LGU-run utilities: For existing and potential LGU-run utilities, the mode of implementation is carried out through DILG or LGUs.

The other investment modalities for private and community-based service providers are to be established during Phase 1 (pre-investment activities) and the URAF.

Implementation of the Key Reform Agenda

Simultaneous with the implementation of PWSSMP and Investment Program are various activities and actions identified in the eight KRA.

6.4 Framework of Collaboration

This section sets the framework of collaboration of the agencies, institutions, and WSPs in the WSS sector.

Statement of Common Purpose

In addition to the national targets and commitments to achieve universal access to safe water and basic sanitation, a common purpose of this WSS endeavor states:

"Water is life, and sanitation is dignity."

Access to water is a basic need and a right to life. In addition, providing safe water and safely managed sanitation recognizes and respects human dignity.

Goals

The goal of this PWSSMP is to set the country's direction towards achieving the WSS national targets and commitments. Thus, the PWSSMP considers the current situation and works with the fragmented sector towards achieving these targets.

The goals of the PWSSMP are as follows:

- To achieve a collaborative and effective working relationship among line agencies, institutions, WSPs, partners, and the stakeholders;
- To collectively influence national policies and the public on water use, conservation, and sanitation;
- To offer or improve opportunities and supports regarding WSS initiatives and efforts;
- To demonstrate a united and integrated sector with a common purpose and goal; and
- To work towards an integrated and coordinated WSS sector.

Working Together

The following principles govern collaboration initiatives:

- A conviction that we can be more effective by working together;
- A public service philosophy with the constituents at its core;
- A commitment to transparency and accountability;
- A commitment to regular, open, and inclusive communication; and
- A mutual respect for the distinct (though overlapping) responsibilities and undertakings of line agencies consistent with the overall thrust of the sector.

Roles and Responsibilities

PMO

- Evaluate and approve proposals;
- Procure the services of consultants for the DED/FS;
- Implement DED/FS and other preparatory studies for LGU-run utilities;
- Prepare an updated investment and disbursement program;
- Procure and engage construction supervision consultants; and
- Monitor and evaluate the PWSSMP and Investment Program;

LWUA

- Receive, process, and endorse proposals from WDs;
- Prepare Terms of Reference (TOR) and assist in the selection;
- Implement DED/FS and other preparatory studies;
- Prepare an updated disbursement program based on the status of DED/FS;
- Procure and engage construction supervision consultants to verify disbursement to the WDs.

DILG

- Receive, screen and endorse proposals from LGU-run utilities;
- Prepare TOR and assist in the selection;
- Monitor progress of implementation and liaise between the LGU and the PMO; and
- Liaise between the PMO and the LGU and develop or implement a capacitybuilding program for Level I and Level II WSPs.

Water Districts and LGU-Run Utilities

- Submit proposals to LWUA/DILG;
- Assist in the selection of consultants (if required);
- Work with the consultants in regard to the DED/FS;
- Prepare for the implementation and construction of WSS systems, and submit requirements to LWUA and DILG; and
- Engage contractors.

DOH, NWRB, DILG

- Review proposals that respond to programs and projects specific to the agencies;
- Provide inputs to the TOR and assist in the selection of consultants for respective projects of the agencies;
- Provide input to the disbursement program, when appropriate;
- DOH shall liaise with the DILG on the needs for capacity-building regarding sanitation; and
- NWRB shall facilitate the processing of water permit applications and ensure a rational water allocation.

DBM

- Review and approve requests for funds;
- Monitor disbursements;
- Review, approve, and allocate funds based on the approved investment program (only from the government's end); and
- Disburse funds to the PMO for LGU-run projects.

Regional NEDA and Provincial LGUs

- Provide regional and provincial data as well as targets and accomplishments based on agreed-on KPIs;
- Receive, review for completeness, and endorse proposals;
- Monitor the physical progress of projects and disbursements through Local Project Monitoring Committees; and
- Provide feedback on project development and implementation.

6.5 Mechanisms and Processes (General)

PWSSMP and Investment Program (Hard Components)

Planning and Programming

Regional WSS master plans set regional targets and the regions' contribution to the national targets. These plans include establishing provincial and municipal WSS data and provincial strategies, programs, and identified projects. The data will be entered into the Philippine WSS Information System.

WSS Projects for Funding

The process and mechanism for WSS infrastructure projects for funding vary by component and mechanism (e.g. through LWUA, DILG, DPWH, DOH). These shall be detailed and finalized during Phase 1.

Progress Monitoring and Assessment

The progress of the PWSSMP shall be monitored through the PWSSIS. The status of projects will be updated by the concerned provinces and validated by the respective regions.

Monitoring of projects includes attribution of approved WSS projects to the regional and national targets. Thus, progress in reference to national targets can be assessed, and appropriate actions can be made to address concerns and improve performance.

Assessment of Performance

In terms of achievement of national targets and commitments, assessment of performance shall be done using PSA data.

Key Reform Agenda (Soft Components)

Implementation and M&E

The eight KRA will be implemented by various agencies. Provided below is the results-based matrix that indicates which KRA are to be undertaken, the responsible agencies, success indicators, means of verification (e.g., data sources), and timeline.

NEDA, PMO, and DWR shall evaluate the progress of the KRA.

Results-Based M&E Matrix

The following results-based M&E matrices summarize the expected outcomes of the PWSSMP by KRA and are supplemented by data on the time frame and agencies responsible.

To ensure alignment and conformity with the government's reporting system, the timing, manner, frequency, method of aggregation, and other procedural elements of data collection for the proposed success indicators will abide by the protocol already established by the government in monitoring and reporting its accomplishments.

WSS Sector Ou	tcomes			
Reform Outcome	Success Indicator	Means of Verification	Data Source	Time Frame
Water	Percentage of households with access to safe water supply increased	National surveys	NEDA, PSA	2019 onwards
Sanitation	Percentage of households with access to basic sanitation increased	National surveys	NEDA, PSA	2019 onwards

KRA No. 1: Establish	ning Effective WSS Sector Inst	itutions		
Reform Outcome	Success Indicator	Means of Verification	Data Source	Time Frame
WSS service providers meeting key WSS performance targets	Number of WDs meeting KPI targets	Water utility accomplishment reports	LWUA, NWRB, MWSS	2019 onwards
Synergy of efforts in the fulfillment of WSS-related agency mandates	MOUs between and among NGAs in the WSS sector	Copies of signed MOUs	NGAs	2019 onwards

MAJOR OUTPUTS

- WSS apex body established
- Local WSS Development Office established
- Capacity-building programs developed and implemented for LGUs (WSPs, WSS Development. Office), WDs, and LWUA
- LGU-led water utilities transformed into economic enterprises or with PSP/PPP
- Study on possible amalgamation of WSPs conducted
- PD 198 amended

KRA No. 2: Strength	ening Regulatory Environment			
Reform Outcome	Success Indicator	Means of Verification	Data Source	Time Frame
Stronger enforcement of regulatory guidelines to	Percentage of JV agreements reflecting the consumer safeguard provisions identified by the GoP	Copies of approved JV contracts	NEDA, LWUA	2019 onwards
interests and to	Percentage of consumer complaints resolved	LWUA and WD reports	NEDA, LWUA	2019 onwards
of WSPs	Number of days to approve requests for tariff adjustment shortened	NWRB board resolutions	NWRB	2019- 2020
	Percentage of households inspected for compliance to set sanitation standards	Provincial Health Offices (PHOs) monitoring reports	DOH, PHOs	2019 onwards

- Regulator clearly identified
- Transparent bidding procedures established
- Contracts with clearly defined investment schedules, service obligations, and penalties enforced
- Responsive tariff structure developed
- Tariff review processes improved and expedited
- NWRB guidelines for granting of water permits and CPCs to private operators reviewed and rationalized
- Water permits granted to NIA reviewed
- WRC established

KRA 3: Creating and Ensuring Effective WSS Services Means of Time **Reform Outcome** Success Indicator Data Source Verification Frame WSS service LWUA, DILG, 2019 No. of days within which Consumer integrated in its WSS service is approved surveys DOH, LGUs, onwards approach and from time of request reduced WDs operation 2019 Percentage of households Water utility LWUA, DILG, provided with both water reports DOH, LGUs, onwards supply and sanitation WDs services

MAJOR OUTPUTS

- WSS services well designed (with emphasis on residents in geographically isolated and depressed areas [GIDA] and who belong to poor communities, indigenous people, and other marginalized sectors)
- Community awareness of the importance of water quality and the causes of water pollution raised
- Appropriate and sustainable WSS facilities and infrastructure built
- WSS services in annual local development programs integrated and mainstreamed

KRA No. 4: Balancing	Water Supply and Demand			
Reform Outcome	Success Indicator	Means of Verification	Data Source	Time Frame
Optimized utilization of available water sources	No. of WSPs with non- traditional water sources (e.g., rainwater, recycled floodwater) formed	Water utility accomplishment reports	LWUA, LGUs, WDs	2019 onwards
	No. of hectares of watershed protected	FMB and River Basin Control Office (RBCO) reports	NWRB, DENR (FMB and RBCO), LGUs	2019 onwards
	Percentage of NRW reduced	Water utility accomplishment reports	lgu, lwua, Nwrb	2019 onwards
Regulated water demand	Per capita consumption reduced without downgrading the standard of living	Water utility accomplishment reports	NWRB, LGU, LWUA	2019 onwards

- IWRM councils formed
- River basin studies completed
- Potential water sources developed
- Bulk water supply at provincial and/or river basin levels established
- Policies on the efficient use of water implemented
- Wastewater reclaimed and recycled
- Nontraditional water sources (e.g., rainwater) explored and developed
- New pipelines and appurtenances replaced and/or installed
- System pressure regulated
- Number of sanitation projects (with emphasis on rainwater) increased

KRA No. 5: Building Climate Resiliency				
Reform Outcome	Success Indicator	Means of Verification	Data Source	Time Frame
Climate-resilient WSS infrastructure and services	Percentage of water utilities with water security plan approved	LWUA and DOH records	LWUA, DOH	2019 onwards
	Percentage of flood control and drainage structures built with retarding/retention basins for future use	DPWH, HLURB records	DPWH, HLURB	2019 onwards

MAJOR OUTPUTS

- . Climate resiliency measures passed and made mandatory
- New WSS systems located, designed, and constructed taking climate risks into consideration
- .
- WSS systems improved and made climate-resilient Sanitation systems designed to consider volume reduction and changes in wastewater characteristics and ecosystems
- Water efficiency standards of water fixtures issued and included as a provision of the Building Code and Plumbing Code .
- Guidelines requiring labelling of efficiency of water use of water fixtures issued
- Watersheds protected and rehabilitated

KRA No. 6: Enablin	g Access to Funding and Financ	ing		
Reform Outcome	Success Indicator	Means of Verification	Data Source	Time Frame
Increased investments in the WSS sector	Percentage in financing and funding (by amount and type) increased	LWUA, GFIs and PFIs records	LWUA, GFIs, PFIs	2019 onwards
	Percentage increase in number of WSPs with access to financing and funding increased	LWUA, GFIs and PFIs records	LWUA, GFIs, PFIs	2019 onwards

- URAF fully implemented
- LWUA financing policies and transaction processes streamlined .
- WSPs and LGUs trained in accessing financing
- Funding arrangements consolidated through LWUA
- . More competitive and flexible terms of GFIs effected

KRA No. 7: Managing Data and Information				
Reform Outcome	Success Indicator	Means of Verification	Data Source	Time Frame
Comprehensive, harmonized, integrated, up-to- date and reliable WSS database of	Increase in the number of WSS performance indicators harmonized with SDG WSS indicators	PSA website	NEDA, PSA	2019 onwards
the Philippines.	Increase in the number of SDG-related WSS indicators captured by PWSS database within six months	PWSS database	Apex body, NEDA (interim)	2019 onwards
Data from WSS Information System readily available and regularly used by policy-makers, line agencies, LGUs, and WSS partners, and WSS service providers	100.0 percent of data used in reporting WSS performance taken from PWSS database	NGA planning and implementation documents	NGAs	2020 onwards

MAJOR OUTPUTS

- Guidelines and framework for the Harmonization and Integration of WSS data drafted
- Philippine WSS Information System developed
- Data custodians in the apex body trained in WSS Information System
- Law compelling data custodians to timely and regularly enter and upload WSS-related data passed

KRA No. 8: Driving Research and Development				
Reform Outcome	Success Indicator	Means of Verification	Data Source	Time Frame
Use and adoption of innovative WSS technologies and cost-effective solutions	Percentage in per capita consumption reduced	LWUA, WDs, MWSS, NWRB records	LWUA, NWRB, MWSS, DILG, LGUs	2019 onwards
	Satisfaction with sanitation services (with particular focus on innovation and cost) kept up	Customer satisfaction surveys, WD records	WDs	2019 onwards
	Sanitation service fees maintained or reduced			

- Research and Development Division and division in charge of accrediting WSS-related new technologies at apex body formed
- Accreditation process of new technologies related to WSS improved
- Studies on innovative technologies and cost-effective solutions adopted and properly implemented; government financial support for local WSS-related inventions sustained
- Studies on advance infrastructure design and construction methodology solutions adopted, enforced, and properly implemented
- Philippine WSS database made responsive to macro-level WSS research and development requirements

Glossary

Annual Poverty Indicators Survey (APIS)

A nationwide survey that presents data on the socioeconomic profile of Filipino families, and other information that relates to their living conditions. (PSA)

Basic Sanitation Facility Use of improved facilities which are not shared with other households

Basic Water Facility

ty Drinking water from an improved source provided collection time is not more than 30 minutes for a roundtrip including queuing

Black Water Wastewater containing feces or other remnants of sanitary use (UN International Groundwater Resources Assessment Center)

Biological Oxygen Demand A measure of the amount of oxygen removed (respired) from aquatic environments by aerobic microorganisms either in the water column or in the sediments. (DENR)

- Climate Climate in a narrow sense is usually defined as the average weather, or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. The classical period for averaging these variables is 30 years, as defined by the World Meteorological Organization. The relevant quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system. In various chapters in this report different averaging periods, such as a period of 20 years, are also used. (Intergovernmental Panel on Climate Change [IPCC], 2012)
- Climate Change A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcing, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. (IPCC, 2012)
- Cold Days/ Cold Nights Days where maximum temperature, or nights where minimum temperature falls below the 10th percentile, where the respective temperature distributions are generally defined with respect to the 1961-1990 reference period. (IPCC, 2012)

Creditworthy WSPs Self-sustaining WSPs capable of accessing financing from GFIs and/or PFIs (LWUA)

Domestic Consumption (Use) Water used for household purposes such as washing, food preparation and showers . It is the quantity, or quantity per capita, of water consumed in a municipality or district for domestic uses or purposes during a given period. It sometimes encompasses all uses, including the quantity wasted, lost, or otherwise unaccounted for.

Disaster Risk Reduction Denotes both a policy goal or objective, and the strategic and instrumental measures employed for anticipating future disaster risk; reducing existing exposure, hazard, or vulnerability; and improving resilience. (IPCC, 2012)

Drinking Water Water intended for human consumption or for use in food preparation.

- Effluent Discharges from a known source passing into a body of water or land, or wastewater flowing out of a manufacturing plant, industrial plant including domestic, commercial and recreational facilities.
- Effluent Standard Any legal restriction or limitation on quantities, rates, and/or concentrations or any combination thereof, of physical, chemical or biological parameters of effluent which a person or point source is allowed to discharge into a body of water or land.

El Niño-Southern Oscillation A warm-water current that periodically flows along the coast of Ecuador and Peru, disrupting the local fishery. It has since become identified with a basin-wide warming of the tropical Pacific Ocean east of the dateline. This oceanic event is associated with a fluctuation of a global-scale tropical and subtropical surface pressure pattern called the Southern Oscillation. This coupled atmosphere-ocean phenomenon, with preferred time scales of 2 to about 7 years, is collectively known as the El Niño-Southern Oscillation. It is often measured by the surface pressure anomaly difference between Darwin and Tahiti and the sea surface temperatures in the central and eastern equatorial Pacific. During an ENSO event, the prevailing trade winds weaken, reducing upwelling and altering ocean currents such that the sea surface temperatures warm, further weakening the trade winds. This event has great impact on the wind, sea surface temperature, and precipitation patterns in the tropical Pacific. It has climatic effects throughout the Pacific region and in many other parts of the world, through global teleconnections. The cold phase of ENSO is called La Niña. (IPCC, 2012)

- Environmental Management A system which includes, but is not limited to, conservation, regulation and minimization of pollution, clean production, waste management, environmental law and policy, environmental education and information, study and mitigation of the environmental impact on human activity, and environmental research.
 - Flood The overflowing of the normal confines of a stream or other body of water, or the accumulation of water over areas that are not normally submerged. Floods include river (fluvial) floods, flash floods, urban floods, pluvial floods, sewer floods, coastal floods, and glacial lake outburst floods. (IPCC, 2012)
 - Governance The way government is understood has changed in response to social, economic, and technological changes over recent decades. There is a corresponding shift from government defined strictly by the nation-state to a more inclusive concept of governance, recognizing the contributions of various levels of government (global, international, regional, local) and the roles of the private sector, of non-governmental actors, and of civil society. (IPCC, 2012)
 - Groundwater Subsurface water in which the pressure is equal to or higher than the local atmospheric pressure. In other words: water below the water table or phreatic level. (UN-International Groundwater Resources Assessment Center)
- Integrated Water Resources Management A process which promotes the coordinated development and management of water, land and related resources to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment.
 - Landslide A mass of material that has moved downhill by gravity, often assisted by water when the material is saturated. The movement of soil, rock, or debris down a slope can occur rapidly, or may involve slow, gradual failure. (IPCC, 2012)
 - Latrine A structure, usually consisting of a hole in the ground that is used as a toilet.

Level I Water Source *Point source;* This service level provides a protected well or a developed spring with an outlet but without a distribution system. Hence, the users go to the source to fetch water. Level I sources are generally adaptable in rural areas where the houses are thinly scattered. These sources serve an average of 15 households within a radius of 250 meters.

Level II Water Source	Communal faucet system or stand post; A piped system composed of a source, a reservoir, a piped distribution network, and communal faucets. Each communal or public faucet usually serves four to six households within a radius of 25 meters. Users still go to the supply point (communal faucet) to fetch water. This type of system is generally suitable for rural and urban fringe areas where houses are clustered densely to justify a simple piped system. <i>Waterworks system;</i> This system includes a source, a reservoir, a piped distribution network, and individual household taps. It is generally suited for densely populated urban areas where the population can afford
Limited Sanitation	Use of improved facilities shared between two or more households.
Limited Water	Drinking water from an improved source where collection time exceeds 30 minutes for a round trip, including queuing.
Millennium Development Goals	Eight international development goals for the poorest people for the year 2015. It was established during the Millennium Summit of the UN in 2000. (UN Development Programme)
Morbidity Rate	Number of deaths due to a disease divided by the total population.
Non-Revenue Water	Water that has been produced and is "lost" before it reaches the customer.
Open Defecation	Disposal of human feces in fields, forests, bushes, open bodies of water, beaches or other open spaces or with solid waste.
Public private participation	Contractual arrangements entered into by the government with the
Runoff	That part of precipitation that does not evaporate and is not transpired, but flows through the ground or over the ground surface and returns to bodies of water. (IPCC, 2012)
Safely managed Water Facility	Drinking water from an improved water source which is located within premises, available when needed and free from fecal and priority contamination.
Safely managed Sanitation Facility	Use of an improved sanitation facility which is not shared with other households and where excreta are safely disposed on-site or transported and treated off-site.
Sanitation	A wide range of services and arrangements pertaining to the hygienic and proper management of human excreta (feces and urine) and community liquid wastes to safeguard the health of individuals and communities;
	A process pertaining to preventing diseases by hindering pathogens or disease-causing organisms found in excreta and sewage from entering the environment and coming into contact with people and communities;
	The construction of adequate handling, collection, treatment, and disposal or reuse facilities and the promotion of proper hygiene behavior, so that facilities are effectively used at all times. (Philippine Sanitation Roadmap)
Sanitation Facilities	On-site facilities such as toilets and septic tanks for safe disposal of human waste.
Sanitation Services	Management of excreta from the facilities used by individuals, through emptying and transport of excreta for treatment and eventual discharge or reuse. (UNICEF/WHO Joint Monitoring Programme)
Septage	The sludge produced in individual onsite wastewater-disposal
Septage Management	Comprehensive programs for managing septic tanks and the procedures for the desludging, transporting, treating and disposing
Sewage	or septic tank contents. Water-borne human or animal wastes, excluding oil or oil wastes, removed from residences, buildings, institutions, industrial and commercial establishments together with such groundwater, surface water and storm water as maybe present including such waste from vessels, offshore structures, other receptacles intended to receive or retain wastes, or other places (or the combination thereof)

Sewerage	which include, but are not limited to, any system or network of pipelines, ditches, channels, or conduits including pumping stations, lift stations and force mains, service connections including other constructions, devices, and appliances appurtenant thereto, which involves the collection, transport, pumping and treatment of sewage to a point of disposal.
Sludge	Any solid, semi-solid or liquid waste or residue generated from a wastewater treatment plant, water supply treatment plant, or water control pollution facility, or any other such waste having similar characteristics and effects.
Sustainable Development Goals	Also known as Global Goals, which build upon the successes of the MDGs. It has 17 goals for year 2030 that call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. (United Nations Development Programme)
Surface Water	Water located on the surface of the Earth, such as in streams, rivers, and lakes. (UN-International Groundwater Resources Assessment Center)
Treatment	Any method, technique, or process designed to alter the physical, chemical or biological and radiological character or composition of any waste or wastewater to reduce or prevent pollution
Tropical Cyclone	pollution. The general term for a strong, cyclonic-scale disturbance that originates over tropical oceans. Distinguished from weaker systems (often named tropical disturbances or depressions) by exceeding a threshold wind speed. A tropical storm is a tropical cyclone with one-minute average surface winds between 18 and 32 m s-1. Beyond 32 m s-1, a tropical cyclone is called a hurricane, typhoon, or cyclone, depending on geographic location. (IPCC, 2012)
Unified Resource Framework Allocation (URAF)	The URAF-WSS is a framework that aims to address the fragmented and uncoordinated approach in funding and implementing WSS projects across the country and will aid the achievement of universal access and improved service standards. It intends to address the inequitable delivery of basic WSS infrastructure caused by inadequate funding, low technical capacities of small service providers, and institutional challenges through the development of a common structure for rationally allocating available resources towards expediting the
Unimproved Drinking Water	Drinking water from an unprotected dug well or unprotected
Unimproved Sanitation Facility	Use of pit latrines without a slab or platform, hanging latrines and bucket latrines
Vulnerability	Degree of loss to a given element or set of elements at risk resulting from a hazardous phenomenon of a given magnitude.
Warm Days/Warm Nights	Days where maximum temperature, or nights where minimum temperature exceeds the 90th percentile, where the respective temperature distributions are generally defined with respect to the 1961-1990 reference period. (IPCC, 2012)
Water Supply	The share of water abstraction which is supplied to users (excluding losses in storage, conveyance and distribution). (Global Water Partnership)
Waste	Any material either solid, liquid, semisolid, contained gas or other forms resulting from industrial, commercial, mining or agricultural operations, or from community and household activities that are devoid of usage and discarded.
Wastewater Wastewater Treatment	Waste in liquid state containing pollutants. A process used to convert wastewater into an effluent (outflowing of water to a receiving body of water) that can be returned to the water cycle with minimal impact on the environment or can be directly reused
Water Pollution	Any alteration of the physical, chemical or biological or radiological properties of a water body resulting in the impairment of its purity or quality
Water Quality	The characteristics of water which define its use in terms of physical, chemical, biological, bacteriological or radiological characteristics by which the acceptability of water is evaluated.

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