

## **Enhancing Urban Resilience towards Water Sufficiency during Extreme Weather Disastrous Impact: Sectoral Adaptation Action Plan of Quezon City, Philippines**

Tabassam Raza<sup>1,2</sup>, Frederika C. Rentoy<sup>3</sup>, Andrea Valentine L. Andres<sup>3</sup>, Vincent G. Vinarao<sup>3</sup>,  
Thess Khas S. Raza<sup>3,4</sup>, and Ramon Iñigo M. Espinosa<sup>1</sup>

<sup>1</sup>*Disaster Risk Management Unit, Graduate School of Business, Philippine School of Business Administration, Manila, Philippines*

<sup>2</sup>*U.P. Planning and Development Research Foundation, Inc. Quezon City, Philippines*

<sup>3</sup>*Environmental Protection and Waste Management Department, Quezon City Government, Philippines*

<sup>4</sup>*School of Urban and Regional Planning, University of the Philippines, Diliman, Philippines*

*Keywords:* Climate Change, Adaptation Action Plan, Adaptive Capacity, Extreme Weather Event, Sustainable Development

### **Abstract**

After super Typhoon Haiyan hit and devastated central Philippines on November 8, 2013, access to safe and clean water and to sanitation were pressing concerns for survivors. Total damage for the public water sector was estimated at US\$69.8 million, with almost 86 per cent of the costs due to damages to private household connections, equipment and operations loss. It served as a wake-up call for urgent action by the Philippines. To prevent these kinds of catastrophic impacts and make urban areas resilience towards water sufficiency, this study developed a science and policy framework to assess climate related extreme weather event impact to formulate urban Adaptation Action Plan (AAP) towards urban water sufficiency. It was done by applying exploratory research method. Primarily, Logical Decision for Windows (LDW) software tool was applied to select the pilot urban Local Government Unit (LGU). The LDW result revealed Quezon City (QC) as the pilot LGU. The gender-sensitive participatory process and Geographic Information System were used to collect the pertinent data and in assessing and analysing QC climate hazard exposure, personnel and institutional adaptive capacity and overall relative vulnerability. The analysis of the data revealed that the extreme weather event (100 year return period) will impact sustainability of City water resources; availability of clean, safe, equitable, and affordable water; ground water potential; and projected gastrointestinal infection rate if no adaptation interventions are undertaken. Thus, a sustainable development sectoral (Social, Economic, Environmental, Land Use/ Infrastructure, and Institutional) AAP 2017-2027 of Quezon City is developed to enhance its clean water and sanitation resiliency. The QC AAP comprising development sectors' and water sufficiency' cross-cutting Programs, Projects, and Activities (PPAs) with corresponding budget/agency and timeframe. The above methodology and AAP are flexible and fashioned to be used in context of other climate priority areas (such as food security, ecosystem and environmental stability, human security, climate smart industry and services, sustainable energy, and knowledge and capacity development) and to establish globally-effective tools as foundations for achieving Paris Agreement and Sustainable Development Goals up to 2050.