II. UTILITIES SECTOR

A. S&T MANAGEMENT OF WATER RESOURCES (AWARE) FOR SUSTAINABLE DEVELOPMENT

Call Rationale

Philippines has an abundant freshwater resource obtained mainly from rainfall, surface water, and groundwater. The average annual rainfall amounts to 2,440 mm, rivers, lakes and reservoirs constitute to 125.4 billion cubic meters with groundwater potential of 20.2 billion cubic meters and reservoir aggregate area of 50,000 sq km. Theoretically, it is expected that the Philippines should have sufficient water supply. However, due to the geographical location, changing environmental conditions, high-economic growth, and water balance (difference between the amount of water resources potential and the water demand), the country is experiencing both flood and drought issues.

Forecast suggests that in 2025, Philippines will not be able to meet the demand for water supply. More so, the World Resources Institute (WRI) predicted a high degree of water shortage that will be experienced in 2040 with agriculture as the most stressed sector, and Mindanao as the most stressed region. In 2015-2016 alone, the country was driven with severe El Nino event ever recorded which caused damage across 16 out of 18 regions – drying nine (9) dams, to where six (6) were critical and ten (10) were below normal levels. On the other hand, recent onslaught of typhoon Ulysses brought severe flooding in the Cagayan Valley, which demonstrated that the current water infrastructures and disaster management systems cannot satisfactorily adopt with extreme climate conditions. These phenomena inflict impact on streamflow, dam operation and water allocation, domestic water supply, irrigation, hydro power generation, depth and recharge of aquifers, water quality, and watershed.
To address these issues, S&T solutions for water resource management is needed in accordance with the objectives of the Philippine Development Plan (PDP) 2017-2022, National Climate Change Action Plan (NCCAP) 2011-2028, and aligned with the goals of the pending establishment of national framework for water resource management, department of water resources and water regulatory commission.

Call Objective

The program aims to develop cost-effective, advanced, and localized tools, methodologies and technologies in managing our water sources: surface water, & groundwater, and in addressing water-related hazards: flooding & drought.

Through this intervention, the program will provide solution to limited water resources, water efficiency and conservation, water demand management, aquifer depletion, mitigation of water related hazards and climate change adaptation strategies. The projects should be able to differentiate the proposed interventions by elaborating the cost-comparative assessment, monitoring and management improvement, efficiency and sustainability.

Further, the output of the project should contribute to the development and/or improvement of new and existing water policy and management decisions, codes, benchmarks, sanitary, irrigation, flood control, assessment and allocation tools and operating rules of all existing and future water infrastructure. Proponents should partner with possible technology adaptors, water companies, relevant government agencies and end-users as well as solicit counterpart support in the project implementation.

The objective of this call is to provide S&T interventions that are not yet applied/used locally for effective management of our water resources through the development and introduction of innovative tools, methodologies, and technologies to ensure safe, adequate, and sustainable water supply.

Total Allocation for 2022 – 2023: PhP 100,000,000.00

Call Scope

The R&D initiatives should address/cover the following identified research areas:

1. Comprehensive water resource management (Identification, assessment, mapping, monitoring, and managing of all water sources and infrastructures).
    - Smart systems for water resource monitoring
    - Mapping of elements (e.g., Radon, Arsenic, Iron) present in Groundwater
    - Innovative flood protection and defense system technologies
    - Tools/technologies for water supply and demand monitoring and management

Priority will be given to proposal where study area is within the identified areas with water constraints.

2. Community-based or urban water harvesting systems/techniques/ technologies as storage, alternative source of water.
3. Dams/watershed/reservoir S&T management strategy.

Additional Call Document Requirements

- Project duration shall not exceed 24 months
- Secure partnership/commitment with relevant stakeholders (e.g., NWRB, NIA, PAGASA, RBCO, MWSS, DPWH etc.,)