

## SECTION C– PERFORMANCE WORK STATEMENT

### C.1 TITLE

The title of this activity is Safe Water Activity.

### C.2 PURPOSE

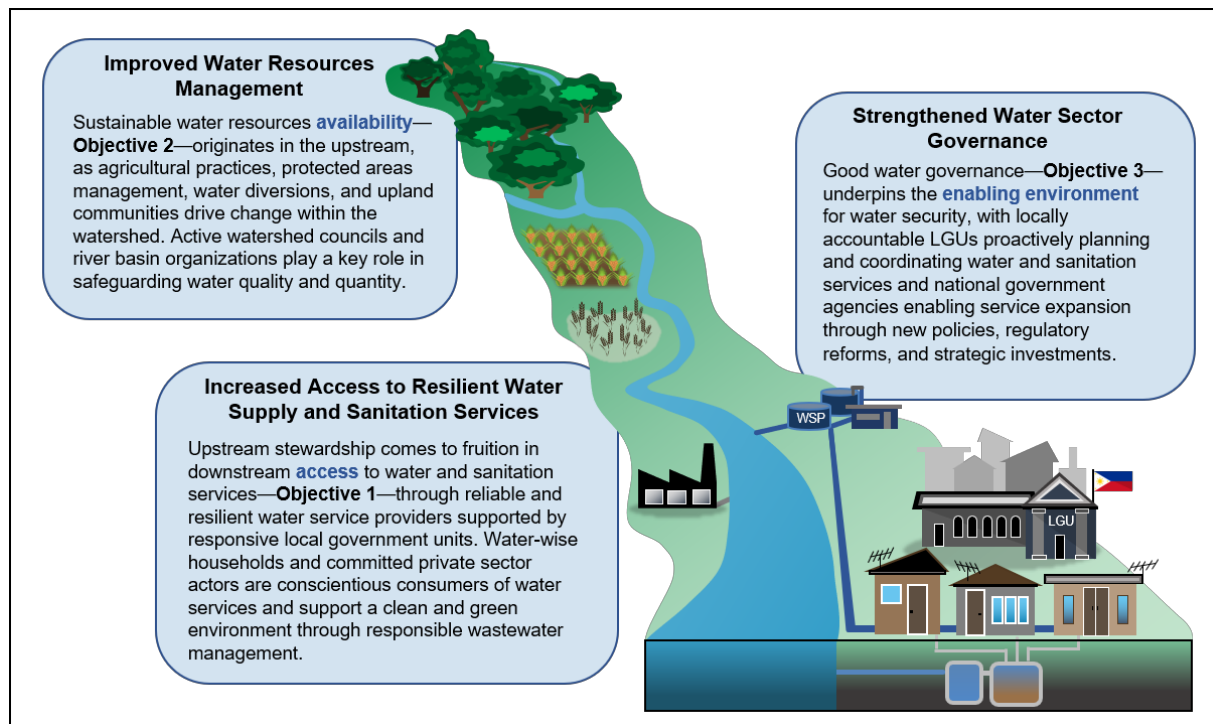
The Philippines Safe Water Activity aims that after five years, local government units (LGUs), water service providers (WSPs), and watershed councils (WCs) in the selected areas will have the information, incentives, and partnerships to identify and address barriers to a water-secure future—yielding, life-saving gains in access to water supply and sanitation (WSS) services. This will specifically address the needs of the unserved and underserved households in the Philippines' most water-stressed communities. The Safe Water team will enable and sustain this expansion in access by developing and reinforcing the systems that underpin and deliver vital WSS services while also managing and protecting the crucial upstream water resources on which these communities depend.

The reach of Safe Water will move well beyond the prioritized provinces and LGUs as successful models and approaches are scaled and sustained through collaboration and communication with water services policy makers and thought-leaders at the basin, regional, and national levels. Drawing on the USAID/Philippines 2019–2024 Country Development Cooperation Strategy (CDCS) as well as USAID's broader policy framework—including the 2017 Global Water Strategy, Water and Development Plan, Urban Policy, and Climate Change and Development Strategy—Safe Water will help the Government of the Philippines' achieve the objectives of its 2017–2022 Development Plan and further the country's journey to self-reliance. The success of this journey will depend on Safe Water's ability to employ systems-wide strengthening, building the capacity of stakeholders—and strengthening linkages among them—across the dynamic WSS sector. Exhibit 1 on the following page presents the components of contractor's technical approach, the **Integrated and Inclusive Water Security Framework** (IIWS Framework).

Briefly, the principal actors, assets, and interconnections that make up the IIWS Framework are:

- **Water-wise households—informed** customers of WSS services, conscientious consumers of water for domestic needs, and efficient users of water for sustainable livelihoods. Far from passive recipients of WSS services, households must be advocates for better services with their LGUs and active participants in water resources decision making within their communities.
- **Reliable and resilient providers** that possess the technical, operational, and management capacities to bring safe and dependable WSS services to their communities. To fulfill their mandates, service providers need access to financing, environmental and technical data, and technology to build, maintain, and sustain their constructed and natural assets. They must also incorporate the full cost of protecting those natural assets through payments for ecosystem services (PES).
- **Responsive LGUs** that proactively plan, coordinate, and finance local WSS services, bolstered by **supportive national agencies** that enable service expansion through policies such as the Unified Financing Framework (UFF). Both LGUs and national agencies also play a critical role in upstream land-use management and the protection of natural assets.
- **Active WCs and river basin organizations** that help sustainably manage watersheds, forests, and water resources by bringing together an array of actors to monitor resource use and synchronize plans.
- **Committed private sector partners** that recognize and embrace their role as economic stewards of water resources for commercial, industrial, and agricultural purposes. Private financing institutions also represent a key source of investment for the constructed assets that underpin water security.

**Exhibit 1: Key Elements of DAI's Integrated and Inclusive Water Security Framework**



The IIWS Framework is inherently place-based—the way in which water is accessed, stored, managed, consumed, and disposed changes from community to community and watershed to watershed. Across all project sites, the Safe Water team will contextualize the Framework at the local level, considering the unique characteristics that both reinforce and undermine water security. To inform the design of all activities, we will support local actors to 1) *map* constructed and ecological systems and associated vulnerabilities; 2) *convene* diverse groups of stakeholders around site-specific challenges, using data and technology to forge consensus; 3) *design* and *implement* targeted interventions that meet holistic, systems-wide needs; and 4) *monitor* and *evaluate* interventions for impact and sustainability, making course-corrections as needed.

### **Subfactor 1.1: Understanding Safe Water Requirements**

#### **Site Selection**

The Safe Water team followed a two-step site-selection process, applying quantitative and qualitative lenses in line with USAID's selection criteria. First, provincial-level indicators for water services coverage, water stress (using availability of raw water per capita as a proxy), and socioeconomic vulnerability were analyzed; and then aggregated this portfolio of indicators, with each province receiving a normalized score. Second, the Safe Water team undertook a qualitative assessment of the short-listed geographies, prioritizing those with urban areas facing pronounced water stress, major public investment plans, and an enabling environment conducive to project success (with emphasis on supportive political leadership and the presence of strategic partners).

Based on this evaluation, DAI proposed urban focal sites and associated provinces are Puerto Princesa City (PPC) and Palawan Province; Bacolod City and Negros Occidental Provinces; and General Santos City and the neighboring Sarangani Province. The Buayan-Malungon River Basin upstream of General Santos City—will serve as the WRM demonstration site. Annex M presents quantitative provincial ranking, accompanied by a table summarizing the key characteristics that contributed to the selection of the respective geographies.

In its geographic focus, Safe Water Activity will address site-specific water security challenges through a detailed discussion of PPC and Bacolod City. It will also launch activities from these metropolitan areas, expanding outwards to neighboring municipalities over the course of the first year. At that time, the project will also evaluate with USAID the expansion strategy into the broader Negros Occidental Province.

### ***Subfactor 1.1a: Approach to Addressing Site-Specific Water Security Challenges***

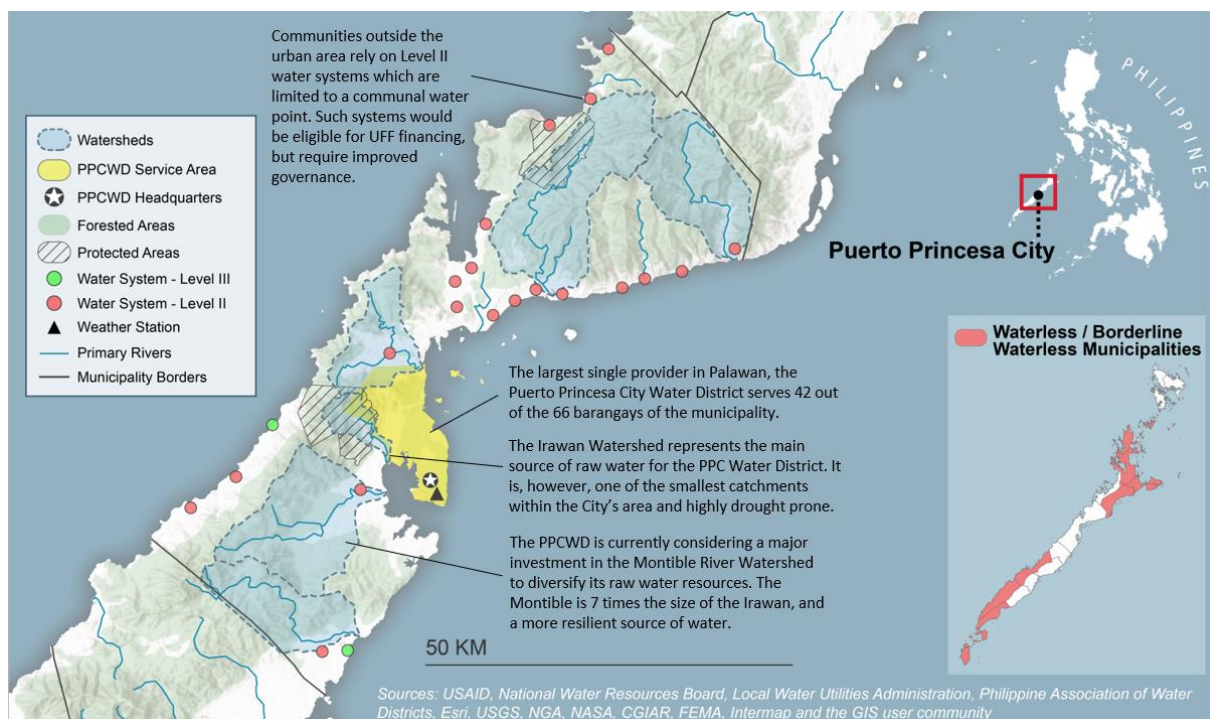
Bacolod City Water District was created in 1973, and yet it serves only 38% of its franchise area. Even in served areas there have been complaints of intermittent water supply and poor water quality. In El Nino events, the hours of service become even shorter.

This anecdote from the ongoing water scarcity in Bacolod City—and the similar story from Palawan related in the Executive Summary—provide an eye-opening glimpse into the water security challenges faced in the proposed water security sites of PPC and the Province of Palawan accompanied by Bacolod City and the Negros Occidental Province. In the following sections we profile the water security issues and challenges facing these sites and then describe the proposed approach and interventions (by objective and outcome), concentrating on the urban focal sites.

*Site-specific water security issues and challenges in Palawan.* Exhibit 2 presents a snapshot of the water security context in PPC and Palawan. The PPC map identifies the network of WSPs, key surface water sources and the associated watersheds, hydro-meteorological (hydro-met) data collection systems, and forest cover. The inset highlights the municipalities within Palawan that are waterless (less than 50 percent access to safe water) or borderline waterless (less than 60 percent access to safe water).

On the front lines of Palawan's water security, the constellation of water and sanitation service providers across the island are struggling to meet the needs of the rapidly expanding population of 1.1 million people. Nine of Palawan's 24 municipalities are considered waterless or borderline waterless, and just 11 percent of households have private tap water from a utility—the most resilient source of safe water. LGU-run systems dominate, with a patchwork of nine LGU systems and 140 barangay water and sanitation associations (BWSAs) providing services across the island. Just two water districts of significant size operate in Palawan—the Puerto Princesa City Water District (PPCWD), with 43,000 connections, and the Quezon Water District, with about 5,000 connections. Like many utilities around the country, the PPCWD has been plagued by operational and technical deficiencies. Alarming, the current water demand stands at 40,000 cubic meters per day, while the water district's capacity is only 32,000 cubic meters. Without immediate interventions, this gap between demand and available supply will only continue to widen, limiting both the improvement and expansion of services.

**Exhibit 2: Water Security Context of Puerto Princesa City and Palawan**



Concerning broader upstream water security challenges, Palawan faces the triple threat of rapid population growth, land-use change, and increasing climate uncertainty. With an annual growth rate of 2.54 percent, Palawan is one of the fastest-growing provinces in the Philippines, exceeded only by provinces in the immediate Metro Manila area and Maguindanao in Mindanao. This fast growth has resulted in land conversion—only 85 percent of protected areas (those within "core protected zones" and "restricted use areas") still have intact forest, which falls below the 90 percent target for Palawan's Environmentally Critical Areas Network. Finally, while Palawan's western location reduces its exposure to cataclysmic storms, it also elevates the risk of drought. Overall, the island is expected to get both hotter and drier because of climate change; further, the threat of sea level rise and saltwater intrusion means that Palawan's WSPs must focus on conserving and storing surface water rather than drilling more wells.

Despite the many stressors facing households, service providers, and the enabling environment in Palawan, there is cause for optimism. Governor Jose Alvarez has made improving access to water a priority, establishing a Provincial Office for Water Supply Infrastructure to coordinate technical support across municipalities. Also, the leadership of the Palawan Council for Sustainable Development (PCSD) recognizes the importance of water security and can serve as an important convening body (see box). Finally, there are major investments planned, including a potential new source of raw water for PPC as well as the capital's first wastewater/septage treatment facility. These opportunities provide clear entry-points for Safe Water.

"Palawan is dubbed as the country's last frontier, but we may end up as lost frontier if we do not act on our water security threats." —Nelson Devanadera, Executive Director, PCSD, in stakeholder consultation with DAI



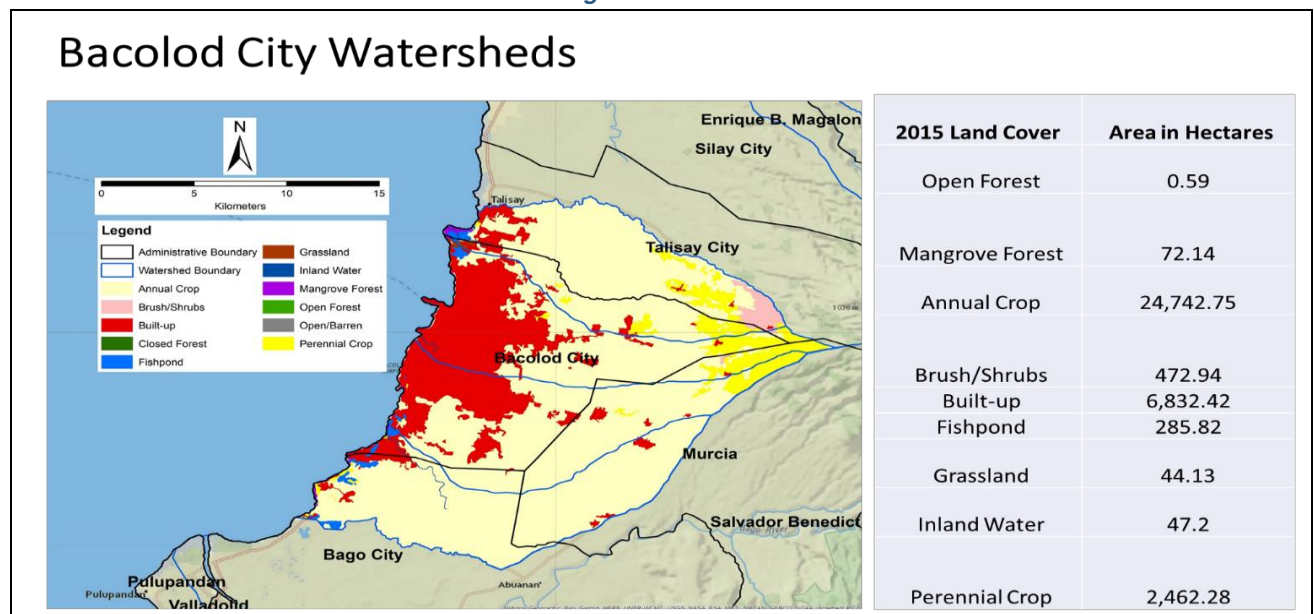
### *Site-specific water security issues and challenges in Bacolod City and Negros Occidental Province.*

Negros Occidental is the 8<sup>th</sup>-most populous province in the Philippines and rapidly urbanizing; presently more than 60 percent of the 2.5 million people in the province live in urban areas. Its capital, Bacolod City, is one of the country's highly-urbanized cities, with a population more than 600,000. Because of urbanization, population growth and increase in economic activity, water and waste water management infrastructure and services have not been able to meet the surge in demand for these services. Bacolod City, the province's major economic hub, has a severe water shortage with demand exceeding supply by 40 percent. Province-wide, 42%percent of the population in Negros Occidental does not have access to safe water and only 13 percent has access to level 3 (piped) water supply. The top 10 municipalities in terms of the least water service coverage, namely: Cauayan, Isabela, Salvador Benedicto, Candoni, Hinobaan, Ilog, Moises Padilla, Enrique Magalona, Manapla and Toboso, also have high poverty incidence and incidence of water borne disease. Poor service (water availability and quality) remains a concern among the LGUs. About one-third (32 percent) of the population still practices open defecation, one of the highest rates in the country. There is also no community-wide wastewater treatment facility in the province.

The Bacolod City Water District (BACIWA) is the largest utility in the province and yet only serves 38 percent of the population in its franchise area. There are about 370 small water service providers serving other cities and municipalities that have even lower service coverage. The community-based water service providers are mostly unregulated and do not meet NWRB service standards.

In terms of water resources, National Water Resources Board (NWRB) identified Negros Occidental as a "water vulnerable" province and Bacolod City as a water critical urban area. The province's available water resources, estimated at 0.86 million cubic meters per year per capita, is nearing the 0.5 million cubic meter mark, considered as severe scarcity. Bacolod City and the other cities and municipalities in the province rely mainly on groundwater for their domestic water requirements. Furthermore, Bacolod City's watersheds have very little forest cover left, indicating a slow recharge of its groundwater sources (see Figure 1). To meet the city's needs, Bacolod City must now go outside its jurisdiction to identify and develop new water supply sources. The Bago watershed, identified as an alternative source for Bacolod, is within the jurisdiction of the cities of Bago, Murcia and San Carlos and the municipality of Salvador Benedicto. The Malogo watershed, straddling the cities of Silay and Talisay, is another potential source of water for Bacolod.

**Exhibit 3: Overview of the Bacolod Watershed in Negros Occidental**



The degradation of water supply, depletion and contamination of aquifers, pollution of surface water sources, and the denudation of forests and watersheds threatens the supply of safe drinking water in the province.

In terms of climate vulnerability, Negros Occidental ranks 6<sup>th</sup> among the top 10 provinces most prone to sea level rise. A one-meter sea level rise will inundate 7,870 hectares in 25 of the 32 cities and municipalities in the province. Negros Occidental is one of 12 provinces in the Visayas rated highly vulnerable to El Niño and prolonged droughts. The frequency of typhoons in Region VI, of which Negros Occidental is a part of, is reportedly once a year, with mean rainfall at 2,250 - 3,350 mm resulting in low water recharge. Vulnerability to these hazards further impacts the water security of the province.

Local government has recognized the urgency to put the watersheds, which serve as the water supply support system, under appropriate management. From what the team has gathered from the initial consultations in the province, there are no active watershed management councils. The present political leadership though is highly aware of water supply problems, hence receptive to re-activating water resources management councils. For them to be effective collaboration among the concerned LGUs and DENR, the national government agency concerned with protected areas is needed.

***Objective 1: Increase Access to Resilient Water and Sanitation Services in Palawan and Negros Occidental.***

Although the challenges facing Palawan and Negros Occidental threaten to undermine sustainable service delivery, they also serve as powerful catalysts for change, spurring better coordination of actors across the IIWS Framework. Under Objective 1, the Safe Water team will leverage this momentum, turning unprecedented risk into an unprecedented opportunity to mobilize investment, increase coordination, and bolster the resilience of WSS services. In Negros Occidental this coordination is enabled by the political leadership of the province, including the Congressman of the First District and the Provincial Governor, who organized a pre- and a main water summit focusing on water security concerns. The main summit was on February 27, 2020. A broad range of stakeholders were involved to tackle issues spanning resource management and service provision. Importantly, Objective 1 is where Safe Water activities come to fruition in the form of flowing piped water and a cleaner, healthier environment. Far from a stand-alone component, Objective 1 is inextricably linked to and reinforced by the sustainable management of water resources (Objective 2) and better governance of the water services sector (Objective 3). Led by the COP and the Palawan and Negros Occidental Field Office Managers, the Safe Water team's implementation strategy for Objective 1 will be as follows:

- **Map key actors and assets across the IIWS Framework.** Key actors in the province include water districts; other water service providers such as barangay-based water service providers, provincial, city and municipal LGUs and barangay systems; watershed management councils; private sector; and CSOs. At the regional level, the actors will include Palawan Council for Sustainable Development or the Watershed Councils for Negros Island and potential training platforms, such as the Regional WatSan Hubs. Other actors, such as projects with related work on water supply and water resource management, will also be mapped. Safe Water activities will utilize and build on the assets and resources identified from these actors. This capture-effort will enable the team to avoid redundancies and to pinpoint promising efforts to scale, augment or leverage. For example, we will complement, the study of the seven major rivers and watershed rehabilitation programs being undertaken by the Negros Occidental Provincial Environment Management Office (PEMO), with hydrologic studies; or the Feasibility Study for the Puerto Princesa Septage/Sewerage Treatment Facility from the Philippine Water Revolving Fund [PWRF] and SURGE).
- **Convene IIWS Framework actors around critical WSS vulnerabilities.** Safe Water will convene local actors to collectively confirm pressing WSS needs and forge consensus on appropriate entry points. Given the raw water challenges in PPC and Bacolod City, for example, we will facilitate water security forums with service providers, government officials, and water-intensive industries to prioritize actions. As possible, we will use existing coordination platforms and ensure a balance of perspectives from women, men, and under-represented groups such as indigenous communities. In Negros Occidental, the Team will build on the water summit. Safe Water will facilitate follow on water security forums with service providers, government officials, and water-intensive industries. These forums will prioritize actions, complement resources and initiatives, and support enabling (policy, regulatory and institutional) measures to expand WSS access and improve service delivery that ensures the sustainability of water resources. As possible, we will also use existing coordination platforms, such as the Negros Island River Basin Management Committee and league of mayors within the province. The result of these discussions will be the preliminary architecture of an

integrated water security plan at a provincial level that jointly reflects the priorities of the WSS and the water security communities.

- **Design and implement targeted WSS interventions that catalyze Framework-wide impact.** Safe Water will support the design and implementation of targeted interventions for Objective 1 that meet holistic needs. In Negros Occidental, Water Resilient Water Supply and Sanitation Specialist and the Water Resource Management Specialist with the field team will support the crafting of the proposed provincial integrated water security plan that will concretize strategies for accelerating sustainable access to potable water and sanitation in the province's cities and municipalities. To effectively implement the plan, as service delivery is at the municipal level, we will improve capacity of priority municipalities and strengthen institutional arrangements for service provision, such as the implementation of the central management system for disparate community-based service providers. In PPC, we will help address high open-defecation rates by supporting UFF grant financing for sanitation facilities for the poor.
- **Evaluate interventions and make course-corrections as needed.** Safe Water MEL Manager will support participatory MEL tools and methods that demonstrate clear attribution between Objective 1 interventions and improved/expanded access to WSS services. Building on the cutting-edge MEL approaches deployed by the contractor under the Indonesia Urban Water, Sanitation, and Hygiene (IUWASH) PLUS project, we will also empower WSPs with new approaches for tracking performance using geographic information services (GIS) and mobile survey tools (see box).

### Monitoring, Evaluation, and Learning for Sustainable WSS Services

DAI will bring to Safe Water a suite of MEL tools and methods tested and refined under the IUWASH PLUS Project, including:

- *Sustainability checklists* that document the project's interventions and those by other partners, clearly demonstrating attribution to new access or improved quality of WSS services within the period of performance.
- *Mobile applications* that improve the timeliness, accuracy, and depth of MEL data. IUWASH PLUS uses the freely available mWater application to track WSS access levels and quantify beneficiary economic status. In parallel, the project has also trained local utilities on how to use such mobile applications to better survey customer needs.
- *Complexity-aware monitoring* to move beyond the numbers and capture impact. DAI uses the "Most Significant Change" methodology under IUWASH PLUS to show how improved WSS services transform lives and lead to resilient communities.

### Per DAI's Roadmap to Results (Annex L), the key results for Objective 1 across all sites are:

- At least 350,000 people gaining access to basic or safely managed drinking water services as a result of USG assistance
- At least 1,100,000 people receiving improved service quality from an existing basic or safely managed drinking water service as a result of USG assistance
- At least 272,000 people gaining access to basic or safely managed sanitation services as a result of USG assistance
- At least 420,000 receiving improved sanitation service quality from an existing "limited" or "basic" service as a result of USG assistance
- At least 15 coordination mechanisms institutionalized at the local, watershed, and/or regional levels as a result of USG assistance

**Outcome 1.1: Safe and resilient water supply and sanitation services improved.** Under Outcome 1.1, the Safe Water team will improve the quality of and access to WSS services by building the technical and managerial capacities of service providers, emphasizing the application of water data/information to design, operate, and maintain resilient natural and built assets. While Safe Water interventions under this outcome will primarily be with service providers, the team will also connect activities to the broader IIWS Framework by, for example, tapping private sector financing, engaging communities, and participating in strategic planning at the watershed level.

Led by the Resilient Water Supply and Sanitation Specialist (RWS) and our site-based WSS Managers three methodologies will inform implementation under Outcome 1.1 in both sites. First, Safe Water will use a WSP performance index with water districts and larger LGU-run systems to assess institutional strengths and weaknesses and design customized capacity-building approaches. Working with Regional WATSAN Hub partners as well as consortium partners Orient Integrated Development Consultants Inc. (OIDCI) and CEST, the team will tailor training and technical support to meet the needs of service providers, capitalizing on the suite of tools developed under PWRP and Be Secure (e.g., ring-fencing and business planning guides for WSPs, septage management business case and tariff-setting methodologies, climate-resilient utility operations).

Second, the Resilient Water Supply and Sanitation Specialist will support LGUs to establish centralized management systems for barangay water works associations. These small-scale providers play a critical role in the IIWS Framework, but the status quo of decentralized, insulated services is not sustainable. Consolidated, municipal-level oversight is needed to, for example, rationalize tariff setting and ensure minimum standards of service. More robust LGU management will also pave the way for financing under the UFF.

Third, led by the Water Security Manager and with support from partner Geoscience Foundation Inc. (GFI), Safe Water will evaluate the water, weather, and climate information services value chain, assessing whether hydro-met data products are meeting the needs of WSPs. The Water Security Manager and GFI will focus on how such data can be used to safeguard and diversify raw water sources, including through suitable water balance modeling approaches (see box below). Building from these methodologies, the Safe Water team proposes the following illustrative interventions (with related sub-results in parentheses), which our team will confirm, prioritize, and adapt based on findings from the mapping of the actors and assets in PPC and Palawan.



- **Pilot open-source data collection systems.** The PPCWD has no stream monitoring systems or real-time rain gauges in the Irawan Watershed, making hydrological model calibration difficult. We will support the piloting of automatic rain gauges and sonar-based stream gauges that use locally available technologies, training staff on how to assemble, program, and maintain the devices. Collecting data directly will bolster local monitoring capacity and empower the utility with data to exchange with other institutions. (1.1.a, 1.1.d)
- **Map critical PPC watersheds and conduct water balance analysis.** Safe Water will help the PPCWD evaluate the water balance from both surface water and groundwater for the present day and under climate change scenarios provided by the Manila Observatory (MO). We will adopt a "learning-by-doing" approach, with GFI hydrologist C.P. David providing training in the fundamentals of hydrologic analysis. In line with the 2018 recommendation of the PCSD's Scientific Advisory Panel, this assessment will then be expanded island-wide. (1.1.a, 1.1.b, 1.1.d)
- **Implement feasibility analysis of small-scale surface water reservoirs.** During stakeholder consultations for this activity, the PPCWD and the LGU's Environment and Natural Resource Officer highlighted the need to evaluate the potential design, location, and cost of small surface water reservoirs in the Irawan Watershed. Such facilities—which could be replicated across the island—will help weather longer dry seasons and improve services for thousands. (1.1.b, 1.1.c)
- **Carry out final due diligence steps for the Montible River Raw Water Project.** Backed by a feasibility study, PPCWD is planning a PHP 720 million project to source 30,000 cubic meters of water per day water from the Montible River. Progress stalled recently, however, with one constraint being PCSD's requirement for a sustainability study. Safe Water will serve as an objective third party, completing the analysis while also verifying the resilience of the project's siting and design. (1.1.c)
- **Establish a water demand management working group within PPCWD.** Building on the Be Secure blueprint for WDM, Safe Water will help PPCWD establish an internal WDM team and develop a strategy to counter ever-growing demand (1.1.d). To help promulgate messaging around water conservation and integrated water resources management, we will also support the PPCWD in a public relations campaign by, for example, holding "water days" at local schools. (1.1.e)

#### Is There a "Model" Hydrological Model?

Water resources managers around the world use many different types of hydrological models to understand and predict surface and groundwater flow. While different organizations often espouse different models, there are two important aspects to keep in mind when weighing options.

First, modern hydrological models generally employ very similar governing principles and mathematical equations to simulate flow.

Thus, while the user interface may change, the underlying algorithms of different models are often very similar.

Second, hydrological models are only as reliable as the observational data used to calibrate them. In its statement on the limitations of hydrological models, the World Meteorological Organization notes that "All models are improved using calibration data and testing.... Insufficient calibration data will increase the uncertainty in model results, even when using physically-based models." In other words, garbage in, garbage out.

DAI is pleased to partner with GFI given its exclusive access to the University of the Philippines' nationwide historical hydrological dataset. DAI views this dataset—accompanied by low-cost approaches to collecting water data—as crucial to informed hydrological modeling. Concerning model selection, then, we will work with government counterparts to assess options (such as WEAP, STREAM, HydroRAM, or HEC-RAS) and collaboratively decide which tool best matches local needs and capacities.

DAI proposes the following illustrative interventions, which our team will confirm, prioritize, and adapt based on findings from the mapping of the actors and assets in Negros Occidental.

- **Map critical Bacolod City watersheds and conduct water balance analysis.** Safe Water will help the Bacolod City Water District evaluate the water balance from both surface water and groundwater for the present day and under climate change scenarios provided by the Manila Observatory (MO). We will adopt a "learning-by-doing" approach, with GFI providing training in the fundamentals of hydrologic analysis.
- **Identify options for bulk water supply development to diversify and shift to sustainable sources.** During stakeholder consultations in Negros Occidental, stakeholders identified the need to shift current

groundwater sources to surface water as a long-term water security measure. However, considering the economies of scale of surface bulk water development, key stakeholders proposed clustering users around strategically located bulk water facilities.

- **Establish a water demand management working group within Bacolod City Water District.** Building on the Be Secure blueprint for WDM, Safe Water will help BACIWA establish an internal WDM team and develop a strategy to counter ever-growing demand. To help promulgate messaging around water conservation and integrated water resources management, we will also support the BACIWA in a consumer engagement campaign for efficient water use, drawing on the tools and lessons of our successful work in Lebanon.
- **Launch community water forums.** The Safe Water Gender Advisor will work with the BACIWA and the barangay-level systems to facilitate community water forums, strengthening the voices of women in how, where and when services are delivered. The forums will engage women as partners in increasing household water use efficiency.

**Outcome 1.2: Financing for resilient water supply and sanitation mobilized.** Beyond depleted raw water resources, the second barrier to better WSS services that stakeholders raised with the contractor in PPC and Bacolod City (and Palawan and Negros Occidental more broadly) was the need for affordable financing at both the service provider and household levels. The PPCWD and Bacolod City WD require sizeable investment to shore up the quality of urban services, as well as resources to expand peri-urban, barangay-level systems in conjunction with their LGUs. The good news is that there are unprecedented financing reforms underway, which Safe Water will leverage to both expand access to and improve the quality of WSS services. Led by the Resource Mobilization Specialist, with support from former PWRF Chief of Party (COP) and Safe Water COP, we will implement a three-pronged strategy to mobilize financing under Outcome 1.2.

First, leveraging the COP's experience supporting the design of the UFF and OICDI's experience formulating the Philippines Water Supply and Sanitation Master Plan (PWSSMP), the Safe Water team will help LGUs in the respective sites undertake strategic financial planning to prioritize investments and submit applications for Viability Gap Funding (VGF) in accordance with the National Economic Development Authority's (NEDA's) new guidelines. Under the UFF, for example, applicants must run a financial assessment model-which the COP helped design-to demonstrate the justifiable level of VGF financing. A candidate project is the:

- **PPC Peri-Urban System Expansion.** PPCWD struggles to meet the needs of the more than 30 peri-urban systems within its jurisdiction; although the LGU provides a subsidy of PHP 2 million for each barangay, the Water District spends PHP 10 million per barangay to expand services. (1.2.a, 1.2.b)

Second, in cases where VGF is not appropriate, the Resource Mobilization Specialist and the COP will assist WSPs to assess alternative financing entry-points, including public-private partnerships (PPPs)/joint venture agreements and credit financing from commercial banks or government lenders (e.g., the Development Bank of the Philippines and the Land Bank of the Philippines). Safe Water will build from model PPP contracts developed under PWRF to help ensure that transactions are structured equitably and transparently. Notably, the securitization of LGU internal revenue allocation receivables will also represent a promising entry-point for WSS financing given the recent Supreme Court ruling that will likely increase the allocation by as much as 50 percent for many municipalities. (1.2.a, 1.2.b, 1.2.c, 1.2.d)

Finally, at the household level, Safe Water will collaborate with Water.org to scale efforts to link households and microfinance institutions (MFIs) to finance new household sanitation facilities and connection charges to utilities to generate access to WSS services. We will leverage a network of more than 39 MFI branches across Palawan and more than 50 branches of seven MFIs in Negros Occidental including Bacolod City. More specifically, the Safe Water team will help dramatically ramp up Water.org's efforts by co-locating staff, sharing resources, conducting joint planning and training with MFIs and service providers to establish new

loan products for both water and sanitation, and supporting the marketing and promotion of those products. Based on preliminary discussions with Water.org, targeted LGU systems outside PPC in Palawan will include Brooke's Point, Sofronio Espanola, Aborlan, Taytay, Rizal, Roxas, and El Nido. (1.2.a, 1.2.d)

**Outcome 1.3: Increased planning coordination among local, regional, and watershed stakeholders.** Water is the common thread that connects all actors of the contractor's IIWS Framework, making coordinated planning and infrastructure investments a must; protracted drought has only reinforced the need for better coordination. Under Outcome 1.3, the Safe Water team will use present-day needs as a window of opportunity for more integrated, long term planning. Our team will:

- **Map water and sanitation "hotspots" to forge consensus across actors.** Building on experience from the contractor implemented IUWASH PLUS program, Safe Water GIS Associates will use open-source software and geo-located survey data to help WSPs and LGUs develop comprehensive spatial profiles of water and sanitation access levels within their jurisdictions. Once overlaid with socioeconomic and water scarcity data, these WSS "map-shops" will help WSPs and LGUs visualize WSS "hotspots," or concentrations of underserved populations. An important purpose of these map• shops will be identifying vulnerable populations, such as the poor, indigenous communities, and internally displaced persons. Ultimately, hotspot mapping will help build consensus and coordination among service providers, LGUs, and communities on priority areas for service improvements. (1.3.a)
- **Identify strategic planning entry-points to apply a water security lens.** Municipalities in the Philippines are inundated with planning requirements. While it is burdensome to meet the requirements of individual planning mechanisms, aligning multiple plans-including land-use plans (addressing zoning and land-use regulations), development plans (identifying priority investments), and sectoral plans (describing sector-specific priorities)-is an even greater challenge. Led by Deputy Chief of Party (DCOP) and the WRM Specialist, with support from partner Lutheran World Relief (LWR), we will identify strategic planning entry-points within the IIWS Framework to bolster WSS access and water resources availability while avoiding the introduction of new planning processes. For reference, we include a listing of land-use planning initiatives in Negros Occidental and Palawan in Annex N. Potential entry-points in Puerto Princesa, Palawan include:

*PPCWD Strategic Business Plan.* Building from the hotspot mapping as well as the data collection and modeling activities under Outcome 1.1, Field Site WSS Managers will support the PPCWD to improve water security by prioritizing water resources diversification in its upcoming business plan (1.3.b).

*Alignment of disaster plans to mitigate water scarcity risks.* Based on contractor's field consultations, the PPCWD and PPC Disaster Risk Reduction and Management Office have not proactively coordinated responses to the water crises, and the city's existing Disaster Risk Reduction Plan does not address the crisis. Safe Water will use the utility's business planning process (above) and its outdated Contingency Plan to facilitate synchronized disaster planning. (1.3.a, 1.3.b)

*2020 Renewal of PPC Comprehensive Land Use Plan (CLUP).* The expiration of the city's CLUP in 2020 offers an opportunity to address the long-term water security of one of Palawan's most water-stressed areas. Building on Protect Wildlife's recent assistance with the Forest Land Use Plan, Safe Water will bring evidence and transparency to the CLUP process by, for example, using high resolution satellite imagery from Planet to highlight vulnerabilities. (1.3.a, 1.3.b)

*Launch of a sanitation forum to coordinate new sanitation services.* The City Health Office expressed frustration over the lack of coordinated planning: the Local Sustainable Sanitation Plan does not yet reflect the vision of the city Environment and Natural Resource Office (ENRO), Engineering Office, or Water District. Safe Water will convene a city-wide forum to help align planning and maximize the impact of the new plant. (1.3.a, 1.3.b)

Potential entry-points in Negros Occidental include:

- *Provincial Water Security Plan*. During the water summit, the Provincial Government expressed its intent to prepare a long-term water security plan for the province. This is an opportune activity that Safe Water is well-placed to support.
  - *BACIWA Strategic Business Plan*. Building from the hotspot mapping, as well as the data collection and modeling activities under Outcome 1.1, Field Site WSS Managers will support the BACIWA to improve water security by prioritizing water resources diversification in its upcoming business plan. However, we have been informed that BACIWA is close to signing a joint venture agreement with a private company for both expansion and operation of the service. In which case, we will first determine how we can support the BACIWA in its negotiations with the concessionaire.
  - *Comprehensive Land Use Plan (CLUP)*. The updating of the CLUP offers an opportunity to link land-use planning with the long-term water security of Bacolod City and priority municipalities. We can utilize tools such as high-resolution satellite imagery to highlight vulnerabilities and provide connection points between this process and the development of the Provincial Water Security Plan.
  - *Launch of a sanitation forum to promote LGU investments in sanitation services*. The Province has very high incidence of open defecation and low access to safely managed sanitation services. Safe Water will assist the Province and Municipalities to develop and implement sanitation programs, including the promotion of MFI financing for households to build or improve sanitation facilities.
- **Engage a broad array of actors from across the IIWS Framework**. Supported by LWR, Safe Water Field Office Managers will convene actors from the industrial and agricultural sectors to build water security awareness by sharing water, weather, and climate data and obtaining feedback on localized water stresses. In Palawan, the PCSD recommended to the contractor an island-wide "water summit" to engage a diverse spectrum of stakeholders to identify solutions to water stress, focusing on small, achievable actions. An important topic will be impacts of the water crisis on Palawan's most vulnerable, including female-headed households and indigenous people groups. (1.3.e)

### **Objective 2: Improve Sustainable Management of Water Resources**

The IIWS Framework is structured around the premise that better *access* to WSS services is inextricably linked to the sustainable *availability* of water resources. Objective 2 focuses on the latter to enable the former, improving the resilience of upstream water supplies through integrated water resources management (IWRM) and reducing the volume of downstream demand by building a constituency of water-wise households and businesses. Importantly, Objective 2 builds directly from Objective 1 by applying water, weather, and climate data at the landscape scale; using integrated planning to manage watershed change; and forging partnerships to protect upstream ecosystems. Under the leadership of the WRM Specialist and the Palawan and Negros Occidental Field Office Managers, we will:

- **Map upstream water systems and downstream consumption patterns**. The Safe Water team will compile existing geospatial analyses of watershed systems, building a foundation of data on land use, vegetative cover, land tenure/use rights, and water resources needed for sound planning and monitoring. Simultaneously, WSS Managers will evaluate basin-level consumption patterns to identify potential opportunities for efficiencies.
- **Convene key watershed actors and use data and technology to forge consensus**. The Field Site WRM Managers will organize consultative workshops with WCs, applying an integrated spatial planning process to visualize assets, vulnerabilities, and risks in each watershed and highlight the interdependence of upstream and downstream stakeholders and land uses on water resources quantities and qualities. Where information gaps exist, we will tap consortium partners such as GFI and MO. This dynamic process will enable Safe Water to build local understanding and capacity while assisting WCs to formulate concerns alongside associated interventions, culminating with a collective response to the question: *What are the qualities of our ideal watershed?*
- **Design and implement interventions that meet holistic, system-wide needs**. Objective 2 interventions will focus on building capacity of WRM agencies, moving IWRM from theory to practice in the targeted watersheds (Irawan and Montible in Palawan and Bacolod, Bago and Malogo in Negros Occidental). In Palawan, for example, we will support the delineation and conservation of critical watersheds and the codification of these efforts in municipal ordinances. In Negros Occidental we will focus on sustainable upstream livelihoods and replicating the payment for ecosystems services developed by B+WISER in Bago in other watersheds, thereby preserving key natural assets.

- **Evaluate interventions and make course-corrections as needed.** With support from OIDCI, the MEL Manager will integrate MEL into each field activity, working collaboratively with watershed actors to assess how interventions are leading to the sustainable availability of water resources. At the institutional level, our participatory MEL approach will focus on supporting service providers and LGUs to apply key water resources indicators in decision making.

**Per Contractor's Roadmap to Results (Annex L), the key results for Objective 2 across all sites are:**

- At least 330,000 hectares of forest under improved watershed management
- More than 1.0 million metric tonnes of carbon sequestered or avoided
- More than 1.0 million people of benefiting from the adoption of measures to improve water resources management
- More than 150,000 people receiving livelihood co-benefits associated with the implementation of Safe Water sustainable landscape activities

**Outcome 2.1: Improve management of critical watersheds or water resources.** As highlighted under Objective 1, key building blocks for improved watershed management are beginning to fall into place, and there is a recognition by IIWS Framework actors that watershed management is fundamental to household-level access. What is needed now is a strengthened enabling environment for watershed management, improved IWRM capacity to anticipate and manage watershed change, ecosystems-based response strategies, and innovative monitoring approaches. Therefore, in PPC and Palawan, we will:

- **Support municipal ordinances designating and delineating critical watersheds.** The neighboring LGU of Narra issued an ordinance for the restoration, protection, and conservation of eight watersheds as sources of raw water. Safe Water will support PPCWD and the LGU to replicate this model for the Irawan and Montible Watersheds as a starting point for water security planning. (2.1.a)
- **Facilitate establishment of WCs.** Building from the ordinance, Safe Water will assist PPCWD and the LGU to convene WCs for the Irawan and Montible Rivers. The WCs can serve as platforms to share data among stakeholders, including the forest patrols that both the WD and LGU deploy in the Irawan and the stream flow data acquired under Outcome 1.1. (2.1.a)
- **Replicate innovative financing schemes.** Building on Protect Wildlife's experience in Brooke's Point (see Subfactor 1.1.b), Safe Water will help the PPCWD conduct resource valuation of the Irawan Watershed to establish evidence-based PES schemes to preserve water resources. (2.1.b)
- **Equip citizen scientists to monitor water quantity and quality.** Building on contractor's Nepal experience, we will help the PPCWD and the PCSD's Environmental Lab to organize and equip upstream "citizen scientists" to collect water quantity and quality data, which will then be used to gauge watershed health (see box). (2.1.d)
- **Integrate downscaled climate change projections into WRM planning.** With support from consortium member MO, Field Site WRM Managers will utilize high resolution climate change projections to help local actors visualize climate threats to key natural and build assets and integrate these threats into the upcoming revision of the Puerto Princesa CLUP. (2.1.f)

**Engaging Citizen Scientists to Monitor Watershed Health in Nepal**  
Western Nepal boasts some of the world's most impressive freshwater aquatic biodiversity, but much remains unknown about river ecosystems. Lack of knowledge contributes to weak management, under-protection, and poorly designed infrastructure. To bridge this knowledge gap, DAI's Paani (water) Program has trained and mobilized more than 400 citizen scientists to test water quality using smartphones as measurement devices at 293 sites across 25 priority watersheds. Moreover, these citizens conducted more than 18,000 household surveys on community perceptions of drinking water quality and accessibility, drying water sources, and freshwater biodiversity. With newfound understanding of ecosystem health, citizen scientists understand the value of riverine resources and have become allies for social change, with confidence to speak out more strongly in public fora. Moreover, the participatory approach led to Paani successfully piloting a new river management model where local river groups directly manage designated river stretches, and it is now being integrated into Nepal's legal framework.

In Bacolod City and Negros Occidental, we will:

- **Support municipal ordinances designating and delineating critical watersheds.** We will support concerned LGUs to draft and issue ordinances for the restoration, protection, and conservation of watersheds as sources of raw water. The violation of land use ordinances in protected areas was raised



during the water summit as a major issue in the Bacolod Watersheds. Hence, we will help the LGUs identify more effective enforcement mechanisms for land use ordinances (addressing risks) while proactively integrating WRM into land-use planning processes (Outcome 1.3).

- **Facilitate establishment of WCs.** Building from the LGU ordinances, Safe Water will assist the concerned LGUs' Watershed Councils for the Bacolod, Bago and Malago Watersheds. We will also support the Province in reviving the Negros Province River Basin Council. The WCs can serve as platforms to share data among stakeholders, including data sharing among forest patrols that both the WDs and municipalities deploy.
- **Replicate innovative financing schemes.** Building on B+WISER's experience in Bago Municipality, we will help concerned municipalities establish evidence-based PES schemes to preserve water resources.
- **Equip citizen scientists to monitor water quantity and quality.** We will help the PENRO to organize and equip upstream "citizen scientists" to collect water quantity and quality data, which will then be used to gauge watershed health.
- **Integrate downscaled climate change projections into WRM planning.** With support from consortium member MO, Field Site WRM Managers will utilize high resolution climate change projections to help local actors visualize climate threats to key natural and built assets and integrate these threats into CLUP.

**Outcome 2.2 Increased adoption of measures to better manage, conserve, and use water.** Water-wise households, businesses, and industries are fundamental to contractor's IIWS Framework—in an era of increasing hydrological uncertainty, cultivating conscientious consumers of water will help stem rising demand and ease pressures on water resources. Under Outcome 2.2, the Safe Water Team's implementing strategy will be threefold: 1) build capacity concerning the 2015 Green Building Code (GBC) in Safe Water sites, accompanied by water fixture efficiency standards; 2) cultivate better understanding of water consumption behavior and use that evidence base to expand water audits and efficiency best practices; and 3) help industries and land developers to integrate WDM, green infrastructure, and wastewater management into new developments. In line with the contractor's inclusive Framework, Safe Water will also look for opportunities to strengthen WDM best practices in the agricultural sector; more than 80 percent of water withdrawals are for agricultural purposes. Led by the Resource Mobilization Specialist and the Private Sector Engagement Advisor, the Safe Water team will:

- **Support the implementation of the Green Building Code.** The 2015 GBC requires new buildings larger than 10,000 square meters to incorporate low-flow water fixtures and rainwater harvesting, storage, and reuse into building and landscape designs. Applying her experience with the Global Green Growth Institute (GGGI) to help formulate the GBC, the Resource Mobilization Specialist will engage the Philippines Green Building Council (PHILGBC) and organizations such as the Philippines Business for Social Progress (PBSP) to strengthen awareness and enforcement of the GBC at project sites by:

*Organizing informational workshops on the GBC for LGUs.* Targeting urban planners, building inspectors, and permitting staff, the workshops will provide an overview of the GBC and assist LGU staff to review existing ordinances through the lens of GBC compliance. Additionally, we will provide examples of how ordinances and permitting processes can be modified to incentivize builders to incorporate GBC requirements into all new building plans and construction. (2.2.a)

*Sponsoring learning seminars that target land developers and the building industry* to raise awareness of GBC requirements and how the GBC and other measures such as green infrastructure can reduce risks of droughts and floods. In addition to site-based seminars, we will work with PHILGBC to design and roll out online modules that provide varying levels of certification in the GBC. (2.2.a., 2.2.b)

*Conducting provincial trade shows* in conjunction with learning seminars that offer land developers and builders opportunities to see and learn about the latest technologies for improving energy efficiency, reducing water consumption, etc. (2.2.a., 2.2.b)

*Contextualizing climate projections for urban planning* in partnership with MO, disseminating the latest climate projections for each province and what these will mean in terms of flood and drought risks, and how LGUs will use the projected climate shifts to guide urban growth and development. (2.2.b)

- **Cultivate better understanding of water consumption behavior and expand water audits and efficiency best practices.** As noted in the Safe Water statement of objectives, no studies have yet been conducted that explain Filipino water consumption behaviors. In support of an evidence-based

approach, we will therefore begin with a comprehensive water consumption baseline study in each site, using a mix of household and business surveys, key informant interviews, focus group discussions, and verified WSP data to cultivate an in-depth understanding of household and business water consumption practices and trends. Building from this baseline of evidence, Safe Water will:

*Conduct targeted training sessions with large water consumers.* With organizations such as PBSP, we will use the data from the consumption study to implement water efficiency training sessions with major water consumers in Palawan and Negros Occidental, providing multi-day sessions on measuring and monitoring water use to reduce consumption rates and minimize waste. (2.2.b)

*Learn from and replicate Zamboanga's WDM program.* We will collaboratively review the lessons learned from ZCWD's pioneering WDM program, including the quantitative results on reduced demand. This review will be used to replicate the approach in PPCWD, Bacolod Water District and other WSPs.

*Test approaches for incentivizing water use efficiency.* Safe Water will engage WSPs to consider broader approaches to incentivizing water-wise households and businesses, such as by promoting the installation of water-efficient devices and water fixture labelling; instituting meter inspections to ensure that meters are functioning properly; and exploring alternative tariff structures. (2.2.b, 2.2.c)

*Expand implementation of water audits.* Building from Be Secure's Water Audit Toolkit, Safe Water will systematically roll out water audits. In Palawan, we will adapt the toolkit specifically to the tourism industry in partnership with tourism sustainability champions such as El Nido Resorts. (2.2.d)

*Promote water-wise communities.* Building from the contractor's experience in Lebanon (see box), Safe Water will partner with schools in project sites to foster water-wise citizens. (2.2.e)

#### **Engaging Citizens to Improve Water Use Behavior for Environment and Water Resource Protection**

The Lebanon Water Project (LWP) works with grantees to engage citizens and raise awareness of water conservation and water citizenship. But Instead of creating one-off campaigns that achieve limited impact, LWP is fostering sustainability by partnering with local schools to distribute more than 2,000 water bottles to young students and households as a daily reminder of water conservation. Along with the bottles, students received presentations on the importance of saving water and USBs with more educational material. Thanks to LWP's awareness efforts, schools have initiated activities to strengthen water conservation. One school is developing a rainwater harvesting project, while schools with farm lands or gardens are installing drip irrigation systems. Moreover, through the presentations and constant engagement with students, LWP is promoting behaviors and tools that will reduce waste as water resources grow scarce in the future.

#### ■ **Design and implement a national standards system for labelling the efficiency of water fixtures.**

Led by the Private Sector Engagement Advisor, the Safe Water team will assist the Department of Trade and Industry's Bureau of Product Standards (DTI-BPS) to build on the water fixture labelling efforts initiated under Be Secure. Specifically, we will assist DTI-BPS to:

*Organize a Water Efficiency Labelling TWG* that involves DTI-BPS and representatives of major water fixture manufacturers in the Philippines, PHILGBC, and the National Master Plumbers Association (NAMPAP) to review other country approaches for labelling water fixture efficiency and to seek ideas for a labelling system for the Philippines. (2.2.c)

*Conduct a study tour for select members of the TWG to Singapore* to learn how its national water utility developed and implemented the Mandatory Water Efficiency Labelling program. We will then organize a write-shop with the TWG members who participated in the study tour to develop a proposed water efficiency labelling system. (2.2.c)

*Support informational programs about the fixture labelling program* in partnership with NAMPAP and in conjunction with its, and regional, conferences. (2.2.c)

**Outcome 3.2: Knowledge on water security developed and/or shared.** All actors in the contractor's IIWS Framework are integral to realizing a water-secure future, and each must be equipped with the skills and knowledge to plan, act, and adapt. Led by our KM and Training Advisor and Private Sector Engagement Specialist, the Safe Water team will engage these actors to share information, exchange best practices, and promote actions to improve water and sanitation services. Exhibit 4 highlights key partners for WSS knowledge development and exchange. (3.2.a)

#### Exhibit 4: Key Partners for WSS Knowledge Development and Exchange

Partner	Entry-Points for WSS Knowledge Development
<b>The Water Alliance</b>	Serve as a platform for engaging businesses and industries around water security best practices.
<b>Maynilad Water Academy</b>	Train WSPs in water security analyses, improvements in efficiency, and reducing water losses. Organize exchanges between WSPs in targeted provinces to discuss planned and ongoing actions each WSP is taking to improve services and bolster resilience.
<b>GFI</b>	Conduct training on hydrologic modelling of the BMRB and water sources for WSPs in target provinces.
<b>Coca Cola Foundation</b>	Provide technical/financial support to WSPs in hydraulic modelling and district metering to reduce losses in Zamboanga, Puerto Princesa, and General Santos City (home to a bottling facility).
<b>Manila Observatory</b>	Provide downscaled climate models for each targeted province at the 5 km and 25 km scales to aid LGUs and WSPs in development of longer-range water security analyses and water source plans.
<b>Philippines Association of Water Districts</b>	Co-host regional and national seminars where WSP managers can share information and learn about approaches to improve water security. Leverage the Community of Practice on Climate Change as a knowledge-sharing platform for water district climate adaptation nationwide.
<b>LGU Academy</b>	Replicate its "Resilience Marketplace for Innovation" forum, including discussions on building resilience in water supplies and sanitation services and enhancing protections of water sources.
<b>Waterlinks</b>	Support international exchange visits as well as regional knowledge dissemination events.
<b>Department of the Interior and Local Government (DILG) and Regional Hubs</b>	Leverage the 16 Regional Hubs—which provide technical assistance to LGUs and community-based utilities—to, for example, support LGUs to prepare WSS masterplans, feasibility studies, and detailed designs.

In collaboration with the above organizations and actors across the WSS sector, Safe Water will:

- **Support international exchange experiences among WSPs.** We will identify strong advocates for reform to attend targeted international events—such as international exchanges and water operator partnerships sponsored by WaterLinks and the Asian Development Bank (ADB)—and international study tours to, for example, learn from members of the U.S. Water Utility Climate Alliance. (3.2.b)
- **Strengthen and "downscale" the Water Alliance.** To engage the private sector and academia, the Private Sector Engagement Advisor will strengthen the Water Alliance established under Be Secure by facilitating the formation of a board of directors, codifying operating protocols, and identifying a membership fee structure to provide the Alliance with a small revenue stream to sustain operations. She will also explore possibilities to downscale this model to the provincial level across Safe Water sites by, for example, establishing a Palawan Water Alliance that is focused on water security in the tourism sector. (3.2.c, 3.2.d)
- **Organize prize competitions for replicable and scalable water security models.** Building from the contractor's extensive experience designing prize competitions for the Center for Development Innovation, the Private Sector Engagement Advisor will organize national and provincial water security prize competitions to help engage nontraditional partners. The competitions will also serve as platforms for publicity, with awards announced at province-wide water summits. (3.2.c)

#### Subfactor 1.1b: Integrated Approach to Managing Water Resources

From the management of upper catchment areas to the irrigation channels that feed thirsty crops to the piped water networks that supply cities, water is the blue thread that connects the actors and assets of the Safe Water Team's IWS Framework, shaping the well-being of communities and ecosystems alike. In the WRM demonstration site, the Safe Water team will use water as an entry-point for upstream engagement, assisting watershed officials and local communities to map water resources linkages and address pressing needs. While IWRM is fundamental to the contractor's approach in all Safe Water sites, the WRM site offers a unique opportunity to showcase upstream-downstream linkages, building and reinforcing relationships and capacities among the respective actors. In that regard, under Subfactor 1.1.b, we articulate the connections of upstream forestry, watershed, and water resource interventions in BMRB to downstream water supply systems. Following this introduction, we highlight innovations to improve resilience capacity of the watershed and the monitoring and management of its resources. We close by identifying opportunities to sustain and institutionalize interventions.

The Safe Water Team selected the BMRB in Sarangani Province accompanied by the urban focal area of General Santos City as Safe Water's **IWRM** demonstration site for several reasons. First, as depicted in Annex T, the region reflects many of the challenges faced by other river basins/watersheds around the Philippines: large areas that were once forested are now covered by brush and grasslands; the basin is a complex mosaic of settlements, intensive and shifting agriculture, and forested highlands, with unclear

land tenure adding to that complexity; and there are high levels of poverty, especially among the upland communities that depend on small-scale agriculture for their livelihoods.

Second, there are clear linkages between population pressures, unsustainable land-use practices, and water in the form of frequent flooding and landslides, with many people living in areas vulnerable to these hazards. Recent analyses carried out for the PWSSMP and under the B-Leaders project also suggest that water scarcity will be a growing concern. In that regard, the myriad water supply systems across the greater General Santos City area and Sarangani Province rely almost exclusively on aquifers of unknown capacity. Thus, as groundwater sources are depleted, and the population continues to grow, it is very likely that LGU-run systems and water districts will need to turn to surface water sources such as the Buayan River. As it is, WSS systems are already struggling to keep pace, with the General Santos City Water District covering just 30 percent of the population and the Malungon Water District serving a paltry 4 percent of its residents.

Third, the BMRB represents both a national and local priority, providing opportunities for Safe Water to leverage planned and ongoing investments. At the local level, Sarangani Governor Steve Chiongbian Solon is supporting rehabilitation efforts across the basin and has established a nascent river basin council. At the national level, the Cabinet Cluster for Climate Change Adaptation, Mitigation and Disaster Risk Reduction has prioritized Sarangani Province given its vulnerability to climate change, and the DENR's River Basin Control Office has designated the BMRB (and specifically the Buayan River) as both a priority river basin and a critical watershed. Finally, the Department of Public Works and Housing recently launched the Integrated Flood Risk Management Sector Project to improve water storage and reduce flood risks.

This confluence of factors creates an opportune environment in which the Safe Water team can assist upstream and downstream stakeholders to design and carry out approaches that improve watershed and water resources management, deliver tangible impacts, and generate valuable lessons for sharing nationwide. Under the leadership of the WRM Specialist, the Safe Water team will apply our IIWS Framework and assist Sarangani Governor Chongbian Solon and the members of the nascent Buayan-Malungon River Basin Management Council (BMRBMC) to build the foundation for more resilient watershed and water resources. Our overarching strategy will be to:

- **Map the built and ecological assets of the BMRB.** Safe Water will begin by conducting a rapid spatial analysis of the watersheds, protected areas, vegetative cover, settlements, and designated production areas of the BMRB, including information on certificates of ancestral domain and other land/resource tenure instruments. We will also enlist resource partner GEOS to build on the DREAM Flood Forecasting and Flood Hazard Mapping study it conducted in 2015, carrying out hydrologic studies to identify high recharge areas within each watershed of the BMRB.
- **Convene key watershed actors and use evidence to forge consensus.** We will present this information to the members of the BMRBMC, collaboratively exploring how tenure affects resource management and how the deforestation of the upper watersheds and on steeper slopes has contributed to the significant fluctuations in stream flows, downstream flooding, and high frequency of landslides. In each watershed, Safe Water will also assist the BMRBMC to organize local WCs that include upstream and downstream male and female stakeholders.
- **Design and implement interventions that meet holistic, system-wide needs.** Drawing on Mr. Dolom's extensive experience working with upland communities and indigenous groups to improve land management, Safe Water's Field Site WRM Managers will support the BMRBMC to develop strategies for reversing the watershed degradation and improving water quality and quantity.
- **Evaluate interventions and make course-corrections as needed.** Safe Water will emphasize the use of quantitative indicators of hydrological sustainability, including surface water flow volume, surface water turbidity, and groundwater infiltration volume at targeted sites within the basin. While these measures will help Safe Water evaluate programmatic impact, an equally important outcome will be building the awareness and capacity of watershed stakeholders to measure these critical indicators and institutionalize their use by watershed stakeholders.

### *Proposed interventions to improve resilience capacity*

With the approval of the BMRBMC, the Safe Water team will support activities recommended by LGUs and WCs to improve livelihoods, incentivize more sustainable land use, and support improvements in watershed and water resources management and protection. For example:

**Assist LGUs and the DENR to align planning mechanisms—such** as their respective CLUPs, Forest Land Use Plans (FLUPs), and Protected Area Management Plans—with watershed boundaries, and 1) support actions proposed by WCs to improve watershed/water resources management and protection; 2) monitor and enforce limits on development and land conversion, especially in high recharge areas; and 3) help mobilize funding for investment in the rehabilitation of degraded areas and actions that reduce flood/landslide risks.

**Facilitate LGU-DENR agreements for watershed protection** that align resources around joint strategies to strengthen the protection of remaining natural forests and protected areas and encourage upland farmers to adopt more sustainable cropping systems and practices. Mr. Dolom will assist the provincial DENR staff and LGUs within the BMRB to:

- Review the status of land tenure/resource rights agreements within the BMRB, and particularly in the multi-use zones around protected areas and remaining tracts of forests.
- Identify appropriate tenure instruments based on existing CLUPs and FLUPs and actual land use/occupation. The team will start by building on the work carried out by Protect Wildlife to assist LGUs and DENR to improve management plans and clarify resource and land rights for communities located in/around protected areas covered by existing management plans and DENR FLUPs.
- Support household and community applications for community-based forest management agreements and household land-use agreements within designated multi-use zones. Once formalized, such agreements provide tenure security, incentivizing livelihoods investments and strengthening commitment to forest conservation.

**Assist farmers to adopt agro-forestry farming practices and the production of perennial tree crops** linked to strong local and/or international markets. Our partner, LWR, is already assisting farmers in South Cotabato to improve coffee and cacao production for local and international markets. LWR works closely with the Cacao Industry Development in Mindanao to strengthen the value chain and is using the digital platform Cocoa Connect to link producers with buyers. LWR specialists will support the transition from annual crops such as corn to agro-forestry farming practices that include higher-value perennial tree crops. By combining tree crop production with post-harvest technologies that meet market standards, Safe Water can help increase farm incomes while improving land management and watershed protection.

**Mainstream PES** between LGUs, downstream WSPs, and water-dependent industries, and upstream households and communities that provide new sources of financing for the reforestation of high recharge areas, patrolling of protected areas, and incentivizing adoption of sustainable livelihood opportunities. Safe Water will assess PES opportunities in the BMRB based on the existence/viability of environmental services to be monetized—primarily WSPs and tourism sites, which lend themselves to fee collection and management—and stakeholder interest and capacity to manage and sustain a PES scheme. Building from Protect Wildlife's approach, the WRM Specialist will engage a short-term technical advisor (STTA) to guide partners through the following steps:

- **Cost and revenue analysis.** Assessing the financial viability of economic goods and services linked to environment and natural resources (ENR)- and PES-related enterprises. The analysis provides a range of the PES that can be collected and guides management in any future tariff adjustment.
- **Policy/local ordinance review and amendments.** Reviewing existing policies/ordinances and helping local

#### **A Model for Developing PES**

Since 2016, the USAID Protect Wildlife team has worked with Brooke's Point in southern Palawan to develop a PES financing scheme for managing three watersheds that are the major sources of water supply in the municipality. In line with DAI's integrated approach to improving watershed management, the team prepared three-year work and financial plans to enable the LGU to allocate PES revenues to watershed rehabilitation; trained indigenous farmers on proper agroforestry and farm planning; and created a public campaign to increase the awareness of PES and how revenues will be utilized. The team developed PES approaches, training modules, and templates that are being applied systematically to achieve scale for 28 water utilities in Sarangani and South Cotabato. Based on this experience, Protect Wildlife undertakes resource valuation of watersheds to determine the PES rates that LGUs can use to help protect vital water sources.



officials to craft amendments and/or new policies as needed, to incorporate PES schemes—including establishment of PES fees and collection practices.

- **Resource valuation study.** Applying a cost-based approach to determine the value of local ENR services, which is later applied to inform business planning for PES management and WRM initiatives to be funded through plough-back mechanisms.
- **Business planning.** Applying findings from the cost and revenue analysis and resource valuation study to develop a business plan for the enterprise to help ensure that it is financially viable and, therefore, can serve as a sustainable source of financing for WRM.
- **Financial management and ring-fencing.** Developing financial management guidelines and executing ring-fencing to ensure that PES collections are separated from general operations budgets.
- **Plough-back.** Collaborating with the PES "buyers" in local government and "sellers," who are often conservation entities and upstream landowners, to ensure that PES fees are directed to target "plough back" activities, such as afforestation, sustainable livelihood programs, and artificial infiltration technologies tested by the Contractor and Coca-Cola in Indonesia.

The Safe Water team will build on Protect Wildlife's work to operationalize nascent PES schemes with Alabel LGU's Level III Water System and Septage Treatment Facility, the General Santos City Water District, and the rural waterworks and sanitation associations (RWSAs) in General Santos City.

**Assist LGUs to access financing from national government programs** such as the National Greening Program or the Municipal Development Fund Office's Disaster Management and Assistance Fund to finance reforestation and disaster reduction activities within the Watershed Prioritization Index. The COP and the WRM Specialist will use their strong working relationships with the DENR and Fund Office to map out the requirements for accessing each program and will organize workshops for LGUs in each site, led by the Field Site WRM Managers, to introduce each funding source.

#### ***Proposed innovations to improve monitoring and management of land and water resources***

The Safe Water team will strengthen the capacity of LGUs and WCs to use three tools to strengthen land and resources management/protection:

- **LAWIN forest and biodiversity protection system**, developed under the Biodiversity and Watersheds Improved for Stronger Economy and Ecosystem Resilience (B+WISER) program, has proven effective for monitoring changes in forest cover and biodiversity over time, and for supporting quick action to address threats such as illegal logging. The Safe Water team will promote the adoption of LAWIN, engage experienced DENR staff to train local DENR staff and forest guards in its use, and assist the local DENR staff and LGUs to develop rapid-response systems.
- **Support "wired watersheds" using low-cost, open-source sensors** developed by Maker Lab to monitor water flows and local weather that enable early flood warnings and provide the data needed for analyses that can support the design of PES schemes. In addition to tested stream and weather gauges, we propose to pilot a new technology for automated turbidity detection, an important measure of water quality. The data generated by these systems will enable communities, LGUs and WCs to track river flows over time, identify flood threats early, and take actions that save lives.
- **Monitor changes in land use/vegetative cover** using cutting-edge satellite imagery from strategic partner Planet to provide WCs and LGUs with current land-use conditions. Planet operates the world's largest constellation of Earth-imaging satellites, imaging the entire Earth once each day. This "big picture" information will help stakeholders to visualize the connections between upstream water supplies and downstream water uses; identify land-use challenges and potential threats; and support watershed management strategic planning and annual monitoring processes.

#### ***Opportunities for institutionalization of interventions***

The political, regulatory, and institutional context of the contractor's proposed WRM demonstration site is conducive to the adoption and application of the aforementioned interventions. The recently re-elected Sarangani Governor has established a new River Basin Management Council and intends to undertake a significant reforestation campaign in the BMRB, both of which represent ideal entry-points for Safe Water. In terms of regulatory context, there is also momentum to better coordinate and oversee the many disparate water systems that provide WSS services across the BMRB, mirroring the approach of Palawan's governor to enact a more systematic approach to supporting WSPs. Also, the DENR designated the Sarangani Bay as a Water Quality Management Area in 2009, giving it a clear mandate for pollution prevention, abatement, and control, and enabling it to serve as partner for institutionalizing

water quality monitoring. Finally, at the institutional level, the Department of Public Works and Highways recently launched the Integrated Flood Risk Management Sector Project, funded by the ADB and French Development Agency, which targets the BMRB for investments to improve water storage and reduce flood risks. This offers Safe Water the opportunity to leverage/influence a significant infrastructure investment to enhance climate resilience in the BMRB.

By strengthening the abilities of WCs, LGUs, and the BMRBMC to support land and resources security, promote more sustainable farming practices, and mobilize funding for investments in watershed improvements, Safe Water can position these leading organizations and other stakeholders to carry out actions that pay long-term dividends in terms of greater water security, reduced flood and landslide risks, improved conservation of forests and biodiversity, and stronger local economies.

### ***Subfactor 1.1c Approach to Improving Water Sector Governance***

Good governance principles underpin the Safe Water Team's IIWS Framework, with locally accountable LGUs proactively planning and coordinating WSS services and national government agencies enabling service expansion through new policies and regulatory reforms. While many sector reform efforts have struggled to come to fruition, a silver lining of the many water woes that have plagued different parts of the country—including the Capital Region—is that water security has grabbed the headlines and, in doing so, promoted action at the highest levels. NEDA, for example, has led the development of the PWSSMP with technical support from Safe Water consortium member OIDCI. The PWSSMP will help bring coherence to the strategy for achieving the country's sustainable development goals, as well as provide greater transparency on the sector's status. With assistance from COP, NEDA is also taking the critical step of rationalizing water and sanitation financing under the UFF, a game-changing reform that will maximize the impact of public resources. Additionally, the Philippines Congress is considering consolidating water management responsibilities—currently spread across 20 government agencies—into a single entity and establishing a central and independent economic regulator for all utilities.

These ongoing structural reform initiatives represent tectonic shifts in how the WSS sector will be managed, creating exciting opportunities for USAID under the Safe Water Activity. Led by the COP with support from a roster of trusted governance advisors—including institutional development advisor Elisea Gozun, policy advisor Ramon Alikpala, and regulatory reform advisor Nathaniel Santos—the Safe Water team will help the Philippines Government realize the full potential of the package of reforms now underway, incorporating lessons learned from past efforts to identify strategic entry-points and interventions to bolster the water- and sanitation-enabling environment.

### ***Lessons learned from past WSS reforms***

Gains have not been optimized from past reform initiatives, notably because:

- The use of executive fiats for structural reforms such as independent economic regulations are at best transition measures and should have parallel efforts for legislative reform.
- The personality-driven nature of reforms—the water sector has had several appointed "czars"—leaves the reforms vulnerable to being discontinued as administrations change.
- Without an officially adopted sector master plan and apex agency, the reform initiatives have been episodic and long-term measures have not been sustained or consistently prioritized.

### ***Strategic entry-points and interventions***

Given the lessons enumerated above and the current landscape of ongoing/proposed reforms in the sector, the Safe Water team will use the following entry-points to advance the national reform agenda:

### **Implementation of the Philippine Water Supply and Sanitation Master Plan for 2017–2040.**

With its public release imminent, the Master Plan will set the stage for the next 20 years of WSS programming in the Philippines. The completion of the Plan takes previously disparate and siloed sector plans and combines them into a single, comprehensive strategy, taking a critical step toward overcoming the fragmentation that has immobilized the sector. The release of the Master Plan will be accompanied by the online publication of a repository of data and documents that were used to inform the Plan's compilation; this database—which was developed by consortium member OIDCI—will bring a new level of transparency to WSS in the Philippines, providing a common baseline in a sector plagued by contradictory data. Safe Water will play an instrumental role in helping the Master Plan implementation get off to a strong

start. We will support proposed reforms outlined in the Plan, working with the NEDA Board's Infrastructure Committee in evaluating strategies and investment priorities and with the NEDA-chaired Legislative Executive Development Advisory Council. We will:

- **Support NEDA to develop implementing strategies for the PWSSMP's key reforms.** The Master Plan entails eight priority areas for reform, including strengthening the regulatory environment, balancing water supplies and demand, building climate resiliency, ensuring effective water and sanitation services, and investing in research and innovation. (3.1.d)
- **Map pathways for the passage of draft legislation to reorganize the management and regulation of water resources.** In developing this map, the team will identify potential obstacles, identify reform advocates/champions within targeted national government agencies and the legislature, and develop a plan in partnership with reform advocates for legislative passage of the draft bill. (3.1.a, 3.1.b)
- **Support the passage of draft legislation and the implementation of PWSSMP reforms** by developing summary analyses, briefing papers, and presentations on reform offers such as the creation of a central and independent economic regulator, and support briefings for reform advocates/champions so they can effectively respond to issues that may arise during discussions and debates within the legislature and at different government departments. (3.1.d)
- **Facilitate a stakeholder forum to monitor the implementation of the Master Plan**, including the implementation of programs, projects, and activities and collaboration among stakeholders. Participants in the forum will serve as a constituency that can both mobilize resources to support the Master Plan and monitor concerned government agencies in its implementation.

**Actuation of the Unified Financing Framework.** Although many pieces of the national WSS reform agenda are works in progress, the UFF will be ready for roll-out by the start of Safe Water. The UFF marks a fundamental shift in WSS finance, consolidating multiple mechanisms and systematizing the decision-making process. While these changes will greatly benefit the sector, they also come with a learning curve; institutions such as the Local Water Utilities Administration (LWUA) will need to adapt long-standing processes. Led by the COP and the Resource Mobilization Specialist, Safe Water will ease the transition process. We will:

- **Support NEDA to carry out a UFF "roadshow" with national government agencies.** To socialize the UFF and obtain broader governmental buy-in, Safe Water will help NEDA prepare for and conduct a roadshow to agencies affected by the new processes and procedures. We will help distill key messaging and prepare guidelines that explain the UFF in clear language. (3.1.e)
- **Design online training modules for the UFF and link to the NEDA website.** Safe Water will prepare a series of online training modules that national, provincial, and local staff can enroll in to familiarize themselves with the UFF and be better prepared to submit financing applications. (3.1.e)
- **Assist NEDA to manage the web portal.** This portal will contain references, standards, toolkits, and models for WSS services planning, project development, and utility management.

**Participation of diverse stakeholders in the broader WSS reform agenda.** Recognizing the importance of public demand and support for additional reforms in the pipeline, the Safe Water team will engage a broad array of stakeholders to ensure that they have opportunities to comment on pending legislation. In coordination with NEDA, the Team will organize meetings with representatives of:

- Major private water systems developers, such as Prime Water, Metro Pacific, Manila Water, and Aboitiz, that are aggressively seeking investment opportunities in urban water services.
- The Philippines Association of Water Districts.
- The Leagues of Cities and Municipalities that serve as information conduits to their members.
- Donors and nongovernmental organizations (NGOs) supporting water sector programs.

At each of these meetings, the Safe Water team will share up-to-date information on reform agenda items, seek feedback, and provide briefing materials and background summary analyses that these organizations can disseminate and use. The team will also present any concerns raised regarding specific reforms, as well as recommended changes, to NEDA for its consideration and action.

#### *Prioritization of Safe Water resources in support of national government reform efforts*

It is anticipated that Safe Water will support at least three of the PWSSMP reform priorities given their importance for the management of water resources and provision of water and sanitation services: 1) the creation of a single economic regulator for water and sanitation services; 2) the finalization of the UFF that is currently being supported by the USAID Water, Sanitation, and Hygiene Finance project (WASHFIN); and 3) the unification of water management and resource regulation functions.

These efforts will require the Safe Water team to work with several departments and agencies, potentially generating demand for support that may exceed the ability of the project's staff and budget resources. We will assess these requests initially based on the commitment of the requesting government agency, the importance of the support requested to the overall reform agenda, and the estimated budget and staff resources it will require. We will also use political economy analysis to help map the political landscape and concentrate Safe Water support on measures most likely to succeed.

Given NEDA's lead role in guiding the overall reform agenda and the sensitivities surrounding many of the key agenda items, the Safe Water team will organize annual work plan reviews with both NEDA and USAID to discuss and prioritize project resources in support of different reform agenda actions. Based on these reviews, we will finalize the work plan and brief affected agencies on planned support activities. This transparent approach will enable the team to build strong working relationship with NEDA staff and the staffs of other participating agencies and create opportunities for team members to use their experience and analyses to influence and shape important reform efforts.

### ***Subfactor 1.2: Strategic and Planning Documents***

Subfactor 1.2 presents DAI's approach to two important crosscutting elements of Safe Water: monitoring, evaluation, and learning; and gender equity.

#### ***Subfactor 1.2.a: Monitoring, Evaluation and Learning***

Led by the MEL Manager, Safe Water team will employ a collaborating, learning, and adapting methodology in its support to local and national governments, WSPs, private companies, and local communities. We will use a learning agenda to test our assumptions of what will work by carefully tracking performance indicators and taking deliberate pauses for reflection, learning, and adaptation. The team will share learning-focused deliverables such as studies, analyses, and evaluations with partners and targeted stakeholders, and draw on these lessons to adjust approaches for achieving each outcome. Below is the presentation of the approach to reporting on performance indicators; measuring inter-related outcomes on WSS, water resources, and sustainable landscapes; and assessing the efficacy of our gender engagement.

**Reporting on indicators.** The Safe Water team will report on progress quarterly and organize semi-annual pause-and-reflect reviews involving Philippine Government counterparts and USAID to review progress against targets, identify opportunities for improvement, and gather insights into contextual factors that may affect the project's ability to achieve its targets—summarizing accomplishments and progress toward LOP targets in each year's annual report.

**Measuring inter-related outcomes.** In Year 1, the Safe Water team will establish baseline information and data collection systems for: 1) monitoring changes in first-time and improved access to water and sanitation services; 2) the quality and quantity of surface water flows arising from targeted watersheds that supply downstream cities, commercial farming and industry enterprises, and city water services; and 3) the state of land use in these watersheds. By connecting information on these three parameters, we will be able to relate changes in raw water supplies to actions being taken in the watersheds to improve the protection and management of water resources. Being able to draw these connections will create powerful arguments in support of greater investments in water supply protection through changes in land use, reforestation, and investments in green infrastructure that reduce downstream flood and drought risks.

**Integrating gender issues.** Building on guidance from USAID's Gender Equality/Female Empowerment and Evaluation Policies, the Safe Water team will apply the following practices to ensure that activity monitoring and reporting accurately capture women's participation. Led by the MEL Manager, we will disaggregate by sex all primary data collected on project-supported stakeholder meetings, training events, workshops, study tours, and field activities. We will also employ targeted micro-surveys that can be deployed quickly and cost-effectively to:



- Supplement existing government population statistics to identify areas that receive deficient water and sanitation services and determine the number of affected households headed by women. These surveys will be used to help LGUs and WSPs include such areas in their service expansion plans.
- Analyze livelihood and income-earning activities carried out by upland communities and households, and the role of women in these activities. Safe Water will use this information to help guide the development of activities designed to improve upland livelihood opportunities.
- Collect data on attitudes and behaviors that reflect gender norms using annual micro-surveys to assess perceptions and attitudes around women's and girls' access to water and sanitation facilities and the extent to which these may be evolving in local communities.

The MEL Manager will update gender-sensitive indicators and sex- and age-disaggregated analyses routinely and make them available for quarterly team reviews of overall project progress. These data will enable the team to identify shortcomings and, if needed, engage short-term experts to help adapt implementation strategies for achieving meaningful gender equity in project activities.

**Project indicators.** The Safe Water team will review and finalize its indicators in collaboration with USAID/Philippines and other key stakeholders during the co-creation workshop. Exhibit 5 sets out initial indicators and LOP targets, with baselines to be determined in Year 1. A more detailed breakdown of annual targets, data sources, and frequency of data collection can be found in Annex B.

**Exhibit 5: Proposed Safe Water Indicators**

Indicator	Disaggregated by	LOP Targets
<b>Crosscutting</b>		
Value of new funding mobilized (in US\$) to the water and sanitation sectors as a result of USG assistance	LGU, Province	\$100 M
Number of water and sanitation sector institutions strengthened to manage water resources or improve water supply and sanitation services as a result of USG assistance	Province, Region	20
Number of tools, technologies, or measures developed, enhanced, adopted, or implemented to manage water resources or improve water supply and sanitation services	Province, Region	30
Number of partnerships developed and/or institutionalized to manage water resources or improve water supply and sanitation services as a result of USG assistance	Province, Region	18
<b>Objective 1: Increase Access to Resilient Water Supply and Sanitation Services</b>		
Number of people gaining access to basic or safely managed drinking water services as a result of USG assistance	Gender, LGU, Province	350,000
Number of people receiving improved service quality from an existing basic or safely managed drinking water service as a result of USG assistance	Gender, LGU, Province	1.1 M
Number of people gaining access to basic or safely managed sanitation services as a result of USG assistance	Gender, LGU, Province	272,000
Number of people receiving improved sanitation service quality from an existing "limited" or "basic" service as a result of USG assistance	Gender, LGU, Province	420,000
Number of coordination mechanisms institutionalized at the local, watershed, and/or regional levels as a result of USG assistance	LGU, Province, Region	15
Percentage change in women in decision-making positions in WSPs supported by Safe Water	Region	50%
<b>Objective 2: Improve Sustainable Management of Water Resources</b>		
Amount of greenhouse gas emissions reduced or avoided related to sustainable landscapes as a result of USG assistance	Province, Region	1.0 M Mt
Number of hectares of forest under improved management	Province, Region	330,000
Number of people benefiting from the adoption and implementation of measures to improve water resources management as a result of USG assistance	Gender, Province, Region	1.0 M
Number of people receiving livelihood co-benefits (monetary or non-monetary) associated with the implementation of USG sustainable landscapes activities	Gender, Province, Region	150,000
Amount of investment mobilized (in US\$) for sustainable landscapes supported by USG assistance	Province, Region	\$20 M
Number of people who apply improved conservation law enforcement practices as a result of USG assistance	Gender, Province, Region	200
Proportion of female participants in USG-assisted programs designed to increase access to productive economic resources (assets, credit, income, or employment).	Region	40%
<b>Objective 3: Strengthen Water Sector Governance</b>		
Number of policies or plans developed, enhanced, or implemented to promote water security	Province, Region	50
Number of mechanisms developed and/or enhanced for exchanging knowledge on water security	Province, Region	15

**Additional indicators to measure water conditions.** The following table summarizes the additional indicators Safe Water will measure to track the changes in water conditions in demonstration catchments between Year 1 and 5. Regarding hydrological and meteorological baselines, Safe Water will utilize the



historical records in the UP/NIGS hydro-met database to estimate an annual average over the past five years. This data may, however, need to be supplemented with the installation of low-cost, automated gauging stations under Safe Water in targeted catchments to capture local hydro-met regimes. DAI will make this determination during project start-up in conjunction with USAID and counterparts.

Indicator	Indicator Description/Justification	Unit of Measure, Disaggregation and Frequency	Data Source/Monitoring Method	Targets and Baseline
Changes in runoff-ratio in targeted catchments.	Measures the volume of runoff for a catchment divided by the precipitation in that catchment (i.e. volume of rain that does not infiltrate, evaporate, or transpire). This ratio is a key indicator of catchment health, and the stability of the ratio should improve—in the form of lower peak flows following storms and higher low flows during dry periods—in response to improvements in land management.	<b>Unit:</b> Average monthly runoff ratio. <b>Disaggregation:</b> By watershed <b>Frequency:</b> Data averaged monthly with additional analysis of episodic events.	Historical records from UP/NIGS data, PAGASA, and DPWH; Gauging stations established by Safe Water and managed by LGUs, WCs and local communities.	Baseline: TBD Yr 1: + 0% Yr 2: TBD Yr 3: TBD Yr 4: TBD Yr 5: TBD
Changes in water quality as measured by water turbidity.	Measures changes in sedimentation level and other matter in the water column using a light beam to measure reflectance. Reducing turbidity will be achieved through reforestation and improved land and water management. Reducing turbidity lowers the cost of water treatment, maintenance costs of irrigation systems, and reduced impacts on coastal and nearshore environments.	<b>Unit:</b> Measure of turbidity of water. <b>Disaggregation:</b> By watershed. <b>Frequency:</b> Quarterly	Project records collected from monitoring stations situated in different watersheds and averaged over the year.	Baseline: TBD Yr 1: 0 Yr 2: 0 Yr 3: TBD Yr 4: TBD Yr 5: TBD
Changes in the volume of groundwater recharge/infiltration.	Estimates the volume of groundwater infiltration as a percentage of precipitation. Infiltration will increase through interventions such as land use changes, water storage and recharge wells.	<b>Unit:</b> Calculated ratio in percent <b>Disaggregation:</b> by watershed. <b>Frequency:</b> Quarterly	Land use records from LandSat and Planet. Historical hydro-met records from UP/NIGS, PAGASA, and DPWH; Gauging stations established by Safe Water with local stakeholders.	Baseline: Est. 8% Yr 1: 0 Yr 2: 0 Yr 3: 0% Yr 4: TBD Yr 5: TBD

#### **Subfactor 1.2.b: Gender Integration**

The Safe Water team will execute a gender analysis and develop a Gender Action Plan within 60 days of award. Led by the Gender Advisor, we will define a strategy for integrating gender equality and women's empowerment and leadership into all aspects of implementation. The Gender Action Plan will outline strategies to navigate gender gaps in the WSS sector, including the following:

**Gap/Issue 1: The fragmentation of LGU planning and operations.** Planning for WSS services, disaster response, and infrastructure involves a diverse array of LGU departments, committees, and planning processes. Although women do play significant roles on LGU WSS teams and local health boards, they often have only minor roles in disaster preparedness and infrastructure planning. As a result, women's ideas and opinions are often left out of key decisions that affect households' access to important services. To address this gap, the Gender Advisor will lead the Safe Water team in carrying out *gender-sensitive institutional analyses* with the objectives of expanding women's participation in important LGU planning and decision-making bodies and strengthening women's inputs into decisions that affect service delivery, land use, and infrastructure development.

**Gap/Issue 2: Social biases that undervalue women's input into community decisions.** Too often, LGU planning offices focus community consultations on groups dominated by men. Meanwhile, within the household, women and girls shoulder the responsibilities for water collection, food preparation, household hygiene, and money management. When women are not included in decisions that affect household access to water and sanitation, women and girls pay the greatest price through interrupted school participation, weakened household economic opportunities, and increased vulnerability to assault and harassment. To address this challenge, Safe Water will use focus group discussions and training to expand the role of women in community consultations and decision-making processes around improvements in water and sanitation services.

**Gap/Issue 3: Limited leadership opportunities for women in local organizations.** While progress has been made in recent years toward achieving greater gender balance at the community level, the percentage of women in leadership positions within LGUs still declines significantly with increases in management responsibility. This means that the departments developing plans, making decisions, and executing programs that affect household health, hygiene, and education are often led by men. Safe Water's Gender Advisor will lead team efforts to engage *women currently employed by LGUs, water districts, BWSAs, and RWSAs in focus groups to discuss* how the project can target activities to build capacity and expand women's roles in LGU planning, decision-making, and executing bodies.

With the goal to ensure sustainable access to resources and equal participation in project activities by all stakeholders regardless of gender, Safe Water's comprehensive gender analysis will engage women and men in each site from different economic strata as key informants to: 1) identify patterns of decision making at the household and community levels; 2) understand differences in men's and women's hygiene practices, attitudes, and coping patterns; and 3) understand the roles of women and men in household and community economic activities. The team will incorporate the findings of this analysis into the Gender Action Plan and specific project activities designed to:

- Expand training and advancement opportunities for women to enable them to move into leadership positions in LGUs and other local decision-making bodies.
- Expand women's access to employment and enterprise development opportunities in water and sanitation, watershed rehabilitation, and agriculture production and processing.
- Leverage funds with private sector entities, civil society organizations, and WSPs that include women as full partners in water and sanitation, watershed rehabilitation, and/or agriculture development projects.

Importantly, our Gender Action Plan will not sit on a shelf. Rather, led by the COP, the Safe Water team will establish an internal gender working group with representation from each project office to monitor the integration of the Plan into project activities. The working group will meet quarterly to review pending action items, while also discussing the gender dynamic of the project team itself and how they can be improved. Finally, by integrating gender-related indicators into the MEL plan, Safe Water will monitor progress in expanding women's roles and opportunities, use adaptive management to shift activities as needed, and track differential impacts on male and female participants in the project.

## Safe Water Roadmap to Results

KEY APPROACHES AND ILLUSTRATIVE ACTIVITIES	RESULTS	KEY OUTCOMES	OBJECTIVES & GOAL	
<b>1.1 Safe and resilient water supply and sanitation services improved</b>		<ul style="list-style-type: none"><li>• <b>\$100 million</b> in new funding mobilized to water and sanitation sectors.</li><li>• <b>20 WSS sector institutions</b> strengthened to manage water resources or improve WSS services.</li><li>• <b>30 tools, technologies or measures</b> implemented to manage water resources or improve WSS services.</li><li>• <b>350,000</b> people gaining access to basic or safely-managed water services as a result of USG assistance</li><li>• <b>1.1 million</b> people receiving improved service quality from an existing basic or safely managed drinking water service as a result of USG assistance</li><li>• <b>272,000</b> people gaining access to basic or safely managed sanitation services as a result of USG assistance</li><li>• <b>420,000</b> people receiving improved sanitation service quality from an existing "limited" or "basic" service as a result of USG assistance</li><li>• <b>15</b> coordination mechanisms institutionalized at the local, watershed, and/or regional levels as a result of USG assistance</li></ul>	<b>Objective 1. Increased access to resilient water supply and sanitation services</b>	<b>Improved water security of water-stressed communities</b>
<ul style="list-style-type: none"><li>• Assess WSP institutional strengths and weaknesses and design/implement <b>customized capacity-building approaches</b>, including for NRW reduction programs, financing management, and utility operations (emphasizing women's roles).</li><li>• Assist WSPs to <b>evaluate resilience of water sources</b>, including water balance analyses, alternate resources, and storage approaches.</li><li>• Provide technical support in feasibility studies, designs, and siting of new built assets.</li><li>• Help LGUs to <b>establish centralized management systems</b> to support water works associations and implement service standards.</li><li>• Evaluate the <b>water, weather, and climate (WWC) information</b> services, helping collect and analyze hydro-met data for better decisions</li><li>• <b>Engage communities</b> in WSS services through community water forums, women's water groups</li></ul>	<ul style="list-style-type: none"><li>• WSPs have increased operational, technical and financial management capacity, including reduced NRW.</li><li>• Diversification of raw water resources and expanded storage for more stable, year-round flow;</li><li>• WSPs make climate-smart decisions/plans using water data, supply and demand scenarios, and appropriate modeling.</li><li>• New infrastructure designed and built to address today's needs and tomorrow's climate risk.</li><li>• Sites and designs for small dam facilities identified and developed</li><li>• Community voices strengthened in service delivery, especially for women.</li><li>• Tools, technologies or measures developed, enhanced and implemented.</li></ul>			
<b>1.2 Financing for resilient water supply/sanitation mobilized</b>				
<ul style="list-style-type: none"><li>• Support <b>WSS strategic financial planning</b> for sustainable services.</li><li>• Assist WSPs and LGUs secure new capital investments through the <b>UFF Viability Gap Fund</b>.</li><li>• Assess <b>alternative financing entry-points</b>, including PPPs / JVAs, and commercial financing.</li><li>• <b>Link households to MFIs</b> to finance household water and sanitation facilities.</li></ul>	<ul style="list-style-type: none"><li>• WSPs have improved access to public and private financing to build, operate, and maintain resilient WSS infrastructure.</li><li>• Innovative financing approaches developed to accelerate dev of WSS, incentivize water efficiency and generate demand for access</li><li>• Household investments in water and sanitation increased</li></ul>			
<b>1.3 Increased planning coordination among local, regional, and watershed stakeholders</b>				
<ul style="list-style-type: none"><li>• Support <b>joint planning coordination</b> among WSPs, LGUs and other key stakeholders., including mapping underserved "hotspots".</li><li>• Identify WSP and LGU <b>strategic planning entry-points</b> to apply water security lens, e.g. water district business plans and LGU CLUPs.</li><li>• Convene actors from the industrial and agricultural sectors to <b>build water security awareness</b>, sharing water and climate data and obtain feedback on localized water stresses</li></ul>	<ul style="list-style-type: none"><li>• Increased coordination between LGUs and WSPs on prioritized areas for service improvements and vulnerable communities.</li><li>• Better alignment between water sector planning and land use planning.</li><li>• WSPs adopt integrated water resources management.</li><li>• Water security awareness improved among diverse stakeholders, including private sector.</li></ul>			



KEY APPROACHES AND ILLUSTRATIVE ACTIVITIES		RESULTS	KEY OUTCOMES	OBJECTIVES & GOALS	
2.1 Improve management of critical watersheds or water resources			<ul style="list-style-type: none"><li>• 18 partnerships developed/ institutionalized to manage water resources or improve WSS services.</li><li>• 330,000 hectares of under improved watershed management</li><li>• More than 1 million metric tonnes of carbon sequestered or avoided</li><li>• More than 1 million people benefiting from the adoption of measures to improve water resources management</li><li>• More than 150,000 people receiving livelihood and co-benefits associated with the implementation of Safe Water sustainable landscape activities</li><li>• At least \$20 million in investment mobilized for sustainable landscapes</li></ul>	Objective 2. Improved water management for sustainable water resources	Improved water security of water-stressed communities
<ul style="list-style-type: none"><li>• Strengthen enabling environment for <b>watershed management</b> and improve <b>IWRM capacity</b> involving upstream and downstream stakeholders.</li><li>• Support <b>regional and local policies</b> to protect water and forest resources.</li><li>• Equip WSP, LGUs, and academia to use innovative technologies to <b>monitor forest and water resources</b> and apply data.</li><li>• Replicate <b>innovative financing schemes</b> such as payments for ecosystems services to protect natural assets, support sustainable livelihoods, and invest in green infrastructure.</li><li>• Help establish <b>platforms for coordinated planning</b> and stakeholder engagement such as watershed management councils.</li></ul>	<ul style="list-style-type: none"><li>• Improved capacity of LGU, WSPs, and watershed stakeholders to plan, manage, and monitor water and forest resources sustainably, using data and innovative technologies where applicable.</li><li>• Evidence-based payments for environmental services schemes to preserve water resources established.</li><li>• Water storage capacity improved and flow levels regulated as a result of nature-based solutions.</li><li>• Economic conditions among upland communities improved.</li><li>• New partnerships established to support water resources management.</li></ul>				
2.2 Increased adoption of measures to better manage, conserve, and use water					
<ul style="list-style-type: none"><li>• Strengthen <b>capacity</b> and support actions to improve water conservation and use among public and private actors.</li><li>• Support implementation of the <b>Green Building Code</b> accompanied by water fixture efficiency standards.</li><li>• Cultivate better understanding of water consumption behavior and use that evidence base to expand <b>water audits</b> and <b>efficiency best practices</b>.</li><li>• Help industries and land developers to integrate <b>WDM, green infrastructure</b>.</li></ul>	<ul style="list-style-type: none"><li>• National water fixture efficiency labelling standards implemented.</li><li>• New buildings incorporate low-flow water fixtures and rainwater harvesting, storage, and reuse</li><li>• Water use and wastewater generated by industries reduced through WDM audits.</li><li>• Increased use of incentives and fees to promote water conservation and efficiency.</li></ul>				

KEY APPROACHES AND ILLUSTRATIVE ACTIVITIES	RESULTS	KEY OUTCOMES	OBJECTIVES & GOALS	
<p><b>3.1 Transparent, accountable, and effective governance of the water and sanitation sectors promoted</b></p> <ul style="list-style-type: none"><li>Support implementation of the <b>Philippine Water Supply and Sanitation Master Plan</b> for, working with NEDA to map priorities, build constituencies, and identify champions for legislation.</li><li>Facilitate actuation of <b>UFF</b>, assisting in government-wide roadshows, development of training modules, and management of knowledge products;</li><li>Engender participation of <b>diverse stakeholders</b> in broader WSS reforms, especially private sector</li></ul>	<ul style="list-style-type: none"><li>Increased support for sector reforms, including empowering policy champions.</li><li>Private sector participation increased through transparent mechanisms</li><li>Reforms reflect resilience best practices.</li><li>Government responds to concerns regarding reform initiatives and integrates feedback, responding to sector needs.</li></ul>	<ul style="list-style-type: none"><li><b>50</b> policies or plans developed, enhanced or implemented to promote water security</li><li><b>15</b> mechanisms developed and/or enhanced for exchanging knowledge on water security</li><li><b>4</b> major reform agenda priorities supported with project resources</li></ul>	<b>Objective 3:</b> Water sector governance strengthened	Improved water security of water-stressed communities
<p><b>3.2 Knowledge on water security developed and/or shared</b></p> <ul style="list-style-type: none"><li>Engage stakeholders, share information, exchange <b>best practices</b> and promote successful actions.</li><li>Support WSP <b>international exchange</b> experiences</li><li>Engage stakeholders in generating ideas for attaining water security</li><li>Disseminate <b>replicable and scalable models</b> for strengthening water management and efficient use</li><li>Downscale the <b>"Water Alliance"</b> model to target provinces</li></ul>	<ul style="list-style-type: none"><li>Models, approaches, and best practices for water security, WRM, and resilience disseminated, exchanged, and applied.</li><li>Models and approaches incorporate international best practices.</li><li>Broad constituency of actors participate and voice ideas on water security best practices and application.</li></ul>			

