



Work programme

Increasing Financial Flows for Urban Sanitation

Case study

Baguio City, The Philippines

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Part A: Background on the Philippines

Geography

The Republic of the Philippines is an archipelago found in Southeast Asia. It is surrounded by the Bashi Channel to the north, Sulu and Celebes Seas to the south, the Pacific Ocean to the east and the South China Sea to the west (Fig. 1.) It has a land area of about 300,000 square kilometres and is composed of 7,107 islands. The three largest groups of islands in terms of land area are Luzon (47%), Visayas (19%) and Mindanao (34%) (PSA, 2016a; PSA, 2014). It has two seasons: the wet season beginning June until November, and the dry season during the months of December to May.

*Figure 1. Map of the Philippines
(National Government Portal, 2017)*



Government

The country has a presidential democratic form of government, with equal powers resting on each of the three branches: executive, legislative and judicial. The 24-member cabinet and a Vice President assist the President during his 6-year term. Legislation is performed by the legislative branch composed of the Congress, a bicameral body of 24 elected senators and more than two hundred district representatives. The Philippines a unitary presidential constitutional republic, with the President of the Philippines acting as both the head of state and the head of government. The central government 'maintains supervisory powers and an important financial role over lower levels of government' (UPSIO, 2016).

There are 17 administrative regions which include the National Capital Region (or Metro Manila) and the Cordillera Administrative Region (CAR). As of December, 2015, the country has 81 provinces, 145 cities, 1,489 municipalities and 42,036 barangays. Country development is executed by two distinct government sectors: national and local. The country's resources are shared and used by these sectors. The local government sector has officials elected to serve a three-year term in office. Local autonomy is provided for in the Local Government Code of 1991 in the province, city and municipality (PSA, 2016a).

POPULATION

As of August 1, 2015, the total population grew to 100,981,437 (Table 1). The average population growth rate for the years 2010-2015 is 1.72%. Luzon, composed of eight regions, holds 56.9% of the country's population. Mindanao comes in second with 23.9% for all its six regions, while Visayas, with four regions, comprises the remaining 19.2% of the population. Table 2 shows that as of 2010, the urban population is lesser than that of the rural population. There is, however, a foreseen trend of an internal rural-to-urban migration that will, over time, mean that the urban population surpasses that of the rural population. The data on population is of importance

Table 1. Population for the Philippines, NCR, CAR, Benguet and Baguio City

REGION, PROVINCE, AND HIGHLY URBANIZED CITY	TOTAL POPULATION			POPULATION GROWTH RATE		
	1-May-00	1-May-10	1-Aug-15	2000-2010	2010-2015	2000-2015
PHILIPPINES	76,506,928	92,337,852	100,981,437	1.9	1.72	1.84
NATIONAL CAPITAL REGION (NCR)	9,932,560	11,855,975	12,877,253	1.78	1.58	1.72
CORDILLERA ADMINISTRATIVE REGION (CAR)	1,365,412	1,616,867	1,722,006	1.7	1.21	1.53
BENGUET (excluding BAGUIO CITY)	330,129	403,944	446,224	2.04	1.91	1.99
BAGUIO CITY	252,386	318,676	345,366	2.36	1.54	2.08

Source: PSA

Table 2. Urban-Rural Population Distribution

Population Distribution, %			
	2000	2007	2010
Urban	48.0	42.4	45.3
Rural	52.0	57.6	54.7

Source: PIF2016

as, among others, it provides a basis for the apportionment of the Internal Revenue Allocation (IRA) to local government units and for the creation of new legislative areas such as regions, provinces, municipalities and barangays, or further the conversion of a municipality into a city (PSA, 2015a). In 2015, the average country population density was 337 per square kilometre.

In 2015, poverty incidence decreased to 21.6%, but this percentage still equates to 21.9 million Filipinos who are considered poor (Fig. 2).

Figure 2. Poverty Incidence in the Philippines (PSA, 2015b)



¹<http://psa.gov.ph/poverty-press-releases>

² Poverty incidence is the proportion of families/individuals with per capita income less than the per capita poverty threshold to the total number of families/individuals.

Sources of the Basic Data: Merged 2015 Family Income and Expenditure Survey and January 2016 Labor Force Survey, PSA

ECONOMY

The Philippines, an emerging market economy, is projected to have a 2017 GDP growth potential of 6.6% and 6.8% percent in the medium term, driven by robust domestic demand. In the ASEAN-5 (made up of Indonesia, Malaysia, the Philippines, Singapore, and Thailand), the Philippines' growth slowed from 6.9% to 6.4% in the first half of 2017, compared to accelerated growth in most countries (in comparison with 2016 figures). The

Philippines, however, continues to be the fastest growing country in the group (IMF, 2017) despite calamities, the controversies on the war on drugs, the Marawi conflict and Martial Law in Mindanao. This fast growth may be attributed to the current government’s thrust on poverty alleviation, funding and aggressive implementation of infrastructure projects, anti-corruption, and tax reform.

For the second quarter of 2017, the National Economic and Development Authority (NEDA) reported a GDP growth of 6.5% (Fig. 3).

The Philippines, as an open economy, trades with countries like South Korea, the United States, Germany, Japan and China. Electronics, semiconductors, transport equipment, construction materials, and minerals, among others, are the country’s primary exports (About the Philippines, 2017).

Tourism is contributory to the growth of the Philippine economy. In 2013, the country received a record 4.7 million foreign tourists, attributed to the “It’s More Fun in the Philippines” tourism branding. Among the top favourites for tourists were Boracay Island in Aklan, Puerto Princesa Underground River in Palawan, Chocolate Hills in Bohol, Mayon Volcano in Albay, and the Banaue Rice Terraces in Ifugao, as well as the cities of Manila, Baguio, Vigan, Cebu, and Davao (About the Philippines, 2017). Tourism’s contribution to the economy is increasing, and is reported to be 8.6% of the GDP in 2016 (Fig.4.)

Figure 3. Second Quarter 2017 GDP Growth (NEDA, 2017b)

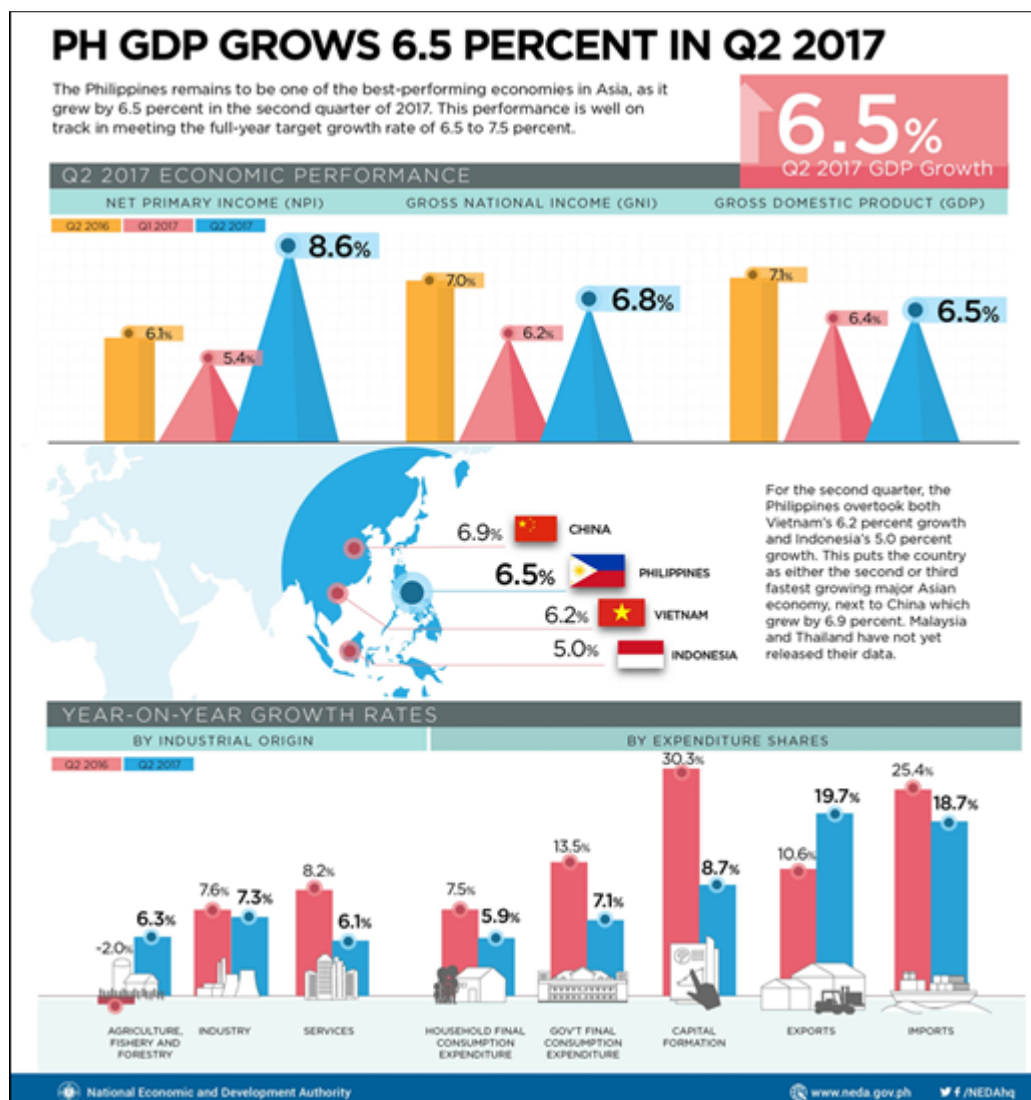
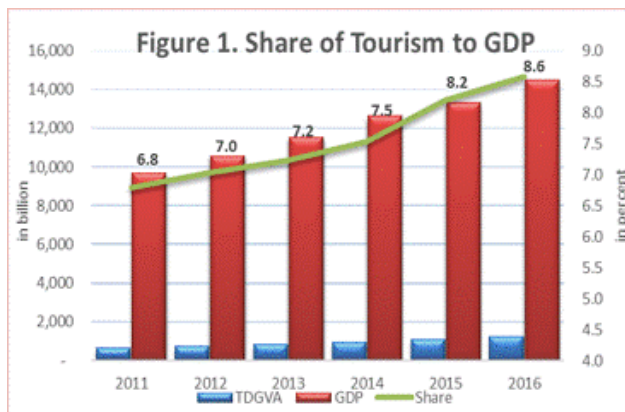


Figure 4. Share of Tourism to GDP (PSA, 2017)



WATER AND SANITATION

Status of Access

The latest National Demographic and Health Survey (NDHS) carried out by Philippine Statistics Authority (PSA) in 2013 included various health-related parameters in the national sampling of approximately 15,000 households, considered indicators of general health and socioeconomic conditions of the country. Though only surveying 15,000 of 20,171,899 households (in 2010) and therefore maybe not being as accurate, the results of the survey still give a clear picture, to a certain degree, of water and sanitation-related conditions in the

Table 3. Household Distribution Percentage for Drinking Water, 2013 (PSA, 2014)

Table 2.1 Household drinking water

Percent distribution of households and de jure population by source of drinking water, time to obtain drinking water, and treatment of drinking water, according to residence, Philippines 2013

Characteristic	Households			Population		
	Urban	Rural	Total	Urban	Rural	Total
Source of drinking water						
Improved source	98.6	92.8	95.6	98.6	92.2	95.2
Piped into dwelling/yard/ plot	31.2	22.2	26.5	31.9	21.9	26.7
Public tap/standpipe	3.3	9.2	6.4	3.6	9.4	6.7
Tube well or borehole	8.6	23.7	16.5	8.8	23.5	16.5
Protected dug well	1.5	6.6	4.1	1.4	6.6	4.1
Semi-protected dug well	0.3	1.4	0.9	0.4	1.4	0.9
Protected spring	1.4	6.9	4.3	1.3	7.1	4.3
Rain water	0.1	0.6	0.3	0.1	0.6	0.4
Bottled water	52.2	22.3	36.6	51.0	21.6	35.7
Non-improved source	1.4	7.1	4.3	1.4	7.8	4.7
Unprotected dug well	0.3	2.4	1.3	0.3	2.6	1.5
Unprotected spring	0.9	3.9	2.5	1.0	4.3	2.7
Tanker truck/cart with drum	0.1	0.5	0.3	0.2	0.5	0.4
Surface water	0.1	0.3	0.2	0.0	0.3	0.2
Other source	0.0	0.1	0.0	0.0	0.1	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Time to obtain drinking water (round trip)						
Water on premises	37.0	41.3	39.2	38.0	40.7	39.4
Less than 30 minutes	59.7	50.7	55.0	58.7	51.0	54.7
30 minutes or longer	3.0	7.7	5.5	3.1	8.0	5.7
Don't know/missing	0.2	0.3	0.3	0.2	0.3	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Water treatment prior to drinking¹						
Boiled	25.6	33.8	29.9	27.7	36.0	32.0
Bleach/chlorine added	0.5	2.0	1.3	0.5	2.1	1.3
Strained through cloth	6.5	11.4	9.1	6.7	11.8	9.3
Ceramic, sand or other filter	3.6	2.1	2.8	3.8	2.0	2.8
Solar disinfection	0.1	0.2	0.2	0.1	0.2	0.2
Other	2.8	4.5	3.7	2.9	4.5	3.7
No treatment	65.0	53.6	59.1	62.8	51.4	56.9
Percentage using an appropriate treatment method ²	28.9	36.8	33.0	31.1	39.0	35.2
Number	7,104	7,700	14,804	33,607	36,493	70,100

¹ Respondents may report multiple treatment methods so the sum of treatment may exceed 100 percent.

² Appropriate water treatment methods include boiling, bleaching, filtering, and solar disinfecting.

country. NDH surveys are completed at five year intervals.

Table 4. Household Percentage Distribution for Sanitation Facilities, 2013 (PSA, 2014)

Table 2.2 Household sanitation facilities						
Percent distribution of households and de jure population by type of toilet/latrine facilities, according to residence, Philippines 2013						
Type of toilet/latrine facility	Households			Population		
	Urban	Rural	Total	Urban	Rural	Total
Improved, not shared facility						
Flush/pour flush to piped sewer system	5.2	1.4	3.3	5.2	1.4	3.2
Flush/pour flush to septic tank	66.2	55.9	60.8	66.9	55.6	61.0
Flush/pour flush to pit latrine	1.0	6.3	3.7	1.1	6.8	4.0
Ventilated improved pit (VIP) latrine	0.1	0.5	0.3	0.1	0.6	0.4
Pit latrine with slab	0.4	2.1	1.3	0.4	2.4	1.4
Composting toilet	0.0	0.1	0.1	0.0	0.1	0.1
Total	72.9	66.4	69.6	73.7	66.8	70.1
Shared facility¹						
Flush/pour flush to piped sewer system	1.9	0.4	1.1	1.7	0.4	1.0
Flush/pour flush to septic tank	18.5	15.9	17.2	17.7	14.8	16.2
Flush/pour flush to pit latrine	0.7	2.7	1.8	0.7	2.7	1.8
Ventilated improved pit (VIP) latrine	0.0	0.2	0.1	0.0	0.3	0.1
Pit latrine with slab	0.1	0.9	0.5	0.2	0.9	0.5
Total	21.3	20.1	20.7	20.3	19.1	19.7
Non-improved facility						
Flush/pour flush not to sewer/septic tank/pit latrine	1.7	0.5	1.1	1.7	0.5	1.1
Pit latrine without slab/open pit	0.3	2.2	1.3	0.4	2.4	1.4
Bucket	0.0	0.1	0.0	0.0	0.0	0.0
Hanging toilet/hanging latrine	0.2	0.6	0.4	0.3	0.7	0.5
No facility/bush/field	2.9	9.0	6.1	3.1	9.3	6.3
Total	5.2	12.3	8.9	5.5	13.0	9.4
Public toilet²	0.5	0.7	0.6	0.5	0.7	0.6
Other	0.0	0.4	0.2	0.0	0.3	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	7,104	7,700	14,804	33,607	36,493	70,100

¹ Facilities that would be considered improved if they were not shared by two or more households.
² It is not possible to determine if the public toilet is improved or non-improved.

Tables 3 and 4 present parameters surveyed for water and sanitation. The NDHS of 2013 summarised indicators relative to the country's progress toward attainment of the 2015 Millennium Development Goals (MDG). Indicators for water and sanitation are summarised in Table 5. The urban population is recipient to a higher percentage of access to both water and sanitation than its rural counterpart. Nationally, only 3.2% of the population is served by a sewer system. It can also be seen that overall, the country population has more access to improved drinking water sources than to improved, not shared, sanitation facilities.




Table 5. Philippine MDG Goal Indicators for Water and Sanitation, Attainment as of 2013

Goal 7. Ensure Environmental Sustainability			
	Urban	Rural	Total
Indicator 7.8. Percentage of population using an improved drinking water source	98.6	92.2	95.2
Indicator 7.9. Percentage of population with access to improved sanitation (not shared)	73.7	66.8	70.1
Adapted from PSA, 2014			

Table 6 is another summary from PSA's MDG Watch on the country's progress of attainment of MD goals as of 2014. There is a difference in how the water and sanitation indicators are presented. Here, national access to safe water as of 2014 is only 85.5%, while that of sanitation is a high 94.1%, which means that the 2015 MDG target for sanitation of 83.8% had already been met, as of 2014. This percentage for sanitation is much higher

than the result from the NDHS 2013 (Table 3) of only 70.1%; there is no data on the disaggregation between the urban and rural areas in the MDG Watch. There is likewise a disparity in data for water access in the NDHS 2013 and MDG Watch tables, and it is surmised that the definitions used for indicators in Tables 3 and 4 are different from those used in the MDG Watch. As of this writing, exact definitions used for the NDHS 2013 and the MDG Watch have not been obtained.

Table 6. MDG Attainment for Water and Sanitation up to the Year 2014 (PSA, 2016b)

Philippines' Progress based on the MDG Indicators				
 REPUBLIC OF THE PHILIPPINES PHILIPPINE STATISTICS AUTHORITY SOLID • RESPONSIVE • WORLD-CLASS		MDG Watch as of May 2016		
Goals/Targets/Indicators	Baseline	Target	Latest	Status ^{1/}
target 7.C	Halve, by 2015, the proportion of population without sustainable access to safe drinking water and improved sanitation			
indicator 7.7a	73.0 1990	86.5 2015	85.5 2014	
indicator 7.8a	67.6 1990	83.8 2015	94.1 2014	

For the Sustainable Development Goals (SDG), NEDA (National Economic and Development Authority) has pledged that it will address gaps in monitoring the country's progress in attaining targets through 'sufficient and good data, and data disaggregation' (NEDA, 2017c). PSA, a NEDA-attached agency, will develop mechanisms for timely and accurate data. NEDA has incorporated SDG targets in the Philippine Development Plan (PDP) 2017-2022, and has included Results Matrices to measure and monitor progress. For water and sanitation, the PDP used the 2014 status in Table 6, above, as its reference (Table 7). The Philippine Water Supply Sector Roadmap (PWSSR), 2nd Edition, 2010, and the Philippine Sustainable Sanitation Roadmap (PSSR) of 2010 aim for universal coverage by 2025 and 2028, respectively.

Table 7. Targets on Water and Sanitation to Accelerate Infrastructure Development (PDP 2017-2022)

Indicators	Baseline Value	End of Plan Target
	2014	2022
Percentage of HHs with access to safe water supply increased	85.50	95.16
Percentage of HHs with access to basic sanitation increased	94.10	97.46

Adapted from NEDA, 2017a

The UN-Water Global Water Analysis and Assessment of Sanitation and Drinking Water (GLAAS) 2017 initial report on Financing Universal Water, Sanitation and Hygiene under the Sustainable Development Goals (WHO, 2017) has included various factors and survey data. Table 7 shows extracts from GLASS 2017 tables, derived from the latest 2016-2017 country data.

Table 8. Extracts from Tables in the Initial GLAAS 2017 Report (Annex D of Glass, 2017)

Countries with clearly defined procedures in laws or policies for participation by service users and communities in planning programmes, and level of participation

Procedures exist
 Yes
 No

Level of participation
 High
 Moderate
 Low

<ul style="list-style-type: none"> ✓ Agreed and consistently followed ● Agreed but not sufficiently implemented ✗ No agreed financing plan/budget or in development 	<ul style="list-style-type: none"> ✓ Government, ODA, and non-ODA expenditure reports are available ● Some reports available ✗ Expenditure reports are not available 	<ul style="list-style-type: none"> ✓ Covers over 80% of costs ● Covers between 50% and 80% of costs ✗ Covers less than 50% of costs 	<ul style="list-style-type: none"> ✓ Over 75% ● Between 50% and 75% ✗ Less than 50%
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FINANCING															
Absorption of domestic funds (% of domestic commitments utilized (three-year average))				Sufficiency of financing to reach national targets				Government WASH budget (US\$ millions, constant 2014 US\$)		Annual WASH expenditure (US\$ millions, constant 2014 US\$)					
Sanitation		Drinking-water		Sanitation		Drinking-water		National		National		By source of funding			
Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Year	Budget	Year	Expenditure	Households	Government	External	Repayable
●	●	●	●	✗	●	✓	●	2015	226	2016	254	24	61	18	152
●	●	●	●	✓	✗	✓	●	2015	1 745	2015	2 360	405	2 181	86	
✓	✓	✓	✓	✗	✗	●	✗	2016	210	2015			276		

<ul style="list-style-type: none"> ✓ Over 75% ● Between 50% and 75% ✗ Less than 50% 	<ul style="list-style-type: none"> ✓ More than 75% of what is needed ● Between 50 and 75% of what is needed ✗ Less than 50% of what is needed 		*Data for financial year 2016–2017
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Note: Data not yet fully finalized. Final data sets will be made available on the GLAAS website.
Source: GLAAS 2016/2017 country survey.

Source: Annex D of GLASS, 2017

COUNTRY	MONITORING							
	Most recent Joint Sector Review	Data availability for decision-making						
		National	Sanitation			Drinking-water		
	Year	Policy and strategy	Resource allocation	Status and quality of service delivery	Policy and strategy	National standards	Resource allocation	Status and quality of service delivery
Philippines	2015	✓	✓		✓	✓	✓	●

<ul style="list-style-type: none"> ✓ Data available, analysed, and used for a majority of decisions ● Data available but not sufficiently used for decision-making ✗ Only limited data collected and limited availability

Source: Annex D of GLASS, 2017

From the extracted tables (which used initial, not fully finalised data), it can be summarised that:

- Water and sanitation policies exist, but there is only moderate participation by end-users in planning
- Nationally, 74% use improved sanitation facilities (78% urban, 71% rural)
- Nationally, 92% have access to improved drinking water sources (94% urban, 90% rural)
- There are policies for equitable delivery of services to vulnerable groups but specific measures to finance these are not applied consistently
- There is sanitation data available on policies, strategies and resource allocation used for decision-making
- Financing:
 - ~ Published and agreed WASH budgets are not sufficiently implemented, and only some reports of expenditure are available
 - ~ Tariffs cover over 80% of operating and basic maintenance costs
 - ~ There is less than 50% sufficiency of funds to reach national targets for urban and rural sanitation and rural drinking water; the 2016 national budget is US\$ 210 Million
 - ~ The government spent US\$ 276 Million for WASH in 2015

What is consistent across all the data published is that the urban population has greater access to both water and sanitation, compared to access of the rural population. For water supply national targets to be attained by

2025, US\$838 million per year is needed, and US\$619 million is needed annually for sanitation targets to be reached by 2028 (World Bank, 2015). The reported budget spent for WASH programmes of US\$276 Million in 2015 and US\$210 million in 2016 is not sufficient to attain national targets when compared to World Bank's service delivery assessment costing.

The Philippine Water Supply and Sanitation Master Plan (PWSSMP)

In August of 2017, the NEDA has awarded a PHP89.32 million contract for consulting services for the formulation of the Philippine Water Supply and Sanitation Master Plan. Acknowledging, among others, the institutional fragmentation, fragmented financing and weak regulatory framework for the sub-sector (NEDA, 2017d), the ultimate aim of the masterplan is to set the direction in achieving universal access to safe drinking water by 2025 and universal basic sanitation by 2028.

Among the PWSSMP's outcomes are (NEDA, 2017d):

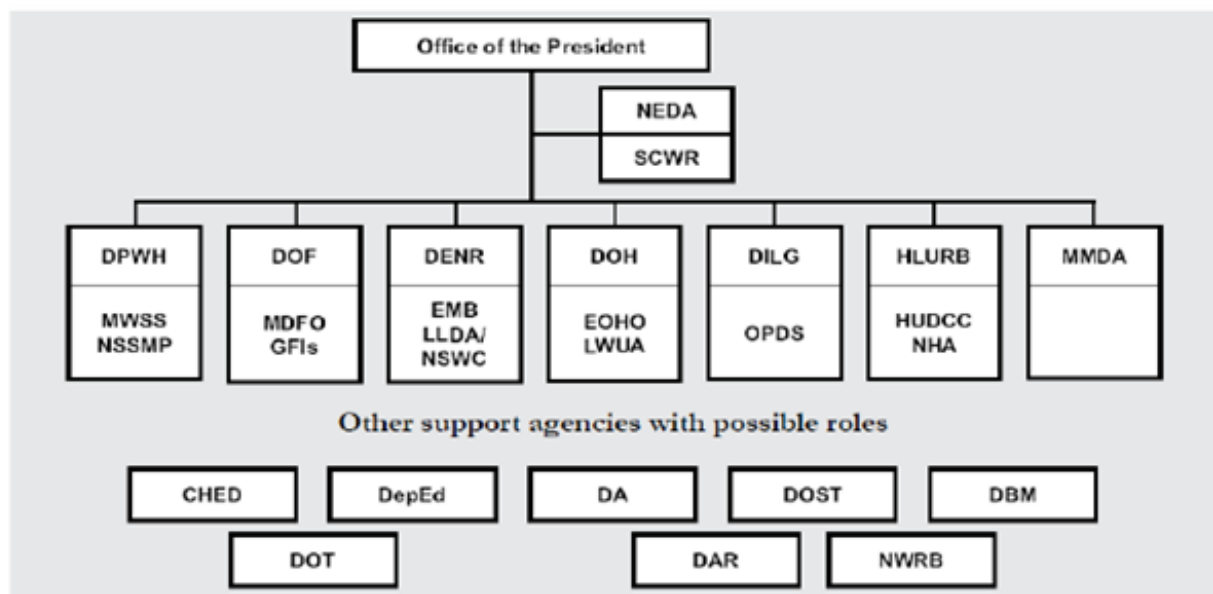
- a. A coherent institutional and regulatory framework
- b. Capable government institutions and service providers, sustainably managing the sub-sectors for improved service delivery
- c. Strengthening strategic alliances
- d. Adequate financing and investment to water supply, sanitation and sewerage infrastructure in priority strategic areas

INSTITUTIONAL RESPONSIBILITY

There is no single national department in charge of water and sanitation in the country. The current national institutional setup to oversee water and sanitation programmes is often described as fragmented. The Inventory of Sanitation Policies and Programmes in Philippines (ICLEI, 2012) and the East Asia and the Pacific Region Urban Sanitation Review Philippines Country Study (World Bank and Australian Aid, 2013) provide more on the roles of the various departments and agencies involved in the water supply and sanitation sectors. Figure 5, extracted from DOH, 2010, shows the various and numerous national departments and supporting agencies involved (acronyms and agency mandates are defined in Annex B), in one way or another, with water and sanitation concerns.

The Metropolitan Waterworks and Sewerage System (MWSS) is the country's chief agency on water and sewerage services, deriving its mandate from Republic Act 6234 for the operation and maintenance of water and sewerage systems. Its service area covers the whole of Metro Manila and parts of Cavite and Rizal. However, in 1997, a 25-year Concession Agreement with two private consortia comprised of local and international partners transferred the operational responsibilities of MWSS to Manila Water Company, Inc. for the East Zone and Maynilad Water Services, Inc. for the West Zone (MWSS Concessionaires, 2017). The public-private partnership has been lauded for its successful delivery of water and sanitation services in the said coverage areas.

Figure 5. National Agencies with Clear Sanitation Mandates (DOH, 2010)



Within the Department of Health (DOH), is the Environmental and Occupational Health Office (EOHO) of the National Disease Control and Prevention Centre. The EOHO develops policies, programmes and strategies to manage health hazards and risks associated with environmental and work related factors. Its mandate on sanitation, however, is limited to policy formulation (DOH, 2010). DOH chairs the Inter-Agency Committee on Environmental Health (IACEH), which has sectors on water and sanitation. DOH had previously made a Sanitation Policy in 2009 ,targeting zero defecation by 2022.

The Department of Public Works and Highways has been tasked, under the Clean Water Act of 2004, with formulating and implementing the National Septage and Sewerage Programme (NSSMP.) The NSSMP is part of the Philippine Sustainable Sanitation Roadmap (PSSR.) These frameworks aim to address sanitation issues such as open defecation and untreated sewage (DPWH, 2013). There is mention of the crafting of the National Sustainable Sanitation Plan (NSSP), but this report is unable to access such document.

PSSR (DOH, 2010) contains a table of agencies and roles related to sanitation (see Annex A.) Findings noted in the PSSR recognise institutional fragmentation and the existence of varied and outdated policies and laws, but weak implementation of these due to vague mandates. The PSSR pushes for a national sanitation agency that will accord focused and full attention to concerns of the sanitation sector.

The roles of a few of the more prominently involved offices and departments are listed in Table 9 (World Bank, 2015). The World Bank 2015 Service Delivery Assessment finds ‘there is no formal, clear-cut distinction between the (rural and urban water and sanitation) subsectors.’

Table 9. Roles and Responsibilities of Agencies Involved in Water and Sanitation (World Bank, 2015)

Current Roles and Responsibilities of Sector Agencies	
Local Government Units (LGUs)	<ul style="list-style-type: none"> Mandates generally based on the Local Government Code and include resource regulation, water supply provision and economic regulation of utilities. This includes responsibility for the planning, implementation and monitoring of water supply and sanitation programs. Provision of support to water service providers such as the Rural Water and Sanitation Associations, the Barangay Water and Sanitation Associations and cooperatives including funding from their development funds.
Local Water Utilities Administration (LWUA)	<ul style="list-style-type: none"> Capacity building support to water districts, including technical, institutional and financial assistance. Regulation of Water Districts.
Department of Interior and Local Government (DILG)	<ul style="list-style-type: none"> Management of the water grants under SALINTUBIG Program of the government. Capacity building support to LGUs. <ul style="list-style-type: none"> Provision of capacity building training to LGUs. Coordination of LGU master plan preparation. Provision of information to LGUs on available sector programs and financing.
National Water Resources Board (NWRB)	<ul style="list-style-type: none"> Resource, Economic and Service Regulation of water service providers.
National Economic and Development Authority (NEDA)	<ul style="list-style-type: none"> Coordinates the preparation of national development plans and investment programs. Monitoring implementation of policies, programs and projects.
Department of Public Works and Highways (DPWH)	<ul style="list-style-type: none"> Provision of technical support to LGUs upon request including implementation of piped water supply projects. DPWH is hosting the Project Management Office for the National Sewerage and Septage Management Office. They also provide oversight functions over LWUA and the MWSS. Leads the Inter-Agency Committee on Water created under Executive Order 62.
Department of Finance(DOF)/ Government Financing Institutions (GFIs)	<ul style="list-style-type: none"> Financing support for the water supply sector. DOF oversees performance of GFIs like the Development Bank of the Philippines, the Land Bank of the Philippines and the Local Water Utilities Administration.
Metropolitan Waterworks and Sewerage System (MWSS)	<ul style="list-style-type: none"> For water supply and sewerage services in Metro Manila through its two private concessionaires. It also has its own economic regulatory office, created by contract to regulate tariff and performance of the utilities.
DWSD	<ul style="list-style-type: none"> Implements the KALAHI-CIDDS program, a major anti-poverty program of the national government that have water supply and sanitation sub-projects in rural areas.
NAPC	<ul style="list-style-type: none"> Coordinates the pro-poor water supply projects of the national government.

The NEDA is advocating for the institutional strategy of creating an apex body for the water resource sector. The apex body shall manage water resources by integrating and coordinating national policies and plans (Table 10).

Table 10. Proposed Legislation Extracted from the PSSR (NEDA, 2017a)

PROPOSED LEGISLATION	PURPOSE
Water Resources	
Enactment of a Law Creating an Apex Body for the Water Resources Sub-sector	Aims to address the weak and fragmented institutional set-up of the water resources sub-sector with the creation of an Apex Body that will act as the single lead agency to oversee/coordinate overall policy and project/program implementation.
PROPOSED LEGISLATION	
Enactment of a Law Creating an Independent Economic or Financial Regulator for Water Supply and Sanitation	Harmonizes the regulatory practices, processes, fees and standards on water supply and sanitation while addressing the overlapping functions or jurisdictions of existing regulatory entities.

NATIONAL LEVEL FINANCING MECHANISMS FOR WATER AND SANITATION

There are a number of national departments which have, in their budget, included allocations for water and/or sanitation programmes or projects. This study attempted to obtain national data on apportioned amounts for water and/or sanitation, but found it difficult to find all departments which have such budgets. There was further difficulty in finding, within a concerned department's budget, disaggregated allocations for water or sanitation in the annual General Appropriations Act (GAA) available online. The annual GAAs list approved allocations for the implementation of various government programmes. The Department of Public Works and Highways (DPWH), Department of Agrarian Reform (DAR), Department of Interior and Local Government (DILG) and the Department of Health (DOH) are departments that have evident water and/or sanitation allotments in their department annual budgets in the GAA.

The PSSR identified the most immediate needs for sanitation, and estimated a budget of P87.37 billion for 2010-2016 investments for five outcome areas listed in table 11. This study is unable to acquire information on whether the P87.37 billion had actually been allocated and spent for the purposes listed in the 2010-2016 sanitation roadmap operational plan, detailed in the PSSR. The DPWH has been tasked to implement infrastructure projects for sanitation under the NSSMP. The PSSR also lists numerous and varied ongoing and pipeline sanitation-related programmes, as of the year 2010.

Table 11. Investment Requirements 2010-2016

Responsive Governance and Regulatory Strengthening for the sanitation sector	30,050,000
Improved Service Delivery through Communications and Capacity Development	95,800,150
Strengthening of strategic alliance	26,600,000
Financing Sanitation investments and infrastructure development	87,193,784,000
Adequate Sanitation for emergency situations	25,750,000
Grand Total for the 5 outcome areas:PHP 87,371,984,150	

Source: DOH, 2010

The World Bank and Australian Aid, 2013, Philippine Country study, East Asia and the Pacific Region Urban Sanitation Review, found that only 3% was allocated for sanitation, based on the PHP 16 billion appropriated for water supply and sanitation for the years 2001 to 2007. Annual investments on water and sanitation continue to be underfunded compared to budgets of other national programmes, perhaps because there is no national sanitation investment framework that should be used as guide. The Gender and Development (GAD) programme, for example, receives yearly support of at least 5% of the annual budget.

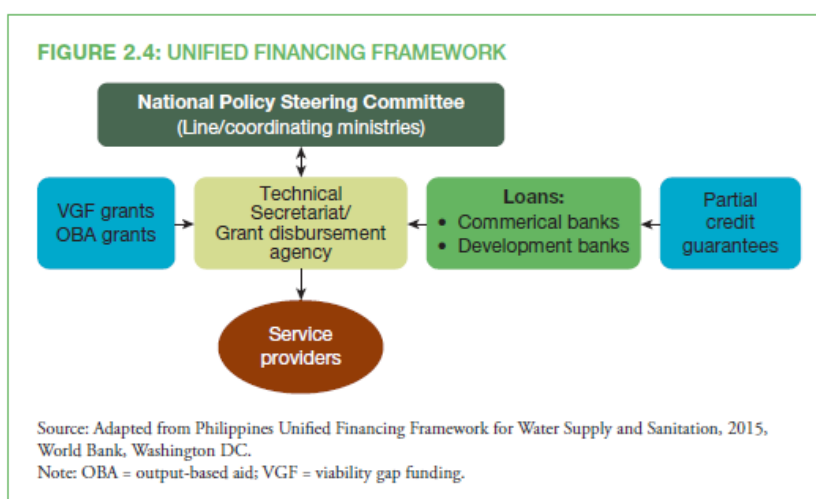
Based on institutions and roles described previously, the World Bank 2015 study further finds that:

- ~ MWSS oversees water and sanitation in Metro Manila through its two private concessionaires
- ~ LWUA provides finance and technical assistance to around 600 water districts (WD), with or without sanitation services
- ~ There are numerous small private service providers including housing developers and water cooperatives
- ~ some LGUs are service providers, mostly for water supply, rarely for sanitation systems

- Most rural pipe water schemes are LGU-operated with DILG support through the SALINTUBIG Programme, a programme for LGUs with less than 50% of population having access to potable water
- The Department of Social Welfare and Development (DSWD) is a major supporter of rural water supplies through the Kapit-Bisig Laban sa Kahirapan – Comprehensive Integrated Delivery of Social Services (KALAHI-CIDSS) Project initiated in 2003. The DSWD plans to invest up to PHP 1.9 Billion a year from 2013-2019 for rural water supply projects alone
- The Department of Agrarian Reform funds some water supply projects usually operated by cooperatives, barangays, or rural water and sanitation associations

The Philippine Water Supply and Sanitation Master Plan (PWSSMP), due to be completed in 2018, is expected to integrate the water supply, sewerage and sanitation sub-sectors into a single roadmap and shall link all other initiatives, such as the Unified Financing Framework (Fig. 6), relating to water supply and sanitation (NEDA, 2017d).

Figure 6. The Unified Financing Framework (Menzies, 2017)



The proposed establishment of a national account for water and sanitation is expected to enable better monitoring of financial flows for water and sanitation programmes, projects and investments (World Bank, 2015).

CIRCULAR ECONOMY

The term Circular Economy is not well-known nor widely-used in the country as yet, though the term has been cropping up in studies related to reuse and recycling. The PSSR contains no mention of the circular economy. The concept of circular economy, however, may be analogous to the common concepts and terms more familiar and commonly used in the country: reuse, reduce, recycling, up-cycling, closed-loop, waste-to-resource, nexus, self-liquidating, and the like. These terms and concepts have come to the fore due to their significance in relation to solid waste management, protecting the environment or mitigating pollution.

Part B: Baguio City

GEOGRAPHICAL LOCATION, LAND AREA AND CLIMATE

Baguio city is a popular tourist destination in Northern Luzon, visited by both local and foreign tourists. It is dubbed the Summer Capital of the Philippines because of its cool climate, averaging 18 degrees centigrade and dropping below 15 degrees between the months of December and February. It is also the rainiest zone, receiving an average of 4,096 millimetres of rain per year, the highest recorded in the country.

It is a commercial, educational and recreational centre of the Cordilleras and northern Luzon. It is part of the Cordillera Administrative Region (CAR), situated in the Benguet province and landlocked by three municipalities (Fig. 7). About 250 kilometres north of the Philippine capital Manila, Baguio city has a land area of 57.49 square kilometres, enclosed in a perimeter of 30.6 kilometres and is at an elevation of 1,417 metres above sea level. Within the city are steep hillsides and mountains, with half the city area having a slope of 25% or more.

The city has a first class income classification, having an average annual income of more than thirty million pesos. Baguio City sees its functional roles as a Garden/Flower City, Summer Capital of the Philippines, Regional Government Centre, Tourist Centre, Education Centre of the North, Centre for Health Services and Top Ten Next Wave Cities.

POPULATION PROFILE

As of the August 2015 Philippine Statistics Authority (PSA) census, the city has a total population of 345,366 persons. Baguio's 2010-2015 annual growth rate is 1.54% (Table 12).

Though the growth rate has a decreasing trend, at the present growth rate the population is expected to reach 372,791 in 2020 and double in thirty five years (PSA, 2015).

Figure 7. Baguio City within the Benguet Province



Source: WAMD-CEPMO

Figure 8. The Burnham Lake, Central Business

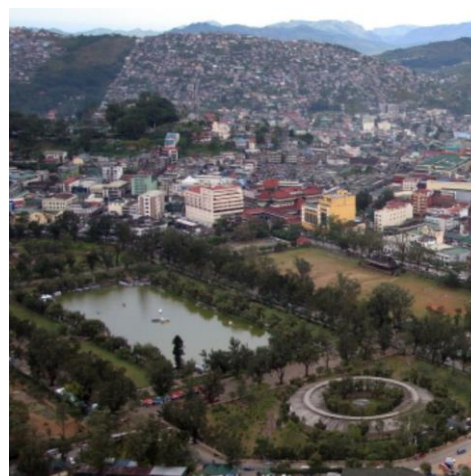


Table 12. Baguio City Population and Growth Rate

Censal Date	Total Population	Number of Households	Average Household Size	Censal Years	Population Growth Rate, %
May 1, 1990	183,142				
May 1, 2000	252,386	52,302	4.8	1990-2000	3.26
May 1, 2010	318,676	78,313	4.0	2000-2010	2.36
August 1, 2015	345,366	89,987	3.8	2010-2015	1.54

Source: PSA, 2015

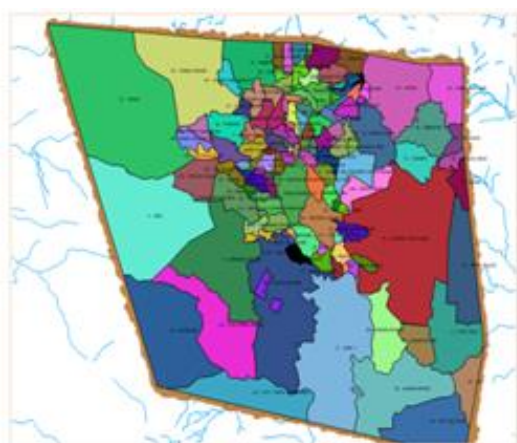
The current population density is 6,005 people per square kilometre, 69 times higher than the Cordillera Administrative Region's (CAR) population density of 87 persons per square kilometre (Table 13). Compared to the capital city of Manila, which is smaller in land area than Baguio, and has a very high density of 71,263 people per square kilometre. Nearby Tuba, a municipality with an area of almost 296 km², has a population density of only 161 people/ km².

Table 13. Population, Land Area, Population Density of Selected Regions, Province, HUCs and Municipalities

Region, Province/Highly Urbanized City, and City/Municipality	Population	Land Area (square kilometers)	Population Density (persons per square kilometer)
PHILIPPINES	100,979,303	300,000.00	337
National Capital Region (NCR)	12,877,253	619.54	20,785
City of Manila	1,780,148	24.98	71,263
City of Mandaluyong	386,276	9.29	41,580
Cordillera Administrative Region (CAR)	1,722,006	19,818.12	87
Benguet (excluding Baguio City)	446,224	2,769.08	161
La Trinidad (Capital)	129,133	70.04	1,844
Tuba	47,648	295.97	161
Tublay	17,892	102.55	174
Baguio City	345,366	57.51	6,005

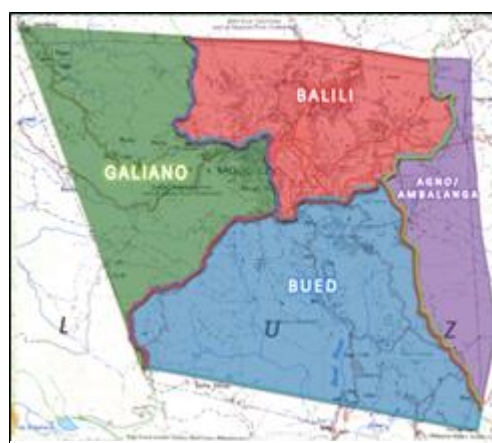
Source: NSA, 2016

Figure 9. Baguio's 129 Barangays



Source: WAMD-CEPMO

Figure 10. The Four River Basins within Baguio City



Source: WAMD-CEPMO

The city is composed of 129 barangays, the smallest administrative division in the Philippines, (Fig. 9) and is one of the most highly urbanised cities (HUCs) in the country. Its population is of mixed ethnicities.

Each barangay differs in land area and household population, and is governed by elected officials overseen by a Barangay Captain.

The headwater of four rivers emanate from Baguio: Balili River, Agno River, Galiano River and Bued River (Fig. 10). The Balili River has been designated as a Water Quality Management Area (WQMA) by the Department of Natural Resources (DENR) due to its current state of pollution.

The central business district (CBD) is located within the Balili river catch basin and almost half of the city population live within this river basin. Sources of river pollution are solid and liquid wastes. Building sewers, septic tank effluent pipes and storm drainage pipes that receive illegally connected building sewers, have been found to be the biggest sources of river pollution. Other city demographic data are listed on Table 14.

As with other highly urbanised cities in Table 15, Baguio likewise experienced a decrease in its growth rate for the censal years 2010-2015. This decrease holds true for the country's population growth rate trend.

Table 14. Population Profile

Characteristic	2010	2015
Population Density (Density per Square Kilometer)	5,541	6,005
Most Populated Barangays	Irisan, Asin Road, Camp 7, Loakan Proper, Bakakeng Central, Bakakeng Norte/Sur, Fairview, Gibraltar, San Luis Village, Sto. Tomas Proper, Pinget, and Pacdal	
Most Dense Barangays	Lopez Jaena, Balsigan, Upper Magsaysay	
Not in the Labor Force	31.00 % (2010)	
Labor Force Participation Rate (%) (15-64 yrs. old)	69.00% (2010)	66.0 (2015, CAR)
Employment Rate	93.49%	95.5 (2015, CAR)
Unemployment Rate	3.41%	4.5 (2015, CAR)
Visible/Invisible Underemployment	3.10%	
Gender Distribution: Males	48.8% (2010)	51.3 (2015, CAR)
Females	51.2% (2010)	48.7 (2015, CAR)
Dominant Industries: Services	57.00%	
Real Estate, Boarding House	25.18%	
Construction	17.82%	
Annual per capita poverty threshold (in PHP)	19,140 (2012, Benguet)	21,561 (2015, Benguet)
<i>Source: CPDO, 2016</i>		

Table 15. Growth Rates of Selected Regions and HUCs

REGION, PROVINCE, AND HIGHLY URBANIZED CITY	POPULATION GROWTH RATE		
	2000-2010	2010-2015	2000-2015
PHILIPPINES	1.90	1.72	1.84
NATIONAL CAPITAL REGION (NCR)	1.78	1.58	1.72
CITY OF MANILA	0.44	1.43	0.78
CITY OF MANDALUYONG	1.67	3.12	2.17
CORDILLERA ADMINISTRATIVE REGION (CAR)	1.70	1.21	1.53
BENGUET (excluding BAGUIO CITY)	2.04	1.91	1.99
BAGUIO CITY	2.36	1.54	2.08
<i>Sources: PSA 2000,2010,2015</i>			

Annual Per Capita Poverty Threshold and the Incidence of Poor Families

Baguio City experiences high immigration, most likely because the city plays a vital socio-economic role in the area. Based on the PSA survey (Table 16), the incidence of poor families is down to 2.5 percent in 2015 (Benguet data here also includes Baguio City). The annual per capita poverty threshold increased from PHP 13,341 in 2006 to PHP 21,561.00 in 2015, and economic opportunities continue to be available in the city. However, according to the City Planning and Development Office (CPDO), the city needs to intensify socio-economic mitigations to buffer the expected proportionate increase of the incidences of poor families as the city's population grows.

Table 16. Poverty Indicators

Social Indicator	2006	2009	2012 Benguet	2015 Benguet
Incidence of Poor Families, %	4.0	4.2	2.8	2.5
Annual Per Capita Poverty Threshold	13,341	16,217	19,140	21,561
<i>Source: PSA</i>				

ECONOMY

Small, Medium Scale and Major Industries

Baguio's economy thrives on tertiary economic activities particularly dependent on commerce and services that equally support the growing tourism industry. Taxes derived from economic activities and employment generate substantial income for the city. The latest recorded number of legitimate economic and business establishments is 25,912, as of 2016. The three most dominant economic activities are as follows: 42.20 % are retail activities, followed by services at 32.23% and real estate leasing (for boarding houses, apartments, transients) at 25.57% (CPDO, 2017.)

There are also small and medium scale industries and various distinctive handicrafts in the city that provide economic opportunities for various ethnic groups. These indigenous products continue to lure tourists because of the superior hand-made craftsmanship in wood-carving, basketry and textile weaving. Other medium scale industries produce metal craft, particularly brass and silver wares, knitted garments, and processed food, including strawberries, peanuts, and pastry products (CPDO, 2017).

Tourist Arrivals

Baguio City remains a prime tourist destination area in North Luzon because of its cool climate, fresh, green and peaceful environment. It is also a favourite venue of seminars and conferences. Baguio City is also the gateway to other tourist destinations in the North. This highlights the strategic role that Baguio City plays in the region's tourism industry.

Tourist arrivals for 2016 was measured at 1,294,906 representing an increase of 16.11% from arrivals in 2015 arrivals. Foreign and overseas travelers increased by 62.96% and 60.86% respectively. The city's natural ambiance remains an integral and indispensable pull factor for local and foreign visitors. Statistics reveal that domestic tourists still outnumber foreigners and balikbayans (Filipino returnees.) The peak of annual tourist arrivals annually occurs during the Panagbenga (Flower Festival) celebration in February and the Lenten period in March to April, when transients triple the city population (CPDO, 2017).

Financial Institutions and Local Industrial Exports

In 2016, there were a total of 407 banks and other financial institutions operating in the city, a sign of a robust economy. Private capital investments by the businessmen increased by 655.02% percent from PHP 2,589,675,200 in 2015, to PHP 22,637,630,000 in 2016.

The presence of the Baguio City Economic Zone (BCEZ), Philippine Export Zone Authority (PEZA) has greatly enhanced the dynamics of the city's economy. There are 32 locators in the zone and most are multi-national

corporations. Investments in BCEZ-PEZA, however, decreased by 24.15 percent from the previous year due to the transfer of some locators to Clark, where locators benefit from a wider allocated land area. Total capitalisation for new business permits for PEZA amounted to PHP 22,637,630,000 in 2016.

INFRASTRUCTURE AND URBAN AMENITIES

Communication Facilities and Transport

Companies like PLDT, DIGITEL, SMART, PT&T, RCPI, Telecom, Bayantel, Eastern Telecoms and Globe Mackay provide various telecommunications services that link the city locally and internationally. There are government-run postal services and also supplemental courier services provided by JRS, FEDEX, LBC, DHL and others. Telex, Fax, Radiotelephone and internet services are also available in the city.

Being a major urban centre in the North, at least sixteen large transport companies operate in the city, providing transport services to Metro Manila, the Ilocos Region, interior Cordilleras, to as far as the Quezon province. Public utility vehicles such jeepneys and taxis are available, and ply routes within the city and to adjacent municipalities, transporting goods and people.

Education

There are 389 educational institutions that cater to different levels of education. 70% is owned by the private sector, with the remaining 30% run by the government. Total enrollees across all levels for the 2015-2016 school year was 155,046 students.

Water Services

The Baguio Water District (BWD), a quasi-government entity, administers the water supply system for the City of Baguio. Wastewater is separately managed by the city government through the Wastewater, Water and Ambient Air Management Division of the City Environment Office (WAMD-CEPMO).

Table 17. Baguio Water District Data

Particulars	2012	2103	2014	2015	2016
Total Annual Budget, PHP	394,173,000.00	376,873,888.70	410,873,888.70	428,935,752.66	525,624,567.00
Estimated Annual Collections, PHP	489,874,000.00	485,601,000.00	501,073,246.00	516,616,482.00	538,514,765.00
Actual Total Annual Collections, PHP	427,341,703.61	454,254,637.13	480,495,089.93	506,105,017.42	523,929,871.74
Assumed per capita water consumption, L/d	117	117	117	120	120
Population Equivalent of Recorded Consumers	213,918	220,470	227,394	235,014	242,424
Projected Total Annual Water Production (m3)	16,645,400	13,026,000	13,032,000	14,684,000	13,034,840
Actual Total Annual Water Production (m3)	15,315,455	14,751,157	14,157,125	14,594,424	14,646,253
Actual Total Annual Water Distributed via pipe networks (m3)	13,453,875	12,346,699	12,392,598	12,698,485	12,885,138
Total Number of Recorded Paying Consumers	35,653	36,745	37,899	39,169	40,404
<i>Residential A</i>	25,980	26,733	27,692	28,696	29,580
<i>Residential B</i>	5,032	5,228	5,333	5,399	5,525
<i>Residential C</i>	449	504	521	548	612
<i>Residential D</i>	0	0	2	10	13
<i>Government A</i>	219	228	229	235	234
<i>Government B</i>	75	76	79	79	84
<i>Commercial A</i>	706	718	738	766	824
<i>Commercial B</i>	3,114	3,176	3,213	3,338	3,430
<i>Commercial C</i>	71	75	85	92	96
<i>Commercial D</i>	7	7	7	6	6
Total Volume of Water Delivered via BWD Delivery trucks, m3	26,000	32,013	17,667	26,221	31,531
Total Volume of NRW, m3	4,895,506	3,937,599	3,705,239	3,636,596	3,508,275
Number of Barangays Served	122	122	122	122	122
Barangays not within scope of BWD service	Atok Trail, Fort del Pilar, Happy Hallow, Apugan-Loakan, Pucsusan, Scout Barrio				
<i>Source: BWD</i>					

The BWD operation covers water production & distribution, including the maintenance of 60 deep wells. Water storage facilities are limited, and due to Baguio's relief, distribution operations is costly. Though BWD assumes a 120 l/d per capita water consumption (Table 17), piped water is not available 24 hours a day, instead being available on a schedule basis. The areas within the CBD receive water daily, but only for a number of hours in a day. Other areas have water in their pipes only a number of days a week, and also for a set number of hours. About 12.8 million cubic metres of water was distributed to 14,400 recorded consumers in 2016 (Table 17). The minimum monthly water rate for a residential type of connection consuming from 0 to 10 m³ is PHP 370.00. Cost per cubic metre increases, the bigger the volume is consumed (BWD, 2017).

Wastewater Management

The City Sewerage System of Baguio is managed by the Wastewater, Water & Ambient Air Management Division (WAMD), a division under the City Environment and Parks Management Office (CEPMO) of the government of Baguio. The sewer network primarily serves the Central Business District (CBD) and certain adjoining Barangays.

Housing

Because of a high demand for housing, some high density residential areas are congested, especially those in the central and northern parts of the City. Housing has also expanded towards protected areas, encroaching on watersheds and forest reservations, with forest cover currently in a state of rapid decline. Encroachment thus threatens the City's water supply sources and the natural landscape. The increase in population has resulted to water shortage, traffic congestion and environmental degradation. It has raised carrying capacity concerns on solid waste management, wastewater management, infrastructure and other facilities.

REVENUE SOURCES

The city appropriates its yearly budgets based on income generated from tax and non-tax revenues, including its share of the Internal Revenue Allotment (IRA) from the national government. The city collections for the general fund have been increasing annually, from PHP 1,146,216,504.31 in 2012 to PHP 1,515,289,894.85 in 2016. Increase in annual collection ranged from 4% to 11% between the years 2012 to 2016, while IRA dependency was between 39% to 43% for the same period.

Part C: Financing Mechanisms for Sanitation in Baguio City

Section 1: Sanitation in Baguio city

1.1 City Population and Population Growth

With a 2015 population of almost 350,000, the city continues to grow at a 1.54% growth rate. The PSA defines population as ‘the total number of individuals in a territory at a specified time. It covers both nationals and aliens, native and foreign born persons, internees, refugees and any other group physically present within the borders of a country at a specified time. In assembling national demographic statistics for publication, the basic aim has been to obtain data for the physically present (or de facto) population rather than for the legally established resident (or de jure) inhabitants.’

It is noteworthy, however, to see a decreasing trend in the population growth rate, with the rate of 3.26% in censal years 1990-2000 decreasing to 1.54% in 2010-2015, as shown in Table 18. The number of households is growing, while the household size conversely is decreasing. The average household size in the city is now 3.8 people.

Population growth influences, water needs and wastewater generation, among other concerns, and provide the basis for planning better delivery of city services.

Table 18. Baguio City Population, Households and Growth Rate

Censal Date	Total Population	Number of Households	Average Household Size	Censal Years	Population Growth Rate, %
May 1, 1990	183,142				
May 1, 2000	252,386	52,302	4.8	1990-2000	3.26
May 1, 2010	318,676	78,313	4.0	2000-2010	2.36
August 1, 2015	345,366	89,987	3.8	2010-2015	1.54

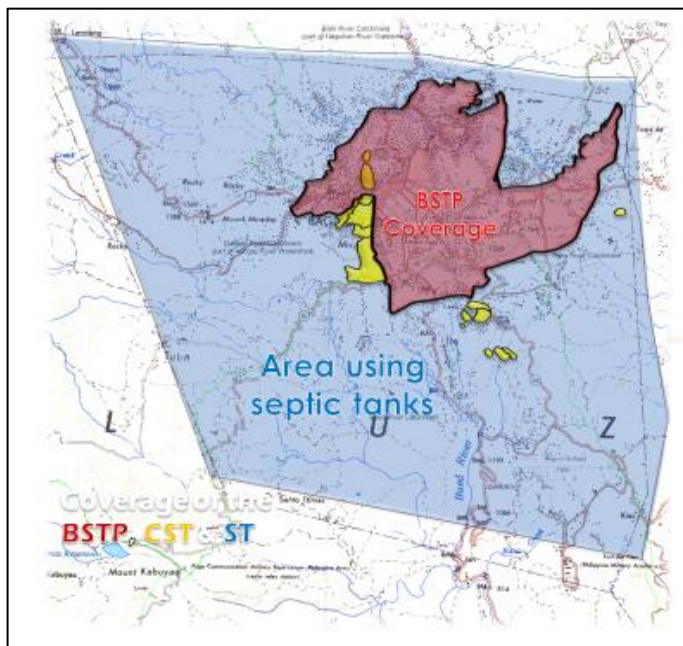
Source: PSA

1.2 Types of Sanitation

Wastewater in Baguio is managed by the city government itself, through the Wastewater, Water and Ambient Management Division of the City Environment and Parks Management Office (WAMD-CEPMO). Wastewater management includes the use of individual or private septic tanks (PST), communal septic tanks (CST) and a sewerage system. The coverage of each is roughly depicted in Fig. 11.

Figure 11. Coverage of the BSTP, CST and ST

CONNECTIONS TO THE CITY SEWERAGE SYSTEM



Source: WAMD-CEPMO

Baguio is one of the very few cities in the country with a sewerage system. Its Baguio Sewage Treatment Plant (BSTP), designed as an activated sludge system, was built primarily to treat wastewater collected by a sewer network covering the central business district (CBD). The CBD is a mix of commercial, institutional and residential structures. The construction of the BSTP was made possible through a grant from the government of Japan (GOJ) at a cost of Y1.576B as of the treatment plant's handover in 1986. Further grants from the GOJ were given for sewer mains and other projects in the years 1993-1994, that amounted to Y1.1218B. The grant received by the city totaled to Y2.6978B, as of the formal turnover in May, 1994. The city continues to do its counterpart share of

installing new and rehabilitating old sewer pipelines to collect as much wastewater generated within the CBD, for proper treatment at the BSTP. Recently, the city acquired sludge dewatering equipment and a siphon truck. By mid-2018, it is set to install and operate a small septage treatment plant within the BSTP's 1-hectare compound.

Based on data gathered from WAMD-CEPMO, the list of 129 barangays was identified as either being: 1) sewerred and connected to the BSTP, 2) using PSTs, 3) partially sewerred (connected to the BSTP) and partially using PST and 4) connected to a CST. Table 19 below roughly estimates percentages of coverage of each sanitation type used. Each of the 129 barangays were identified as having either of the four sanitation types mentioned; the number of households using a sanitation type were summed up. The number of households per barangay and average household size were based on the PSA 2015 population survey data. Table 19 shows that about 28% household population equivalent in 51 fully-sewerred and 15 partially-sewerred barangays is connected to the sewerage system. This is much greater than the national percentage of 3.2%.

INDIVIDUAL AND COMMUNAL SEPTIC TANKS

Communal Septic Tanks

Since the city sewer network covers only the CBD, areas outside its scope use onsite treatment systems: 1) PST and 2) CST. There are currently 12 CSTs that each serve from a few to a hundred households. The CST volumes range from 10 m³ to 230 m³. All but one CST are overloaded and dispose their effluents to either a waterway or a drainage canal. The government funded the construction of the CSTs, including main collecting sewers; costs to connect to the main pipes are by the concessionaires. The city continues to maintain these CSTs. The land on which 10 CSTs were built are government-owned, while two are built on private lots, however there are a few CSTs that have been built over by residents.

As per Table 19, an equivalent to 5% of the population is connected to the 12 CSTs. A house-to-house survey completed between 2008 to 2015 attempted to identify connections to the CSTs through dye-tests. This city-wide survey was made possible through the Benguet Electric Cooperative (BENECO)-LGU Baguio partnership

project, entitled 'the Inventory of Sewer Connections and Other Treatment and Disposal Systems.' Input of surveyed data are yet to be completed in a GIS platform.

Private Septic Tanks

Private septic tanks are still predominantly used, since sewer lines are only found in the CBD. The financing, design, construction, installation and maintenance of STs are the owners' responsibility. Owners get the services of engineers and contractors for this purpose. The older STs usually have a two-chambered design, where

the second chamber is a leaching chamber. Other STs have a sealed two-chamber design, but have effluents that drain to a drainage canal or to a water body. The City Buildings and Architecture Office (CBAO) now require a one-day retention, three-chambered, sealed septic tank for structures that cannot connect to the sewerage system. The ST walls are generally made of hollow blocks that is plastered. Currently, regular septage desludging is not mandated. The city environment code mentions a desludging frequency of 3 to 5 years, however there is no mention of how, by which entity, and at what cost regular desludging should be undertaken. Mechanisms of the city-wide desludging operation are yet to be made.

Table 19 shows that the private septic tank is used by an estimated 67% of the total households. There is no complete information on whether these PSTs have been desludged, and if desludged, at what frequency. The only source of data that can be used is the recorded data of disposed septage at the BSTP by accredited septage haulers.

Table 19. Estimated Coverage of Each Sanitation Type

Sanitation Type	No. of Households (Based on 2015 PSA HH data)	Population equivalent (based on 2015 PSA average HH size of 3.8)	% of total 2015 City Population
Sewered and connected to the BSTP (51 fully sewered and 15 partially sewered barangays)	24,764	95,043	28%
Use of Private Septic Tank, PST (53 barangays fully using PSTs and 15 Barangays partially using PSTs)	60,663	232,822	67%
Connected to a Communal Septic Tank, CST (10 Barangays)	4,559	17,497	5%
Totals	89,986	345,362	100%

Note: Figures may not add up due to rounding off

Table 20. Summary of Septage Disposed at the BSTP by Private Haulers 2012-2016

BAGUIO SEWAGE TREATMENT PLANT SEPTAGE DISPOSAL BY PRIVATE HAULERS 2012 - 2016											
	HAULERS	2012		2013		2014		2015		2016	
		VOL (cu.m.)	AMOUNT (Php)	VOL (cu.m.)	AMOUNT (Php)	VOL (cu.m.)	AMOUNT (Php)	VOL (cu.m.)	AMOUNT (Php)	VOL (cu.m.)	AMOUNT (Php)
1	Action Agad	152	45,600.00	336	100,800.00	268	80,400.00	226	67,800.00	218	65,400.00
2	Benny Tami-ing	412	123,600.00	268	80,400.00	236	70,800.00	504	151,200.00	400	120,000.00
3	Federal Management & Maintenance	56	16,800.00	38	11,400.00	44	13,200.00	46	9,000.00	8	2,400.00
4	Marks Pusonegro Works							192	58,800.00	368	110,400.00
5	Mines View Park Hotel Sanitary Services			22	6,600.00	88	26,400.00	110	33,600.00	120	36,000.00
6	Pal-og Atiwag	278	83,400.00	337	101,100.00	135	40,500.00	66	19,800.00		
7	PNB	342	102,600.00	318	95,400.00	196	58,800.00	116	36,000.00	30	9,000.00
8	Quick Fix	672	201,600.00	714	214,200.00	672	201,600.00	476	119,400.00	650	195,000.00
9	R & R Management			44	13,200.00	342	102,600.00	442	157,800.00	434	130,200.00
10	Yanganot Pozonegro							226	67,800.00	266	79,800.00
	TOTAL	1,912	573,600.00	2,077	623,100.00	1,981	594,300.00	2,404	721,200.00	2,494	748,200.00

Note: All the above figures are based on manifest forms and corresponding gate passes ISSUED for the period covered

From WAMD-CEPMO

There are currently ten accredited septage haulers, and four of them are specific-purpose haulers (i.e. haulers 3, 5, 7 and 9 in Table 20). These specific-purpose haulers handle septage only from their hotel or pay-restroom business or their own commercial business, and do not accept hauling from other establishments or residences. Discounting septage volume hauled by these specific-purpose haulers, the total septage volume hauled in 2016 by the six other haulers total to 1,902 m³. If the average volume hauled from one client is about 2 m³, the total hauled septage in 2016 will then approximate to 951 unique clients served by the six haulers. If it is assumed that one client is associated to one household, then only 951 (or 1.6%) of 60,663 households using PSTs, may be presumed as having regulated emptying, while the remaining 98.4% do not avail emptying services.

No Sanitation

The table derived from WAMD-CEPMO data (Table 19) assumes 100% sanitation coverage of the city. For data on households without sanitation facilities, the PSA and Department of Health (DOH) surveys may be referred to. Each have different parameters surveyed. Table 21, as lifted from DOH's Field Health Service Information System Annual Report 2015, shows two parameters, 1) with sanitary toilet and 2) with complete basic sanitation facilities. It may be deduced that 0.35% and 2.02% are without complete basic sanitation facilities and without sanitary toilets, respectively. The base number of households is from DOH's own estimated number of households and not necessarily based on PSA's population survey data. Those without sanitation facilities are assumed to be using others' toilets, or possibly practicing open defecation.

Table 21. Households with Sanitary Toilet and Households with Complete Basic Sanitation Facilities

Area	HHs with Sanitary Toilet		HHs with Complete Basic Sanitation Facilities	
	No.	%	No.	%
Philippines	16,073,218	84.18	13,013,214	68.15
NCR	2,388,244	110.32	2,390,995	110.45
CAR	284,438	83.95	179,255	52.91
Baguio City	58,586	97.98	59,586	99.65

Source: DOH, 2015

On the other hand, there is the PSA 2000 and 2010 survey data related to sanitation, shown in Table 22. Nine kinds of toilet facilities or sanitation types were considered. Assuming the categories closed pit, open pit, others and none fall under 'no sanitation', these total to about 1.8%, which is within the range of DOH's 0.35% to 2.02% estimate. This PSA survey is based on 20% sample households. Definitions of categories used by the PSA survey can be found on the PSA website.

Table 22. Households by Kind of Toilet Facility in Baguio City

Year	Total No. of Households	Water-sealed sewer septic tank used exclusively by households		Water-sealed sewer septic tank shared with other households		Water-sealed other depository used exclusively by household		Water-sealed other depository shared with other households			
		No.	%	No.	%	No.	%	No.	%	No.	%
2000	53,302	38,749	72.7%	8,492	15.9%	n/a	n/a	n/a	n/a		
2010	78,313	61,660	78.7%	13,168	16.8%	1,196	1.5%	1,135	1.4%		
Year	Total No. of Households	Other Depository Public Water - sealed		Closed pit		Open Pit		Others		None	
		No.	%	No.	%	No.	%	No.	%	No.	%
2000	53,302	890	1.7%	972	1.8%	1,321	2.5%	159	0.3%	41	0.1%
2010	78,313	not included in 2010 survey		658	0.8%	658	0.8%	183	0.2%	72	0.1%

Note: Figures are based on 20% sample households. Details may not add up due to rounding off

Source: PSA-CAR, 2010

1.3 Breakdown of Types of Sanitation for Commercial, Institutional and Industrial Structures

There is currently no readily available source of data for the breakdown of types of structures and relative sanitation type employed. When completed, the GIS-based system resulting from the BENECO-LGU Baguio survey will by then be able to generate such types of breakdown.

It is to be noted, however, that most of the offices, schools, hospitals, factories, shops, transport stations and other such commercial or institutional buildings, are located within the CBD, and more likely than not, have acquired a business permit to operate. As of March 2016, there were 14,846 approved business permit registrations. In the process of obtaining or renewing yearly a business permit, the structure the business operates in is monitored by a WAMD-CEPMO personnel with respect to wastewater management. However, there is no readily available detailed data on the type of sanitation employed by each of these businesses. It is noteworthy that sewerage payments made by these businesses compose a large bulk of the total sewerage fees collected by the city annually, and there are many concessionaires from residential areas that do not dutifully pay sewerage fees.

The city is host to the Baguio City Economic Zone (BCEZ). The BCEZ manages its own wastewater collection and treatment facilities.

Other On-site Toilets with Regulated Emptying Services

There are seven pay restrooms recorded in the list of businesses at the city licensing division. These are found in the market area and in tourist spots within the city. These restrooms are either connected to the city sewer line or have individual septic tanks that are desludged as the need arises.

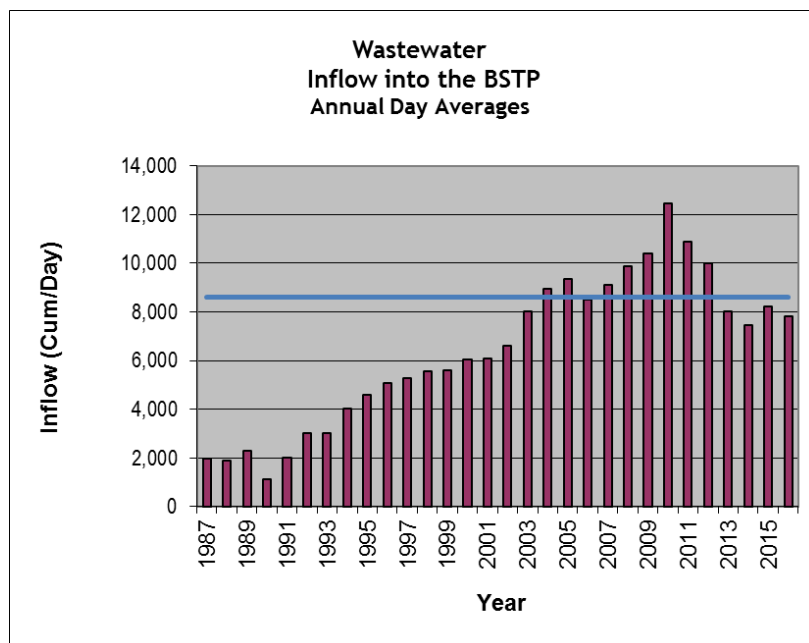
1.4 Historical Trends in Sanitation

Since it began its operation in 1986, connections to the sewer system grew from a few hundred to 10,052 concessionaires/applications at the close of the 2016 year. This is mostly due to City Ordinance (CO) 98 s. 1995, an ordinance on Maximising the Utilization of the BSTP. An ordinance was needed to compel connections to the sewer lines since people were at first hesitant to connect and pay sewerage fees. Applications for legal connections to the sewer network has grown as people now see it more economical to pay sewerage fees than to have their septic tanks desludged frequently. Further, during the city-wide survey, a number of illegal tapping operations to the city sewerline were discovered. Owners were told to apply to legalise their connections.

The BSTP has now been operating for 31 years. Inflow volume has increased over time, and is now operating more or less within its design capacity of 8,600 m³/d (Figure 12). Some pumps have been replaced but generally, most of the original pumps, motors, aerators and other mechanical equipment are still running. A sludge dewatering system is the only additional equipment added to the BSTP since 1986.

The pipe network continues to be added to yearly and the rehabilitation of dilapidated pipes is also allocated for annually. The expansion of the BSTP is planned and the city is hoping to get approval of a partial grant under the National Septage and Sewerage Programme (NSSMP). The city is also currently making its Sanitation Safety Plan through a partnership with DOH and the WHO.

Figure 12. Inflow to the BSTP(WAMD-CEPMO)



Tariffs related to sewer connection have been increased in 2016, after 13 years of fixed rates. Increases ranged from 0% to 200% on sewage fees per toilet or per toilet bowl, depending on the type of establishment. Sewerage tariffs cannot be made on volume-basis, as the city and the BWD have not had earnest talks on the matter as yet.

From one communal Imhoff tank construction in the 1950's, there are now 12 CSTs existing. PSTs are still the sanitation type of choice in areas outside the sewer network coverage area. Whereas before, PSTs had a leaching chamber, or even bottomless design, the required design now is a three-chambered sealed septic tank.

In the past, there were reports of unregulated septage hauling and disposing of septage indiscriminately. With the acceptance of the disposal of collected septage into the BSTP, the number of registered private septage haulers increased. The number of reported PSTs desludged and volume of septage hauled has therefore increased. A small-sized septage treatment plant will be built in the coming months to allow the separate treatment of septage within the compound of the BSTP. WAMD-CEPMO is in the process of planning mechanisms on imposing the regular desludging of PSTs in the city.

Constituents and barangay officials are now much more aware of sanitation issues. In 2011, WAMD-CEPMO launched a programme called “SALAKNIB TI WAIG”, or Guardians of the Waters. Though the programme focused on river protection against pollution, much of the advocacies were related to sanitation. This programme is supplementary to the regular programmes and activities of the sanitation division under the Health Services Office (HSO) of the City. The HSO has functional district health and sanitation teams that monitor sanitation conditions in barangays. Data is reported to the DOH national office. In effect, due to collective action among WAMD, HSO and the barangays, sanitation awareness and sanitation issues reported at the barangay level and at city level have grown.

Prior to the construction of the BSTP, Baguio City was sued by the downstream municipality of La Trinidad for polluting the Balili River. Sewer pipes built during the American time (1950’s) disposed into the river without treatment. La Trinidad, called the “Salad Bowl of the Philippines”, has agricultural areas that use Balili River as one of its irrigation sources. Vegetables and strawberries are produced here and marketed all over the Philippines. With the BSTP, wastewater collected by the city sewer network is now treated before its disposal to the Balili River. The water quality of the Balili River, however, still remains polluted due to indiscriminate wastewater disposal from residences, commercial structures, piggeries and other sources.

Sanitation remains to be fully incorporated into the city’s agenda, plans and policies. Sanitation-related issues have been included in accomplishments of politicians, or in politicians’ platforms during election campaign periods. Increase in tariffs, however, is usually avoided by politicians. The Tax Ordinance (TO) on ‘Rationalizing the Payment of Sewerage Fees for the Maintenance and Operation of the Sewerage System of the City of Baguio’ (TO 04 s. 2003) was passed in 2003. The 2016 council approval of the City Environment Code or CO 18 s. 2016 (Annex C) was welcomed by WAMD-CEPMO and the City Budget Office as it gave support to wastewater management policies and approved the increase in tariffs meant to help augment subsidies for wastewater operations.

1.5 City Plans to Achieve 100% Sanitation Coverage by 2035

In 2015, the city was beneficiary to a US\$200 thousand grant by the Cities Development Initiative Asia (CDIA), through the Asian Development Bank (ADB), for a Pre-Feasibility Study on Green and Integrated Wastewater Management (PFS GIWWM) covering the years 2015-2035. The PFS GIWWM outlined short, and medium-term plans for wastewater management in the city. Sector targets are as shown in Table 23, projecting 100% sanitation coverage will be achieved by 2035.

Table 23. Wastewater Management Sector Targets

Indicator	How Measured	Measured By	2015	2020	2025	2030	2035
Sewerage Connections	Master Plan updates data then by GIS & connection fees	WAMD, Water District & City Finance Office	15%	25%	50%	70%	100%
Wastewater Treated	By inflows at WWTPs – already measured	WAMD	33% ¹	50%	70%	85%	100%
Septage Treated	Already measured by WAMD	WAMD	20%	100%	100%	100%	0% ²

¹ This assumed only wastewater reaching the WWTP is treated, not at septic tanks.

² With all houses connected to the sewerage system, there will be no septage.

The city is currently studying how to incorporate the PFS GIWWM results into its city development plans, annual infrastructure plans and budgets. It is also in the process of getting the city council's approval of the city's application to be beneficiary to roll-outs of the National Septage and Sewerage Programme (NSSMP). The city has so far only sent a letter of intent to the Department of Public Works and Highways (DPWH), the national department overseeing implementation of the NSSMP. The NSSMP will give a 40% grant to highly urbanised cities (HUC) proposing projects related to septage management and sewerage systems.

Meanwhile, annual allocations for sanitation-related development projects continue. The GIS-based system being completed will give a more reliable database of sewerage concessionaires and types of sanitation systems used by structures in the city.

Section 2: Financing of Sanitation in the City

2.1 Four Most Important Types of Sanitation

The four types of sanitation seen to be most important to the city are:

1. Building sewers connected to the city sewerage network. It is important to the city to gain a more complete database of the piping system and all concessionaires connected to the sewer system. Rehabilitation work and new pipe installation will be guided by this database, as it is important for the city to monitor and prevent leakages to prevent pollution. The database will be the basis for collecting tariffs from those who benefit from the service.
2. Building sewers connected to the CSTs and building sewers directly disposing to drainage canals or waterways. Information on structure connections to the CSTs will help the city assess how to alleviate the overloaded CSTs. Collection of tariffs can be tricky as treatment by the CSTs is not sufficient to pass effluent standards set by the DENR. Likewise, there is concern on building sewers disposing of untreated wastewater to drainage canals and water bodies. There are drainage inlets that emit foul odor, for example, at the CBD, which are caused by the illegal disposal of wastewater into the storm drainage system. Direct disposal to waterways are causing BOD levels to elevate and therefore pose the threat of pollution to water resources.
3. Septic tanks with regulated emptying services. The increase in PSTs being desludged is a positive sign that people are beginning to realise the necessity of regular desludging and are willing to pay for desludging services. The current services of private haulers will provide input to formulating mechanisms for a city-wide septage management programme.
4. Septic tanks with unregulated or no emptying services directly disposing to drainage canals or waterways. The pollution caused by this indiscriminate disposal of wastewater and septage into waterways has been a source of conflict with municipalities downstream. Septage management, therefore, has been on the fore of WAMD-CEPMO's agenda, in the hope of revitalising polluted waterways.

2.2 Capital Costs and Running Costs of Sanitation Types

Building Sewers Connected to the City Sewerage System

The BSTP and sewer mains were provided through a grant by the Government of Japan for a total of 2.6978 billion Yen as of 1993 (Table 24). The budget for the construction of additional laterals and branches, the rehabilitation of the sewers and other implements needed to maintain and operate the sewerage system, are allocated annually by the city. From 2010 to 2017, WAMD-CEPMO has been receiving between 1.87% to 6.53% of the city's total budget to cover capital costs and running costs for wastewater management (Table 25).

Table 24. Grants from the Government of Japan

PROJECTS IMPLEMENTED THRU GRANTS FROM THE GOVERNMENT OF JAPAN		
DATE COMPLETED	DESCRIPTION	AMOUNT in Billion Yen
March 1986	Construction of the BSTP	1.576
January 1993	Rehabilitation of City Sewerline (Phase I)	0.484
January 1994	Rehabilitation of City Sewerline (Phase II)	0.63
March 1994	Follow-up Projects	0.0078
TOTAL		2.6978

Source: WAMD-CEPMO

Concessionaires shoulder all costs to connect their building sewer to the nearest city manhole, including shouldering maintenance costs of this connection.

WAMD's budget is broken down into personnel services (PS), maintenance and other operating expenses (MOOE), capital outlay (CO) and development projects that are part of the Annual Investment Plan (AIP). Allocation for development projects are not fixed and depends on the priorities of the budget year vis-à-vis the exigency of projects.

From the same Table 25, WAMD has had annual budgets ranging from about PHP 24 Million to about PHP 82 Million for the years 2012 to 2017. The 2012 development project allotment includes PHP 50 Million for a sequential batch reactor (SBR) meant to increase the BSTP capacity. It remains unspent, however, as the city awaits grants from the NSSMP.

Sewerage-related collections include sewer fees and surcharges mostly from commercial businesses. Only residents who regularly pay annual real estate taxes are required to provide sewerage fees since payment of the latter is a prerequisite. There are many residential sewerage concessionaires who do not pay sewerage fees. A revenue source that is increasing yearly comes from septage disposal by accredited septage haulers (Table 20), from about PHP 575,000 in 2012 to PHP 750,000 in 2016. The sale of dried sludge as a soil conditioner is another source of revenue. Table 26 shows that in 2013, some 850 sacks of dried sludge were sold to farmers at a total amount of PHP 17,000. Sales have been decreasing, but with the dewatering equipment, the city aims to produce compost-quality bio-solids and sell these at a much higher price. The city mayor has also instructed the parks division to use the treated sludge in the parks to patronize this by-product and lessen the city's fertiliser expenses. Testing of treated sludge quality and suitability for agriculture is yet to be programmed.

Table 25. WAMD-CEPMO Allocation in City Annual Budget

Particulars	2012	2013	2014	2015	2016	2017
Annual Budget	1,018,242,000.00	1,126,143,000.00	1,279,582,000.00	1,341,510,000.00	1,458,910,000.00	1,546,213,147.00
WAMD Budget for Fiscal Year (includes development projects)	66,464,109.00	25,032,147.48	23,965,317.25	51,466,678.00	46,616,745.00	81,701,518.00
PS		6,348,540.00	6,405,624.00	10,149,906.00	11,278,000.00	12,433,300.00
MOOE	15,964,109.00	5,183,607.48	5,103,693.25	12,460,772.00	10,338,745.00	17,632,268.00
CO			3,056,000.00	3,500,000.00	15,000,000.00	5,565,950.00
Development Projects	50,500,000.00	13,500,000.00	9,400,000.00	25,356,000.00	10,000,000.00	46,070,000.00
WAMD Share of General Fund (GF), %	6.53%	2.22%	1.87%	3.84%	3.20%	5.28%

Source: City Budget Office

Table 26. Dried Sludge Sales

BAGUIO SEWAGE TREATMENT PLANT SUMMARY OF SALES OF DRIED SLUDGE 2012 - 2016										
MONTH	2012		2013		2014		2015		2016	
	No. of Sacks	AMOUNT (PHP)	No. of Sacks	AMOUNT (PHP)	No. of Sacks	AMOUNT (PHP)	No. of Sacks	AMOUNT (PHP)	No. of Sacks	AMOUNT (PHP)
TOTAL	770	15,400.00	856	17,120.00	761	15,220.00	346	6,720.00	205	4,100.00
PHP20/sack; 1 sack = 25 kg (approximate)										
Source: WAMD-CEPMO										

The CTO disaggregates its collections into either the General Fund, Special Education Fund or the Trust Fund. Sewerage fees are accrued to the General Fund. A summary of sewerage-related collections in Table 27 shows the city is able to collect between PHP 13 Million to PHP 17 Million annually. Tariffs are based on tax ordinance 04 s. 2003, of which rates have been updated through the City Environment Code (CO 18 s. 2016), excerpts of which are shown in Annex A. During the years 2012 to 2015, sewerage-related collections contributed about 0.99% to 1.28% of total annual city general fund collections.

Table 27. Sewerage-Related Collections by the City Treasurer's Office

City Treasurer's Office (CTO) Collections Related to the Sewerage System, PHP					
Description	2012	2013	2014	2015	2016
Sewer Certificate Fees CEPMO/PUSO Account Code 654-7	1,567,983.50	1,673,705.00	3,062,900.00	585,150.00	No breakdown available due to migration to a new computer system
Sewerage Fees Account Code 658-3	11,447,430.29	12,207,275.24	14,167,883.63	13,508,852.08	
Sewer Connection Fees (Renamed Sludge Fees in 2014) Account Code 658-4	129,850.00	90,150.00	3,210.00	340,280.00	
Sewer Penalties Account Code 729-2	14,080.97	23,242.65		3,361.53	
Totals	13,159,344.76	13,994,372.89	17,233,993.63	14,437,643.61	
% of Total General Fund (GF) Collection	1.15%	1.10%	1.28%	0.99%	
Source: CTO					

A comparison between annual sewerage-related collections and WAMD allocations for expenditures show that wastewater management is highly subsidized by the city. All collections received by the office of the city treasurer is pooled into a General Fund (Table 28), then apportioned to budgets of city departments for use in the proceeding year. Funding for wastewater management is not ring-fenced, as the city does not currently consider sanitation-related services or wastewater management an economic enterprise, but rather a basic service it must provide for the general welfare of its constituents. The city believes that it should subsidise basic services, to a certain extent, rather than aim for full cost recovery.

Tariff collection is low because majority of those who pay sewerage fees are only those who process yearly business permits and those who regularly pay real estate taxes, since updating sewerage payments is a prerequisite to paying real estate taxes. Sewerage concessionaires who are connected to the sewerage system but do not have businesses or do not pay real estate taxes have not been paying annual sewerage fees, yet continue to be beneficiaries of the service.

Table 28. Sources of City General Fund

City Annual Budgets 2012-2017, PHP						
Fund Type	2012	2013	2014	2015	2016	2017
Internal Revenue Allotment	441,527,000.00	451,533,000.00	501,567,000.00	569,280,000.00	625,000,000.00	700,548,147.00
Non-Tax and Tax Revenue	576,715,000.00	674,610,000.00	778,015,000.00	772,230,000.00	833,910,000.00	845,665,000.00
Total General Fund	1,018,242,000.00	1,126,143,000.00	1,279,582,000.00	1,341,510,000.00	1,458,910,000.00	1,546,213,147.00
IRA Dependency Ratio	43%	40%	39%	42%	43%	45%

Source: Approved City Annual Budgets

The city has no existing loans whatsoever and operates only within the General Fund, consisting of the internal revenue allotment (IRA) from the national government and local tax and non-tax revenues generated annually. Its dependence on IRA ranges from 39% to 45% for the period of 2012 to 2017.

Connections to the Communal Septic Tanks and Direct Disposal to Drainage Systems or Waterways

CSTs constructed and collection pipes installed after the 1950s have been funded by the city. CST concessionaires bear the cost of connecting to the main collection pipe. Only a few of the CST concessionaires pay sewerage fees, and these are concessionaires that process business permits. For the moment, payment made by those connected to the BSTP and those connected to the CSTs cannot be disaggregated.

Maintenance works include cleaning and desludging CSTs. BOD-COD tests are also performed for CST effluents. Manual labor is used on the inspection and monitoring of CSTs and disposal to drainage canals or waterways. Maintenance of the CSTs is done by the same WAMD-CEPMO personnel who maintain the sewerage system. Expenditures related to this are integrated in WAMD's budget.

Use of Private Septic Tanks: Desludged and Not Desludged

The cost of construction and maintenance of private septic tanks are shouldered solely by the building owner. Desludging frequency is recommended to be in 3 to 5 year intervals. Regular desludging, however, is uncommon as it is not mandated, nor regularly monitored. Moreover, owners would like to avoid paying desludging fees that would cost at least PHP 5,000 per load of 2 m³. Owners generally find ways to drain their septic tanks illegally into canals or waterways.

WAMD-CEPMO used to do septage desludging services, but discontinued the service when its 31-year old siphon truck was declared to be un-roadworthy. Accredited private desludgers/haulers now perform the service for a fee they determine on their own. The fee for the disposal of septage at the BSTP by accredited haulers is now PHP400 per cubic metre, an increase of PHP 100 from the old tariff of PHP300.

Should WAMD once again perform desludging, new tariffs are set PHP 4,000 for the first 2 m³ and an additional PHP 600 to PHP 800 for each m³ in excess of 2 m³, depending on the PST's distance from the BSTP (Annex C). PSTs are not individually monitored and overflows are known only when complaints are made.

Should the city be able to craft mechanisms for septage management, mandated desludging of the remaining 98.4% unserved households will generate revenue for both the city and private haulers for every 3- to 5-year desludging cycle.

Aside from the above, the city is planning to push through with talks with the Baguio Water District for: a) a possible tie-up on a revenue-sharing scheme for the collection of sewerage fees by BWD, which shall be proposed to be based on water consumption, and/or, b) the possible take-over by BWD of the management of

wastewater in the city. LWUA, the national overseer of water districts, has started interviewing the city and BWD regarding item b.

The GIS-based database, when completed, will be key to better planning and decision-making, as information on concessionaires, sanitation type employed, condition of treatment systems and other such relevant and comprehensive sanitation data will be made available.

2.3 Financing of Plans

The PFS-GIWWM estimated costs to attain the targets of 100 % sanitation coverage by 2035 (Table 29). Table 30 shows the sources of funds to finance the projects needed to attain this goal. The city's share/equity is 51%, while it is anticipated that the NSSMP and the DPWH will cover 31% and 18% respectively.

Table 29. Proposed Investment Program Outline Cost Estimate

Cost Components (All costs in PHP million)	Total	% Distribution	Short-term	Medium-term
Wastewater Management	4,328	71%	1,579	2,749
Drainage & Flood Control	1,059	17%	577	481
Total Construction Cost	5,386	89%	2,157	3,230
Capacity Building	5	0%	5	-
Project Management Support	681	11%	299	383
Total Project Cost	6,073	100%	2,460	3,613

From CDIA, 2016

The proposed sources of funds related to wastewater management are the NSSMP grant fund and the city's counterpart, which will come from the general fund. Based on the high capital investment costs needed, the city is open to Public Private Partnerships (PPP) which allow plans to be formalised. The city council has previously approved an ordinance to allow the city to enter into PPPs as the need arises.

Table 30. Proposed Investment Program Outline Financing Plan

Sources of Funds	Total	% Total	Short-term	Medium-term
City Counterpart Fund	3,091	51%	1,181	1,910
NSSMP Grant Fund	1,858	31%	676	1,182
DPWH Budget Allocation	1,123	18%	603	521
Total Project Cost	6,073	100%	2,460	3,613

From CDIA, 2016

Section 3: Institutional and Policy Aspects

3.1 Decision-Making and Policy

Decision-Makers for Technical Types of Sanitation Services in the City

Building permits are issued by the City Buildings and Architecture Office (CBAO). CBAO's review of building plans encompasses the sanitary plans of the structure to be built. Currently, a three-chambered sealed septic tank design is required by CBAO as the minimum design for onsite wastewater treatment. As WAMD, a division of the City Environment and Parks Management Office (CEPMO) handles the maintenance and operation of the sewerage system, all building plans have also to pass through WAMD-CEPMO for an assessment of a possible connection of the building sewer to the city sewer line.

On the other hand, all technical matters, including planning related to the sewerage system, CSTs and other off-site sanitation services, emanate from discussions among concerned WAMD engineers, but the final decision-making responsibility lies with the WAMD chief. WAMD engineers conduct research on technical designs by networking with experts and soliciting proposals from technical personnel of design firms and technology and equipment suppliers.

The WAMD chief initiates plans and programmes and proposes the same to the CEPMO department head, who in turn defend the plan and relative budget to the Local Finance Committee (LFC) during the budgeting period. There is no guarantee that all department-proposed projects will be funded in the upcoming year, and budgeting depends on priorities set for the preceding year. The current WAMD chief and the CEPMO department head are strong and are known to be adamant in campaigning for WAMD PPAs.

Impact of National Laws

The Philippines has a number of laws and policies related to sanitation. Annex 4 of the PSSR (DOH, 2010) and studies like that of ECLEI in 2012, catalogue the numerous laws and policies. The Sanitation Code of the Philippines, or Presidential Decree (PD) 856, prescribes rules and regulations on water supply, collection and treatment of wastewater, septage management, noise pollution and other sanitation-related matters. Provisions relate to control, design - though not in detail, frequency of tests, limits and standards. There is also the Plumbing Code of the Philippines and the National Building Code, which contain sanitation-related provisions. The many sanitation-related laws and regulations are fragmented and need to be reviewed and harmonised for better local planning and more effective local implementation by LGUs.

Typically, national laws have good provisions and penalty clauses, but do not mention funding plans for the implementation of programmes. There exist certain ambiguities and overlaps in functions, may be reasons for agencies or LGUs to not take it upon themselves to prioritise the allotting of funds to implement their mandates on sanitation.

Older national laws also lack communication and awareness components. LGUs expected to implement laws therefore do not have a high awareness of their responsibilities. The PSSR is built upon existing sanitation-related laws and should have been disseminated to LGUs nationwide, yet at the time of this research, the WAMD-CEPMO of Baguio was unaware of the PSSR. This may imply that dissemination of the PSSR was not intensively carried out by the national government.

Local government units (LGUs) commonly localise, by way of an ordinance, provisions of national law that are applicable to their situation and include provisions on how to fund the implementation of such ordinance. Subsequently, the LGU department in charge of implementing such law, on sanitation for example, takes it upon itself to include, in its budget, necessities to implement sanitation plans, programmes and activities (PPAs) to be able to comply with such law. LGUs lacking sufficient budget, however, struggle to implement such laws.

Baguio City has been doing its sanitation activities and making its wastewater management plans and programmes based its own targets, largely because it is one of the very few cities outside of the Manila metropolitan zone that has a sewerage system. However, Baguio - and all other LGUs for that matter - should still align their sanitation plans and programmes with the PSSR in order for national targets to be achieved. In relation to national directives on Climate Change, Baguio's climate proofing programmes have included drainage and wastewater management.

It is notable that LGUs establish plans and programmes when a legal basis exists. The main regulatory function emanates from the national government, but there is a gap in downloading national laws to the LGUs. Policies, therefore, are not fully implemented nationwide.

Furthermore, national laws generally lack compliance monitoring and reporting mechanisms, including the identification of an office that shall store and analyse data gathered through these mechanisms. Collected data is important for making an integrated assessment of not only the progress and achievements made by the implementation, but also the assessment of the sufficiency or insufficiency of finances in the effective implementation of such law.

Some of the sanitation-related laws are also not updated to consider current situations and technologies. These newer technologies may require different costings, which should be considered where applicable in financing sanitation programmes.

NATIONAL RESEARCHES

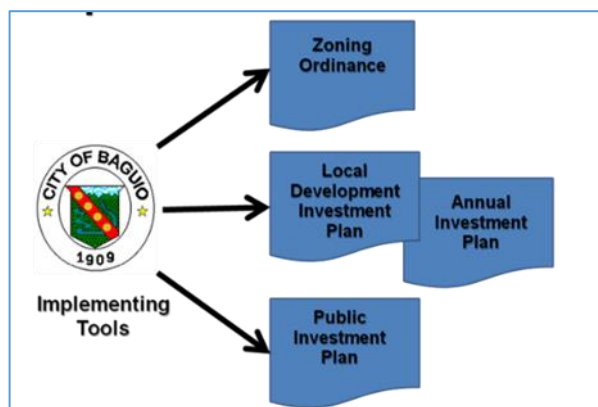
Most of the papers encountered for this study were of national scope and completed in collaboration with, and funding by agencies like the World Bank and AUSAid, ECLEI, WHO and ADB. Studies covered the country's existing governing policies and programmes, the state of sanitation, economic returns, identifying investment plans and programmes, service delivery assessment among others. These studies were made as far back as 2011 to as recently as 2016, and are listed on the 'Reference' page.

3.2 Planning for Sanitation

City Plans

The city has incorporated its sanitation-related plans within its Comprehensive Land Use Plan (CLUP) 2013-2023. The CLUP lists priority sectoral PPAs for liquid waste management that include infrastructure projects for additional communal septic tanks, expansion of the BSTP, a mini-wastewater treatment plant, rehabilitation of old sewers and installation of new sewer pipes, among others. The city, through the CPDO, makes Local Development (medium-term) Investment Plans (LDIP) that include PPAs on wastewater management. Annual Investment Plans (AIP) are supposedly aligned with the LDIP (Fig. 13). However, as to how wastewater and sanitation-related investments will translate to achieving city MDGs, SDGs and other city sanitation targets is not distinctly defined in the plans.

Figure 13. Implementation Mechanism (CPDO)



Although there is an absence of a city sanitation plan, the Green and Integrated Wastewater Management (GIWWM) pre-feasibility study commissioned by the CDIA is currently the city's guide in planning for Baguio City's sustainable sanitation and wastewater management covering the years 2016-2035.

As per Lacsamana, 2017, the purpose of the GIWWM project is to provide LGU Baguio with sufficient information to make decisions on the most appropriate actions for providing sustainable, improved and affordable sanitation and wastewater management. The overall objective of the GIWWM Project is to minimise the City's vulnerability and fragility to hazards (natural and man-made) by improving its wastewater and storm water management. These will be done by increasing the city's capacity in urban management and promoting private sector participation in the provision of urban services (Lacsamana, 2017).

Subprojects are to be implemented via links to existing city programmes and promoting better cooperation between the LGU and the residents. The GIWWM project comprises of sanitation and wastewater management and a sewerage upgrading programme. Some specific subprojects include the formulation of a city wastewater master plan, the construction of septage treatment facility, the expansion of the sewage treatment plant and the replacement and construction of sewer networks. The goal is to have a sustainable improved sanitation and wastewater management that covers the entire city by 2035, as well as the restoration of Baguio City's river systems and the reduction of costs and impacts of flooding that will be brought about by extreme weather events, which are most likely to occur in the city (Lacsamana, 2017).

The GIWWM study has short-term and medium term-coverage targets. It is, however, much more focused on the structural components of wastewater management. The comprehensive wastewater masterplan to be made aims to cover all of the city's sanitation issues.

Both the CLUP and the GIWWM cite exploring and considering development complementation with adjacent municipalities in the Baguio-La Trinidad-Itogon-Sablan-Tuba-Tublay (BLISTT), a cluster of adjoining independent LGUs, with the BLISTT Framework Plan as reference. The CLUP also endeavors to be consistent with other regional and national development plans.

The 2010 Philippine Sustainable Sanitation Roadmap (PSSR) was made as a guiding tool for the development and implementation of sustainable sanitation. Its targeted outcome is the universal access to sanitation by 2028. Investment priorities for the Medium Term Development Plan, covering the years 2010-2016, are incorporated in the PSSR. DOH is currently assisting the City, as one of the pilot cities, in making a sustainable sanitation safety

plan. However, Baguio has yet to align its sanitation and wastewater plans with the PSSR and has still to formulate its city sanitation plan.

Financing

Financing schemes suggested by the GIWWM study are as mentioned in Item 2.3.

Major Obstacles

Though the city aims for 100% sanitation coverage by 2035, the current lack of a specific source of funding for the wastewater management PPAs currently offers the greatest impediment. The city has not ventured into availing loans and therefore has no existing loans whatsoever. As such, critical and large development projects are carried out in phases or deferred; a piecemeal approach is often used in financing these big projects.

From interviews with the CEPMO and CBO, there were other obstacles mentioned: 1) lack of institutional support, 2) lack of in-house technical capacity, 3) absence of a long-term city utilities plan, 4) intervening factors crop up necessitating the diversion of funds from priorities, 5) local PPP implementing mechanisms are not in place, 6) some political and cultural issues, 7) the city's reluctance to making loans.

Previous Plans: Successes and Failures

The sewerage plan for the CBD of the 1980's was completed with the aid of the GOJ grant for the construction of the BSTP and counterpart funding of pipelines by the city. Effective maintenance has kept the BSTP working for around 30 years. Ever since the tax ordinance approved the sale of biosolids was already incorporated, advocating the use of so-called 'waste' as resource. Computerisation of the pipe network and concessionaire database under a GIS platform is ongoing. Collection of user fees in the last five years, though still not with a 100% collection efficiency, has significantly increased, compared to earlier annual collections of less than PHP10 Million.

However, the city overlooked formulating a masterplan or sanitation plan to address current and future programmes for wastewater management and sanitation. As such, data related to the wastewater system have only recently been collected. There was no strategic plan to finance and upgrade components of the BSTP or replace dilapidated pipes at a point in time. Protecting or purchasing land required for CSTs, DEWATS, or for traversing pipes, was not foreseen. The plan targeting 100% sanitation coverage was not formulated until recently. Full cost recovery is also not being considered.

The city has both successes and failures, and but is now working towards holistic planning and managing for both wastewater and sanitation of the city. Communication and stakeholder involvement, upgraded service delivery, financing and cost-recovery are now being taken into account during the annual planning and budgeting period.

3.3 Operation and Maintenance

The operation and maintenance of the sewerage system and the CSTs is solely done and financed by the city government, specifically under the WAMD-CEPMO budget. Regulated PST desludging, however, is for now

beyond the capacity of the city. On-demand desludging of PSTs is currently done by ten accredited haulers. Desludging fees are not regulated and are not standardised among the haulers. Since there is growing interest by the private sector in desludging business, this may be an indication that the septage hauling business is profitable and viable, especially when regular desludging is to be mandated by the city.

3.4 Finance

Major Finance-Related Gaps and Obstacles to Sanitation in the City

The following are seen to be direct and indirect finance-related issues affecting sanitation in the city:

1. The city has no sanitation plan for which sanitation investments shall be based upon and monitored against
2. There is no coordinated planning between the city and the BWD regarding wastewater and sanitation. The city alone takes responsibility for wastewater management, while the BWD handles water services separately.
3. Incomplete data of sewerage concessionaires. Not all service users pay fees.
4. Low collection efficiency. Not all users in the current database pay tariffs due.
5. The basis of tariff fees is unsuitable as it is based on the type and/or number of fixtures, rather than the actual volume of water used or volume of wastewater generated.
6. The city has yet to fully incorporate the GIWWM-proposed investment scheme into the city's LDIP and AIPs.
7. Piecemeal funding for large projects will delay attaining targets.
8. NSSMP grant requirements are not easy to comply with.
9. The city is reluctant to avail loans, having never offered any loans.

The GIWWM, made through the auspices of CDIA, is currently the only study made that includes, among others, institutional and various financing strategies to reach 100% coverage.

The city has not used blended finance as it has been funding its own wastewater and sanitation programmes since the turnover of the BSTP by GOJ in the 90s. The IRA and city revenues are the only fund sources. It is worth mentioning the participation of the private septage haulers, as they provide sanitation services in relation to PSTs. There is also the case of a private party handling the commercial business of management of public toilets in the market and tourist areas.

The GIWWM and the City Sanitation Safety plan are two samples of 'soft' components of sanitation received through a grant. The city has previously networked with the Manila Water Company (MWC) for some technical assistance and tours of MWC facilities. Currently, infrastructure, operation and maintenance costs are solely shouldered by the city government.

To increase tariff collection, the city is considering talks with BWD for a collection and sharing scheme. It will be proposed that BWD shall collect an agreed surcharge of the water bill to cover sewerage fees. For clients using PSTs, the cost of septage hauling will be made in installments, spread out to the 3- or 5- year septage desludging cycle. BWD shall get a percentage of the sewerage and septage tariffs it collects. It is also proposed that, while talks with BWD are still underway, the Barangays will collect the sewerage fees and receive an incentive of an agreed percentage of their barangay sewerage tariff collections. Furthermore, to encourage concessionaires to pay annual sewerage fees, the CTO applies a discount once the annual fee is paid early and in full.

The city is now opening its doors to PPP, as the council has approved an ordinance on allowing PPP for city projects to invite investors. The ordinance, however, needs to have implementing rules and regulations (IRR) before it is fully implemented. The city is considering turning over wastewater management to either the BWD or any entity that may be interested.

To encourage the upgrading of existing undersized and/or leaching, bottomless PSTs, financing can be offered by the city, local banks or credit cooperatives to residents when they agree to replace it with more efficient onsite treatment systems (e.g. prefabricated ecotanks, jokhaso, rotaloos, etc.). Residents could perhaps also take a loan and pay the cost to connect to the sewerage system or a CST on an installment basis.

3.5 Circular Economy

Circular Economy in the City

The term Circular Economy is still new to the city and is not as yet used. However, akin to the circular economy the city is more familiar with the nexus triad of food security, water sufficiency and energy. There are also the more familiar and relatively similar terms of sustainability and climate-proofing, which are frequently used by the city in its plans.

Financing Instruments/Concepts in Relation to the Circular Economy

The city sells dried sludge or biosolids to cut-flower and ornamental plant farmers growers, as this is considered a soil conditioner. These products are produced as by-product of the sewage treatment process at the BSTP. The city plans to purchase further equipment, called an Environment Recycling System (ERS), which will convert wet sludge into high grade compost.

The city mayor has also given a directive for employees at the city's parks to use dried sludge from the BSTPs, in order to save costs on fertilizers being purchased by the city. Sludge is provided free for use in barangay and school gardens.

WAMD-CEPMO has in plans to generate power from a micro hydro plant which may be built downstream of the BSTP effluent pipe. It is also planned that some of the effluent be used for irrigating parks at the CBD to minimise on the cost of water. Biogas generation is also being considered, but capital cost to make this possible may prove to be greater than the cost of power generated.

Part D: Analysis

Financing Gaps and Barriers to Urban Sanitation

Finance-related issues affecting sanitation in Baguio are issues encompassed by gaps previously identified in national studies mentioned in item 3.1. These include insufficient funding, the need for data collection and data banking, the need for capacity building for appropriate tariff setting and sustainable sanitation planning in Baguio. There are also similar issues raised in the national studies. More particularly, the gaps and barriers cited in the PSSR and the Urban Sanitation Review (World Bank and AusAid, 2013) are listed below:

The PSSR (DOH, 2010)

1. Lack of effective sanitation leadership
2. Absence of a national sanitation policy on investment for sanitation, promotion of pro poor financing, sanitation entrepreneurship, regulation for sanitation and wastewater
3. Numerous regulations are not integrated and updated and have no targets
4. Funding for sanitation is low; no clear identified sanitation programmes funded in the GAA; low priority given to sanitation by the national government; no clear sanitation programmes in the medium term Philippine Development Plan (MTPDP) and the Medium Term Philippine Investment Plan (MTPIP);
5. Hesitance of private sector investment due to insufficient incentives and efficiency issues

The Urban Sanitation Review by World Bank and Australian Aid (2013)

1. Lack of regulation and enforcement of penalties
2. Lack of financing
3. Fragmentation of institutional arrangements; lack of institutional arrangements to support viable financing schemes
4. Lack of awareness of community on impacts of inadequate sewerage and septage management systems; lack of willingness to pay by community
5. Lack of a national sanitation investment framework

It should be noted, however, that more recent GAAs like those of the years 2013 to 2016, contain project descriptions that include keywords like sanitation, septage and sewerage, specifically under the DPWH budget. Combing through the GAA to look for sanitation-related budgets is not easy. The lack of a 'sanitation account' and monitoring system to track investments made on sanitation, including actual fund utilisation, are further gaps which need resolution.

Financial Mechanisms to Address Gaps and Increase the Flow of Finance into Sanitation

This study lifts financial mechanisms to address gaps from the 205 World Bank paper on Water Supply and Sanitation in the Philippines. Turning Finance into Services for the Future. A Service Delivery Assessment. Table 31 recommends actions to address issues that directly or indirectly relate to financing sanitation and salient action points are summarised below.

Salient recommended action points (World Bank, 2015):

1. Improve Institutional Arrangements. A lead agency must be identified or established to oversee and steer the national sanitation programme. A dedicated unit for water and sanitation be instituted within the agency to improve coordination among stakeholders down to the municipal level. Improved institutional arrangements should facilitate the implementation of the NSSMP.
2. Establish a national sanitation investment framework and mandate LGUs to formulate and implement LGU sanitation plans.
3. Establish a capacity building programme to enable successful planning, financing and implementation, and increase technical knowhow.
4. Harmonise data collection systems, standardise definition of terms, for more efficient review and monitoring.
5. Increase investments/allocations on sanitation that is inclusive of funding for the rural areas, and funding of 'soft' components.
6. Align budgeting with sanitation strategies. Plans should be supported by appropriate funding.
7. Increase local accountability and incentivise LGUs to access additional funding through matching grants by the national government. LGU plans and actions shall be monitored.
8. Create a national account for water and sanitation, disaggregated between urban and rural water and sanitation sectors, for more efficient monitoring of financial flows.

Additional suggested mechanisms:

9. Revisit, integrate and update sanitation regulations and policies to facilitate and support implementation of sanitation programmes.
10. Encourage private sector participation through attractive PPP packages.

A national sanitation investment framework and a LGU sanitation plan give clarity on what is to be achieved and how, identify who shall take the lead, and overall will provide an environment for better communication and coordination between stakeholders. Direction shall be guided by sound sanitation and investment plans that are based on harmonised sanitation regulations and supported by guaranteed sufficient funding. Regular monitoring and assessment of the implementation of sanitation PPAs shall ensure that local and national sanitation targets are met.

Financial flows are to be identified in the national sanitation investment framework and in each LGU's sanitation and investment plans. LGU fund sources will be the collection of tariffs, loans, national grants and other sources, or may originate from PPP agreements. It is anticipated that the availability of a national sanitation investment plan will attract entrepreneurs and investors to the sanitation sector.

Table 31. Sector-wide Priority Action Points

Sector-Wide: Institutions, Financing and Monitoring

- Implement new institutional arrangements including an expanded role for the National Water Resources Board as the sector regulator and its transition to a National Water Resources Management Office, and the establishment of a dedicated Water and Sanitation Unit as a lead sector agency (hosting department/agency to be identified through institutional review).
- Improve coordination mechanisms between actors at provincial and municipal levels
- Establish a national capacity building program, especially to address rural subsectors, by consolidating various initiatives already in place including the regional capacity building hubs established under DILG
- Harmonise data collection systems, standardise the definition of terms and develop a coherent sector monitoring framework
- Establish a collective platform for a multi-stakeholder review process to monitor subsector performance (for example Joint Annual Sector Reviews)
- Increase sector investment, particularly in rural areas where large disparities exist between rich and poor, as well as funding for "software", specifically for rural sanitation programs
- Align budgeting to support the implementation of long-term strategies and investment plans by public service providers, and translate these into annual work plans and budget
- Introduce key results areas for local water supply and sanitation services to increase local accountability for service improvements and incentivize LGUs to access additional funding sources including matching grants from national government and private sector sources
- Create a national account for water and sanitation, disaggregated between urban and rural to enable monitoring of financial flows towards the subsectors

Priority Actions for Urban Sanitation and Hygiene

- Establish institutional arrangements to facilitate implementation of the National Sewerage and Septage Management Program (NSSMP) and increase Local Government and Water District accountability for the coverage and quality of urban sanitation services
- Develop a sanitation investment framework and mandate local governments to adopt City Sanitation Plans incorporating measures to improve cost recovery and extend affordable services to the poor
- Adopt a cost-effective approach to investment whereby the gradual expansion of sewerage is complemented by measures to maximize connections and to improve fecal sludge management, since most households will continue using septic tanks for the foreseeable future
- Build local capacity to enable successful planning and implementation of the NSSMP

From Work Bank, 2015

Innovative and Non-Traditional Financing Instruments

For sanitation programmes to be sustainable, funding sources to continuously finance plans and programmes need to be identified. Most of those enumerated from below centre more on the value chain (waste as resource) of a treatment system's by-products which add revenue (monetising 'waste-resource'), lessen expenses or involve stakeholders in sanitation entrepreneurship:

1. Ensuring by-products from STPs, such as dried sludge (biosolids), be used in-house in LGU parks or gardens, or be sold for use as either soil conditioner, fertilizer or compost.
2. Biosolids be made food for animals.
3. STP sludge or septage from septic tanks be converted to briquettes and used as fuel.
4. Treated faeces and urine recovered separately from ECOSAN toilets can be used in agriculture.
5. Should conditions be ideal, LGUs can put up sewage treatment systems that generate biogas to be used as fuel or for the generation of power.
6. Effluent from STPs be reused in agriculture.
7. Effluent from STPs be used to generate hydropower.
8. Septage hauling fees can be collected through 'instalment' basis, where the total fee is divided by the number of months in a three- or five-year hauling cycle.
9. To increase collection of sewerage of septage fees in LGUs that handle only wastewater management and not water supply, a sharing scheme can be agreed upon with the barangay. The barangay collects tariffs house-to-house and a percentage of collections remains with the barangay. Alternatively, the water district could collect sewerage fees as surcharge over water fees and a sharing scheme between LGU and the water district can be agreed upon.
10. LGUs can give micro-loans or incentives to constituents who need to change leaching or bottomless septic tanks to better designed and constructed ones.
11. Involve private stakeholders to take part in sanitation entrepreneurship (e.g. briquette-making business, septage hauling, vermi-composting or vermi culture, septic tank upgrading or rehabilitation works, etc.).

Policies that National Government Needs to Change to Achieve Increased Flows of Finance for Sanitation

1. There should be a policy guaranteeing a certain percentage of national and agency budgets shall be allocated for sanitation programmes and projects, not unlike the GAD programme which receives at least 5% of an agency's annual budget.
2. The policies on availing NSSMP grants should be modified in such a way that LGUs can easily access the grant. The programme could perhaps fund the feasibility study that is required for LGU applications, to speed up the submission of applications. It has been six years since the NSSMP had been approved in 2011, with no beneficiaries to date.
3. National government can make a policy on an incentive scheme for sanitation entrepreneurs and investors
4. A policy is needed to include provisions mandating reuse of by-products of treatment systems, e.g. biosolids from a sewage treatment plant (STP), STP effluent, septage from septic tanks, in accordance to existing regulations available for such reuse.

Likelihood that More Finance Will Actually Flow into Sanitation

One of the current president's thrusts is to accelerate the implementation of infrastructure projects. In a working draft of the Public Investment Plan (PIP) for 2017-2022, under 'Accelerating Infrastructure Development', about PHP10.480 billion is earmarked for 'sewerage systems and management systems' for HUCs and other critical

areas, in compliance with the Clean Water Act. NEDA has procured consultancy services for the formulation of the Philippine Water Supply and Sanitation Master Plan (PWSSMP). NEDA is likewise preparing better mechanisms to effectively monitor the country's progress in the attainment of SDGs, which include sanitation targets. These are some of the indications that attention is being given to sanitation.

As to the actual flow of finances into sanitation, should NSSMP grant policies continue to be stringent with LGUs left on their own to comply with grant application requirements, it will be as it was: funding available but not utilized. Wealthier LGUs may be able to fund sanitation programmes, but poorer LGUs may be left behind without financial assistance from the national government.

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Annex A. Government Agencies with Sanitation-Related Responsibilities

ANNEX 2. GOVERNMENT AGENCIES WITH SANITATION-RELATED RESPONSIBILITIES		
AGENCY	LINE BUREAU/ ATTACHED AGENCIES	FUNCTIONS
NEDA Infra Com	Sub-Committee on Water Resources	<p>Ensures that the direction set for the sector is carried-out in accordance with the sector plan (i.e. Roadmap);</p> <p>Coordinates sector monitoring as well as the conduct of periodic review, evaluation and assessment of the sector (e.g., extent and status of the implementation of programs/activities identified in the Roadmap, deviation of actual performance from programmed targets, problem areas encountered in the program implementation);</p> <p>Coordinates and/or advises the conduct of studies, researches, and policy analysis on various aspects of the sector and make subsequent policy recommendations to the NEDA Board through the INFRACOM;</p> <p>Formulates areas of cooperation and coordination among the various agencies and instrumentalities of the government involved in the sector programs and projects to avoid duplication of efforts;</p> <p>Serves as clearinghouse of sector information; and venue for the discussion and resolution of arising issues in the sector.</p>
DOH	Environmental & Occupational Health Office	Develops plans, policies, programs and strategies to manage health hazards and risks associated with environmental and work related factors
	Local Water Utilities Administration (LWUA)	Specialized lending institution that promotes the development, regulation and financing of water districts outside Metro Manila
DPWH	Metropolitan Waterworks and Sewerage System (MWSS)	Constructs, maintains and operates domestic/municipal water supply and sewerage projects in Metro Manila and adjacent cities.
	Central Labor Based/ Comprehensive Agrarian Reform (CLB/CARP)	Took over the leadership in preparing the National Sewerage and Septage Management Plan (NSSMP)
DENR	Environmental Management Bureau (EMB)	<p>Formulates environment quality standards for water, land, air, noise and radiation;</p> <p>Approves environmental impact statements and issues Environmental Compliance Certificates</p>

ANNEX A, continued

	National Solid Waste Commission	Created to oversee the implementation of the National Solid Waste Management Act
DILG	Water Supply and Sanitation Unit (WSSU)	Spearheads the; <ul style="list-style-type: none"> • Provision of capacity building programs for LGUs • Technical assistance in the preparation of the water supply and sanitation sector plans • Provision of information to LGUs on available sector programs and financing including available sanitation technology options • Provision and facilitation access to financing of water supply and sanitation projects
DOF	MDFO GFIs	Financing support for water supply and sanitation sector <ul style="list-style-type: none"> • DOF oversees performance of GFIs like DBP, LBP and LWUA • GFIs provide funding for capital investments of LGUs and WSPs
DOST		Verifies technologies
CHED		Provide assistance in developing IEC Programs
DepEd		Provide assistance in developing IEC Programs
DBM		The Department of Budget and Management, created under Executive Order No. 21 dated April 25, 1936, is mandated under this Order and by subsequent issuances to promote the sound, efficient and effective management and utilization of government resources (i.e., technological, manpower, physical and financial) as instrument in the achievement of national socioeconomic and political development to help create an environment that encourages and facilitates the full and active participation of all sectors, especially the marginalized in the development process
HLURB		Promulgates and enforces land use and housing regulations to sustain a balance among economic advancement, social justice and environmental protection. As one of the key housing agencies, HLURB enhances rational land use and housing and real estate delivery through policy development, planning and regulations.
DA		Issues Guidelines on Wastewater Management for Irrigation;
NHA		Tasked to develop and implement a comprehensive and integrated housing program to embrace among others, housing development and resettlement, sources and schemes of financing, and delineation of government and private participation.
MMDA		Solid waste disposal and management which include formulation, and implementation of policies, standards, programs and projects for proper and sanitary waste disposal. It shall likewise include the establishment and operation of sanitary landfill and related facilities and the implementation of other alternative programs intended to reduce, reuse and recycle solid waste.

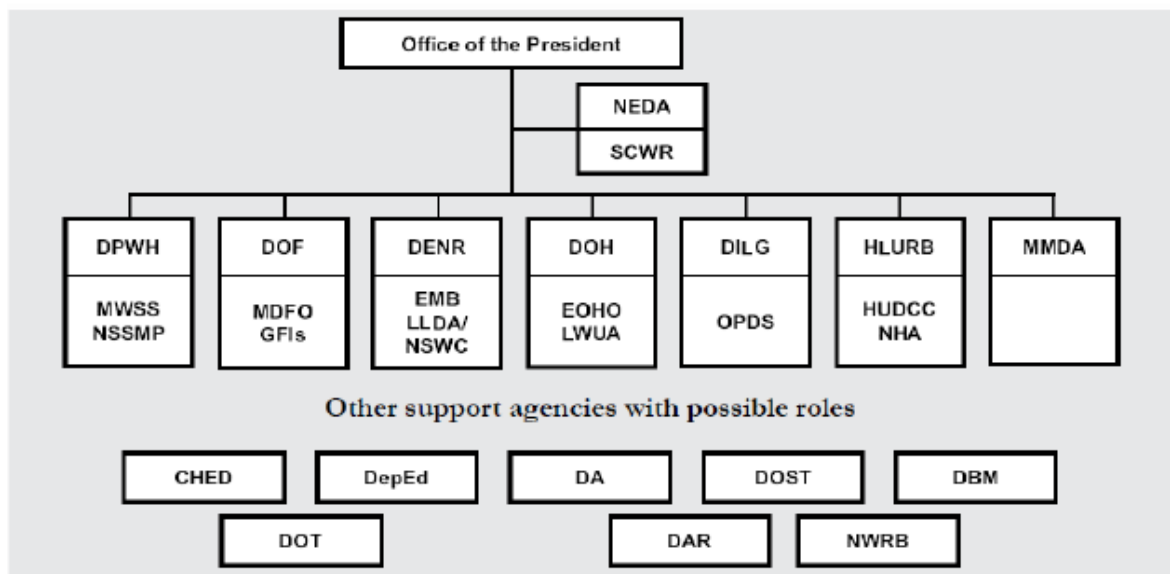
		<p>Flood control and sewerage management which includes the formulation and implementation of policies, standards, programs and projects for an integrated flood control, drainage and sewerage system.</p> <p>Urban renewal, zoning and land use planning, and shelter services which includes the formulation, adoption and implementation of policies, standards, rules and regulations, programs and projects to rationalize and optimize urban land use and provide direction to urban growth and expansion, the rehabilitation and development of slum and blighted areas, the development of shelter and housing facilities and the provision of necessary social services thereof.</p> <p>Health and sanitation, urban protection and pollution control which includes the formulation and implementation of policies, rules and regulations, standards, programs and projects for the promotion and safeguarding of the health and sanitation of the region and for the enhancement of ecological balance and the prevention, control and abatement of environmental pollution.</p>
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Under the Local Government Code, LGUs at various levels have their sanitation related mandates:

LGUs	Provincial and City/Municipal Level	<ul style="list-style-type: none"> • Resource regulation, water supply and sanitation and economic regulation of their utilities. Planning, financing and implementation of water supply and sanitation programs including: <ul style="list-style-type: none"> • Preparation of water supply , sewerage and sanitation sector plans; • Monitoring of local water and sanitation coverage and updating of sector profile; • Provision of support to WSPs such as R/BWSAs, cooperatives and water users' group including funding from their IRA
	Barangay Level	Can initiate local (barangays) level ordinances and coordinates closely with the municipal government in addressing the needs of their constituents.

Source: Annex 2 DOH, 2010

ANNEX B. National Agencies with Clear Sanitation Related Mandates



1. NEDA - National Economic And Development Authority (Infrastructure Committee)
 - a. SCWR - Sub-Committee on Water Resources
2. DPWH - Department of Public Works and Highways
 - a. MWSS - Metropolitan Waterworks and Sewerage System
 - b. NSSMP - National Sewerage and Septage Management Program
3. DOF - Department of Finance
 - a. MDFO - Municipal Development Fund Office
 - b. GFIs - Government Financial Institutions
4. DENR - Department of Environment and Natural Resources
 - a. EMB - Environmental Management Bureau
 - b. LLDA - Laguna Lake Development Authority
 - c. NSWC - National Solid Waste Commission
5. DOH - Department of Health
 - a. EOHO - Environmental and Occupational Health Office
 - b. LWUA - Local Water Utilities Administration
6. DILG - Department of Interior and Local Government
 - a. OPDS - Office of Project Development Services
7. HLURB - Housing and Land Use Regulatory Board
 - a. HUDCC - Housing and Urban Development Coordinating Council
 - b. NHA - National Housing Authority
8. MMDA - Metro Manila Development Authority
9. CHED - Commission on Higher Education
10. DepEd - Department of Education
11. DA - Department of Agriculture
12. DOST - Department of Science and Technology

Source: ECLEI, 2012

Annex C. Excerpts from the City Environment Code (CO 18 s. 2016)

SECTION 120. REQUIREMENTS TO SECURE LOCAL AUTHORIZATION FOR WATER RECYCLING AND/OR RE-USE. - The proponent shall submit all the requirements stated in this Code to secure authorization for water recycling and re-use and other documents which may be prescribed by the City Water Resources Board. Standards for re-use must be drafted by the City Water Resources Board.

SECTION 153. SEPTAGE DESLUDGING. - Septic tanks require desludging on an average of every three (3) to five (5) years. Septic tanks shall be desludged when the sludge volume is one-third (1/3) of the total volume of the septic tank.

SECTION 156. CONNECTION TO SEWER NETWORK. - Any person, natural or juridical, who shall connect to the water supply and sewage line shall be subject to national laws and standards such as the National Building Code, the Sanitation Code of 1975 [Presidential Decree 856], the Plumbing Law [Republic Act No. 1378], the Subdivision Law [Presidential Decree No. 957], *Batas Pambansa Bilang 220*, the Clean Water Act of 2004 [Republic Act No. 9275], and the Revised Implementing Rules and Codes of such laws.

The Baguio Water District collect the sewer fee from those who are connected to the city water system. The Baguio Water District shall be tasked with septage management after they have finished improving the water supply system of the City of Baguio.

The City Buildings and Architecture Office shall establish and maintain a database of all toilets in buildings in the City Baguio as basis for collection of sewerage fees, and to periodically monitor building developments for proper adjustments. The City Environment and Parks Management Office shall validate the inventory list as basis for policy recommendations.

SECTION 163. SEWERAGE AND OTHER FEES. - There shall be collected sewerage fees for the maintenance and operation of the sewerage system of the City of Baguio in accordance with the following schedule of flat rates per month:

Sewerage Fees

	Description	Amount	Unit
A.	For schools and universities	P40.00	per toilet bowl
B.	For lodging houses, boarding houses and dormitories	P150.00	per toilet bowl
C.	For banks, grocery stores, variety stores, convenience stores, refreshment and ice cream parlors, beauty shops, tailoring and dress shops, clinics, radio stations, stock exchanges, drug stores, photo studios, department stores, offices for personal services and other offices	P75.00	per toilet bowl
D.	For private residences and apartment/s (per unit)	P60.00	per toilet bowl
E.	For hotels, condominiums and hospitals	P60.00	For each toilet bowl and kitchen sink
F.	For motels, hostels, inns, pension homes	P50.00	per toilet bowl
G.	For restaurants, eateries, <i>carinderias</i> , franchised food outlets, cocktail lounges, night clubs	P60.00	per toilet bowl and kitchen sink
H.	For stalls clustered in food centers and food court	P60.00	per kitchen sink
I.	Small laundry businesses	P500.00	
J.	For industrial-sized dishwashing or laundry facilities	P1500.00	
K.	For comfort rooms for use by the general public in shopping centers, malls, food centers and food courts, market areas, bus terminals, gasoline stations, churches, parks, sports and health club facilities, recreation facilities, auditoriums and gyms, theaters, hospitals	P100.00	per toilet bowl
M.	Establishment with shower rooms like Spas, gyms, businesses providing for bath service, and similar establishments.	P60.00	Per shower head
N.	Other business establishments not specifically provided herein	P60.00	per toilet bowl

SECTION 166. OTHER SEWERAGE FEES AND CHARGES. - The following fees shall be collected for the following services and products:

A) Laboratory Fees per sample:

	Parameter	Cost
1	PH Test	P80.00
2	Chemical Oxygen Demand (COD)	P500.00
3	Biochemical Oxygen Demand (BOD)	P500.00
4	Dissolved Oxygen (DO)	P100.00
5	Suspended Solids (SS)	P300.00
6	Total Solids (MLSS)	P300.00
7	Turbidity Transparency	P300.00

B) De-sludging or sludge removal of septic tanks/vaults including hauling of sludge to the Sewage Treatment Plant:

	Description	Amount	Unit/Parameter
1	Septage hauling Septic tanks by CEPMO	P4,000.00	For the first two (2) cubic meters
		P600.00	For every cubic meter in excess of two (2) cubic meters, or a fraction thereof
		P800	
	Distance =< 5Km		
	Distance < 5Km		
2	Delivery of sewage/sludge to the Sewage Treatment Plant for treatment and disposal by allowed/accredited private contractors	P400.00	per cu.m or fraction thereof
3	Sale of treated sludge (dry)	P30.00	per sack (size of 50kg rice sack)

C) Sewer Connection Permit Fees and Other Fees:

Owners of sewer lines found connected to the city sewerage system but without connection permit shall be compelled to apply for sewer connection permit pursuant to Ordinance Numbered 098, series of 1995.

	Description	Amount	
1	One Time Sewer Connection Permit Fee	P500.00	Residential Buildings
2	One Time Sewer Connection Permit Fee	P1,000.00	Commercial Buildings
3	Surcharges (per year)	P200.00	Residential
		P400.00	Commercial
4	Sewer connection inspection fee	P100.00	
5	Certification for sewerage and non-sewerage connection	P100.00	

Annex D. Summary of Issues in the Philippines Sanitation Sector

Summary of Issues	Defining the Issue
GOVERNANCE AND REGULATORY ISSUES	
Low LGU awareness and political will to improve sanitation	At the LGU level, local development plans do not prioritize sanitation. This is gleaned particularly in the investment plan of the LGU where allocations for sanitation are minimal or none at all. To date, there are only a few LGUs who have demonstrated political will to improve their sanitation situation through the development of local sanitation policies, plans and programs.
Weak, fragmented institutional framework and policies on sanitation	The sector is beset with institutional fragmentation, a lack of an enabling policy environment, and gaps in the regulatory framework. While policies and enabling laws and national legislations have been formulated to set the directions for the sanitation sector, policy implementation has not been ideal, thus, policy goals have yet to be fully met. For instance, the National Sector Plan for Water Supply, Sewerage and Sanitation failed to gain national and local support for the implementation and updating despite the clear mandates of the institutions involved.
Weak, fragmented regulatory framework on sanitation.	Regulation in sanitation is not clearly defined. While there are enabling laws, this have to be revisited and updated. Standards have to be clearly defined and its implementation monitored by proper authorities. Economic Regulation in sanitation and wastewater is non-existent at the moment.
SERVICE DELIVERY RELATED ISSUES	
Inadequate capacity to facilitate sustainable sanitation.	<p>A significant number of LGUs do not prioritize sanitation programs in their investment plans</p> <p>A great number of people cannot associate unhygienic (open) defecation practices with transmission of excreta-borne diseases leading to high morbidity rates of these diseases.</p> <p>Lack of sanitation focused human resources who specialize in planning, implementing and evaluating sanitation programs, developing and improving designs on sanitation technology, and coordinating sanitation projects/programs. These include professionals and practitioners such as sanitary engineers, sanitarians/sanitation inspectors, public health specialists, and teachers among others.</p> <p>There are no guidelines to develop or strengthen LGU initiatives on policy formulation, planning and managing sanitation programs</p> <p>There is lack of definition of a national policy on the management of sanitation at the local government and household level translated in the forms of: Guidelines or management models on technology options, social marketing/advocacy strategies, coordination and linkages techniques which could guide local governments and other interest groups in planning, implementing, monitoring and evaluation of sanitation services/programs.</p> <p>Front-liner Sanitary Inspectors, majority of them, lack adequate sanitation education, training, knowledge and skills</p> <p>Institutional guidelines on cooperation and coordination on approaches, methodologies, and technology options to support local government units in implementing sanitation programs.</p>

LACK OF COORDINATION AND SUPPORT FOR MULTI-STAKEHOLDER PLATFORMS	
Low multi-stakeholder involvement in sanitation	<p>Low priority from key stakeholders, i.e., community, local and national levels.</p> <p>Behavioural, "I don't care" attitude from many stakeholders, from households, community to local and national levels</p> <p>Low private sector involvement on sanitation</p> <p>Lack of champions to advocate sanitation for public awareness</p> <p>Poor data availability. Poor knowledge sharing and dissemination</p>
FINANCING RELATED ISSUES	
Sanitation is considered a mere adjunct to water programs, resulting in low investment in sanitation	<p>Sanitation is not a priority of the government, and as a result, there is very limited to no investments at all. Identified government agencies with sanitation mandates such as DOH, DILG, NEDA have no program, activities nor project distinctly included in the General Appropriations Act (GAA); nor there is any clear sanitation program included in the MTPDP and the MTPIP</p> <p>The current focus of sanitation program and projects, if any at all, is on large scale infrastructure such as centralized treatment and sewerage facilities which tend to be very costly making cost of recovery very difficult. This can be seen from the few sanitation infrastructure being constructed and funded.</p> <p>With very low recovery, sanitation projects tend to be not self sustaining making it necessary to introduce sustainability in sanitation projects</p> <p>While there might be a demand for the construction of toilets at the household level, there are no clear financing schemes which families can access</p> <p>There is a clear absence of national and local policies on investment for sanitation, promotion of pro poor sanitation financing including promotion of sanitation entrepreneurship.</p> <p>There is no current law/program that mandates pro poor sanitation financing. Private Sector hesitates to invest in sanitation due to insufficient incentives and efficiency issues.</p>
SANITATION CRISIS DURING CALAMITIES AND EMERGENCY SITUATIONS	
Sanitation and hygiene promotion is not a priority in disaster preparedness and relief response.	Policy, practice and strong coordination for sanitation and hygiene promotion in different types of emergency situations (i.e. floods, landslides, etc) are not yet in place.

Sector-Wide: Institutions, Financing and Monitoring

- Implement new institutional arrangements including an expanded role for the National Water Resources Board as the sector regulator and its transition to a National Water Resources Management Office, and the establishment of a dedicated Water and Sanitation Unit as a lead sector agency (hosting department/agency to be identified through institutional review).
- Improve coordination mechanisms between actors at provincial and municipal levels
- Establish a national capacity building program, especially to address rural subsectors, by consolidating various initiatives already in place including the regional capacity building hubs established under DILG
- Harmonise data collection systems, standardise the definition of terms and develop a coherent sector monitoring framework
- Establish a collective platform for a multi-stakeholder review process to monitor subsector performance (for example Joint Annual Sector Reviews)
- Increase sector investment, particularly in rural areas where large disparities exist between rich and poor, as well as funding for "software", specifically for rural sanitation programs
- Align budgeting to support the implementation of long-term strategies and investment plans by public service providers, and translate these into annual work plans and budget
- Introduce key results areas for local water supply and sanitation services to increase local accountability for service improvements and incentivize LGUs to access additional funding sources including matching grants from national government and private sector sources
- Create a national account for water and sanitation, disaggregated between urban and rural to enable monitoring of financial flows towards the subsectors

Priority Actions for Rural Water Supply

- Enable economies of scale and financial viability in service provision by encouraging the consolidation of small service providers
- Formalize the management of small piped schemes and introduce light-handed regulation including the use of performance contracts to drive service quality and reliability and incentivize service provision to the poor
- Expand the provision of technical support to small providers, combined with business planning services to facilitate access to finance for system expansion
- Operationalise policies for full cost recovery for rural scheme operation to reduce the investment gap and improve sustainability of services
- Enhance rural water supply improvements (piped schemes) via other poverty alleviation programs such as the Bottom-Up Budgeting Process and the National Community Development Driven program
- Develop systems for management support to schemes operated by community-based organizations, through partnerships with private sector and water districts

ANNEX E, continued

Priority Actions for Urban Water Supply

- Establish a comprehensive regulatory framework covering all types of service providers, including local government-run schemes, water districts plus private and independent operators, both large and small, and consolidate these roles gradually within a national regulator
- Develop a financing policy and strategy, linked with a graduation policy for utilities based on creditworthiness, in order to attract commercial finance, and accelerate access to concessional finance to support the expansion of services
- Strengthen the capacity of local government to contract, manage and oversee private sector participation modalities, in order to leverage private sector investment, use professional capabilities of the private sector and encourage the consolidation of small-scale service providers
- Introduce multi-stakeholder, performance-based planning and monitoring including a system of annual subsector reviews
- Build capacity and increase the accountability of LGUs for improving the quality and sustainability of service provision, using performance benchmarks and an incentive and/or penalty system

Priority Actions for Rural Sanitation and Hygiene

- Operationalize the Zero Open Defecation program, within the framework of an equitable rural sanitation and hygiene promotion policy, a capacity building plan, an implementation plan and a monitoring system
- Develop a financing strategy for the program that includes public investments to generate household demand for sanitation, output-based subsidies to the very poor and collective incentives for barangays and LGUs in achieving Zero Open Defecation
- Strengthen rural sanitation promotion via other poverty alleviation programmes, such as the Bottom-Up Budgeting Process, the National Community Development Driven programme and target poor households through the National Cash Transfer Program (4Ps)

Priority Actions for Urban Sanitation and Hygiene

- Establish institutional arrangements to facilitate implementation of the National Sewerage and Septage Management Program (NSSMP) and increase Local Government and Water District accountability for the coverage and quality of urban sanitation services
- Develop a sanitation investment framework and mandate local governments to adopt City Sanitation Plans incorporating measures to improve cost recovery and extend affordable services to the poor
- Adopt a cost-effective approach to investment whereby the gradual expansion of sewerage is complemented by measures to maximize connections and to improve fecal sludge management, since most households will continue using septic tanks for the foreseeable future
- Build local capacity to enable successful planning and implementation of the NSSMP

SOURCE: World Bank, 2015