

Philippine Water Resources Management

A presentation by:

Engr. Snoofey Eder Cabag-iran
National Water Resources Board
Republic of the Philippines



Outline



- 💧 **Brief overview**
- 💧 **Philippine Water Resources**
- 💧 **Existing Legal/Policies and Institutional Framework**
- 💧 **Water Issues and Challenges**
- 💧 **Government Initiatives through the National Water Resources Board (NWRB)**



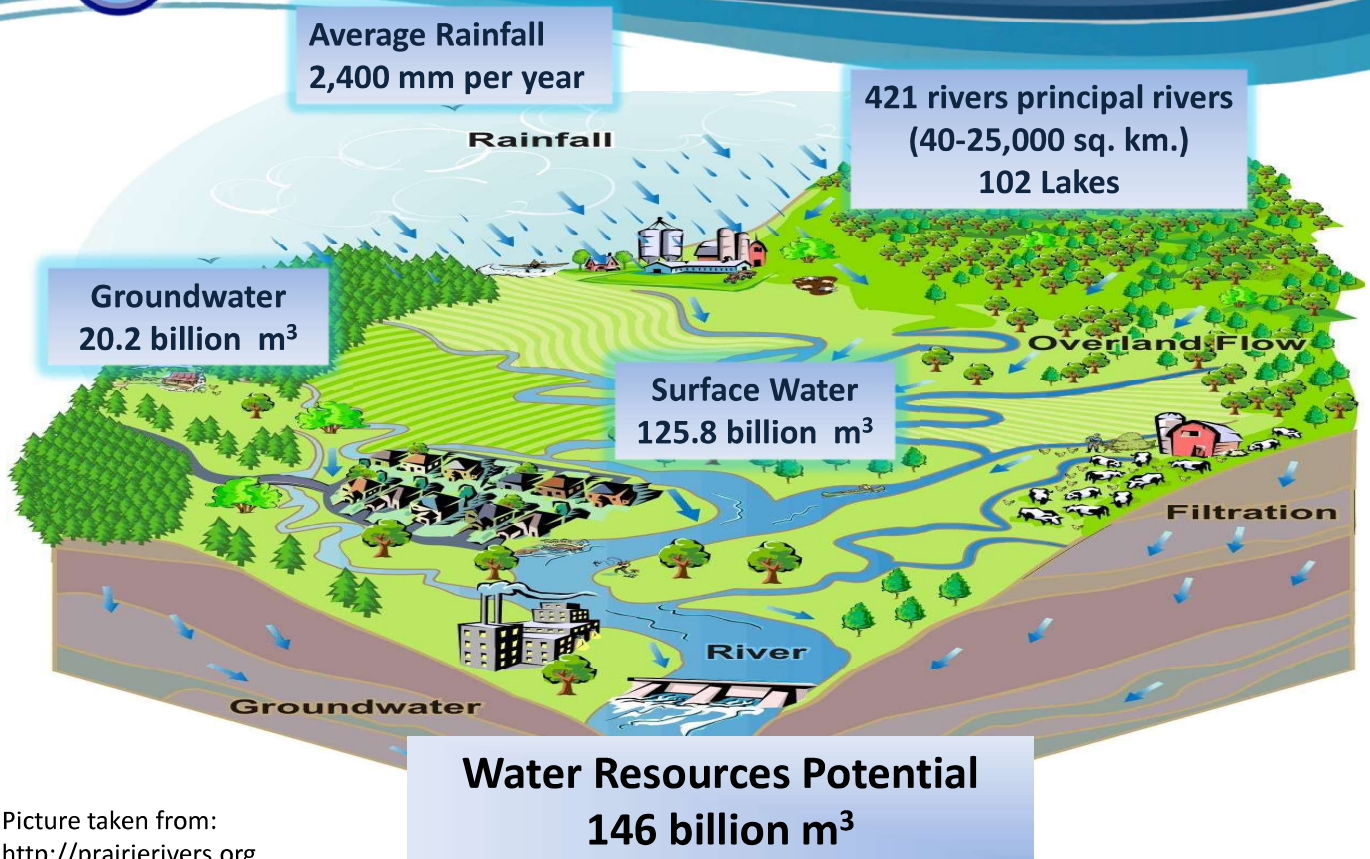
The Philippines



- An archipelago comprising of 7,641 islands
- Land area : 300,000 square kilometers
- 17 Administrative and 12 Water Resources Regions



Philippine Water Resources

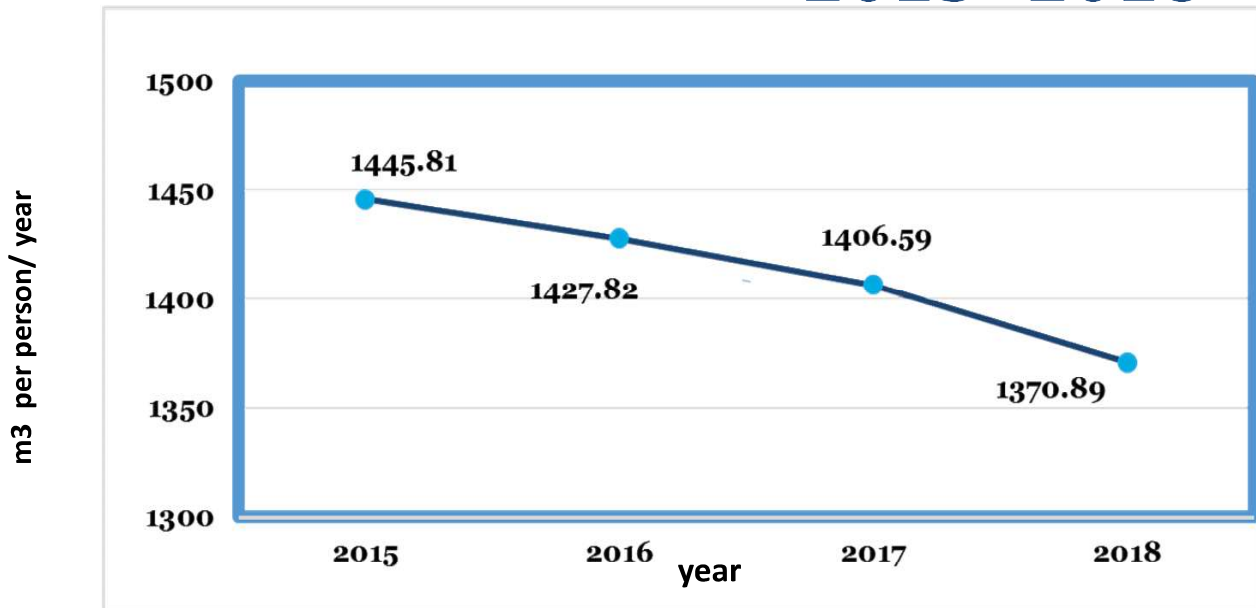


Picture taken from:
<http://prairierivers.org>



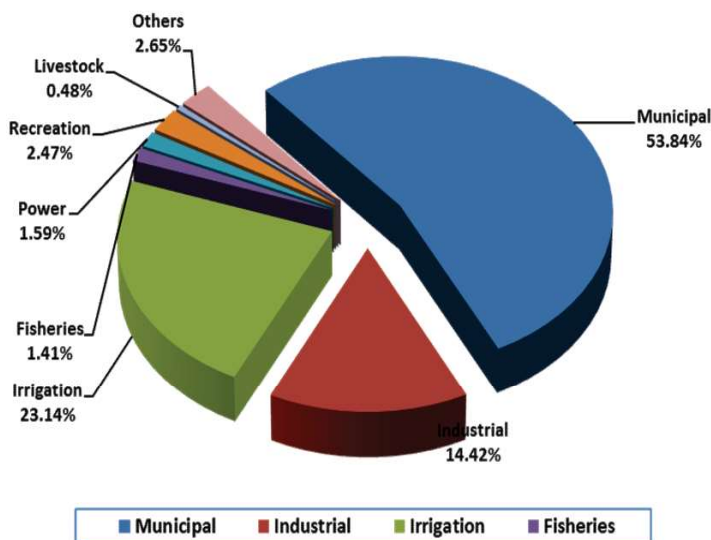
Per Capita Water Availability

2015 - 2018

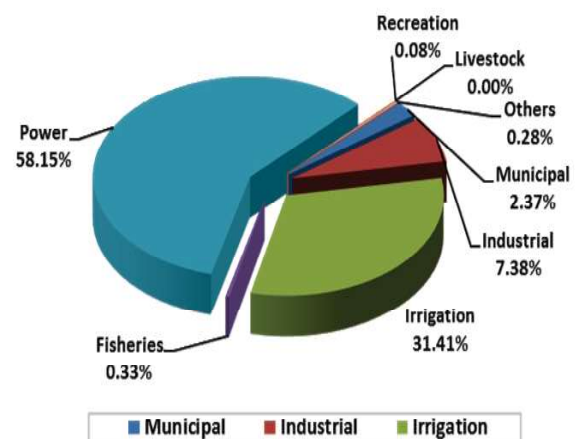


Allocated Ground and Surface Water As of November 2018

Water Allocated for Groundwater Use in (lps)



Water Allocation for Surface Water
in (lps)



EXISTING LEGAL AND INSTITUTIONAL FRAMEWORK ON WATER RESOURCES MANAGEMENT



The 1987 Philippine Constitution



1. PD 1067 of 1987 Philippine Water Code

- ownership, appropriation , utilization, development, protection
- Model of water law

2. The Environmental Code of 1997

- provides the management guidelines on the protection and improvement of quality of water

3. Clean Water Act of 2004

- provides a comprehensive and integrated strategy to prevent and minimize pollution through a multi sectoral and participatory approach involving all the stakeholders



National Water Policies

PDP (2011-2016)

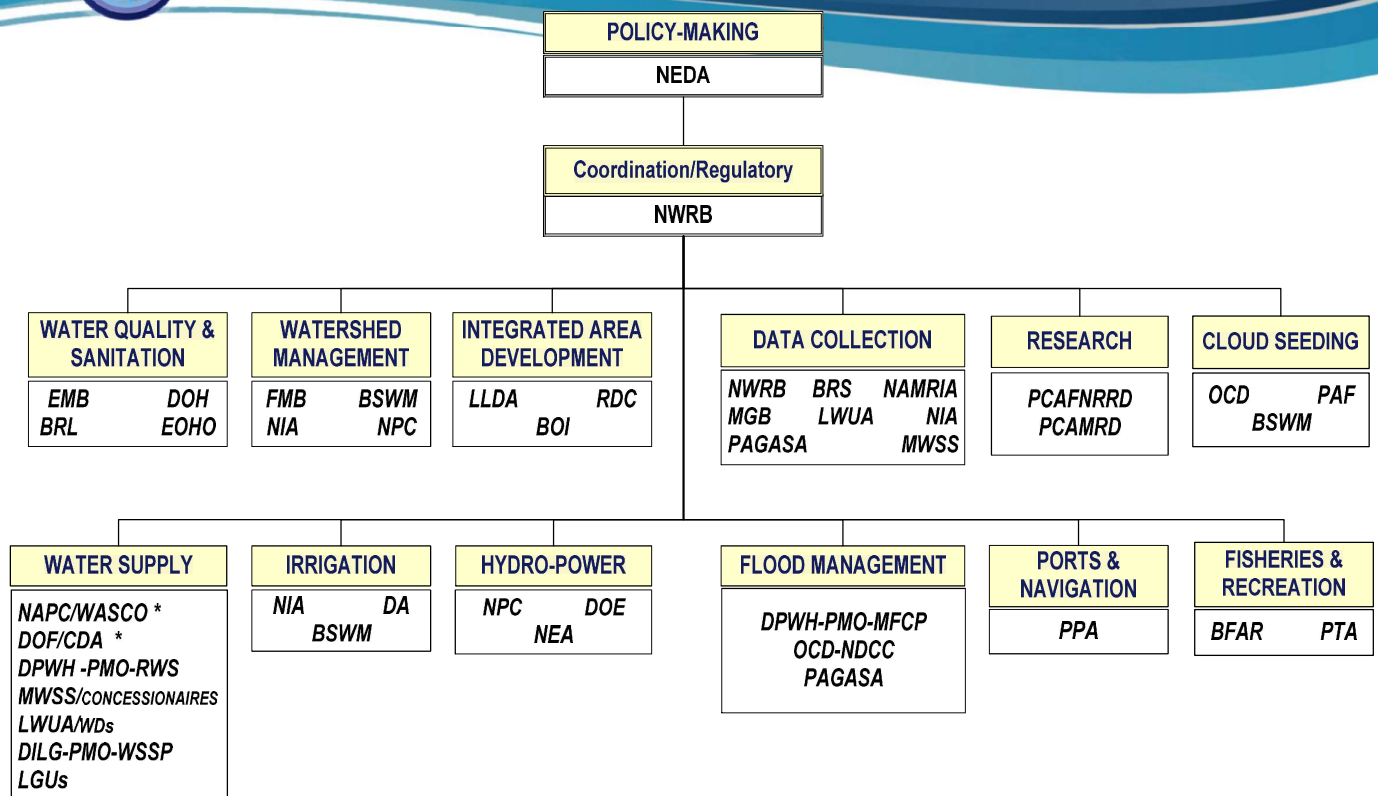
- *Adopts IWRM approach as a general strategy for water resources sector*

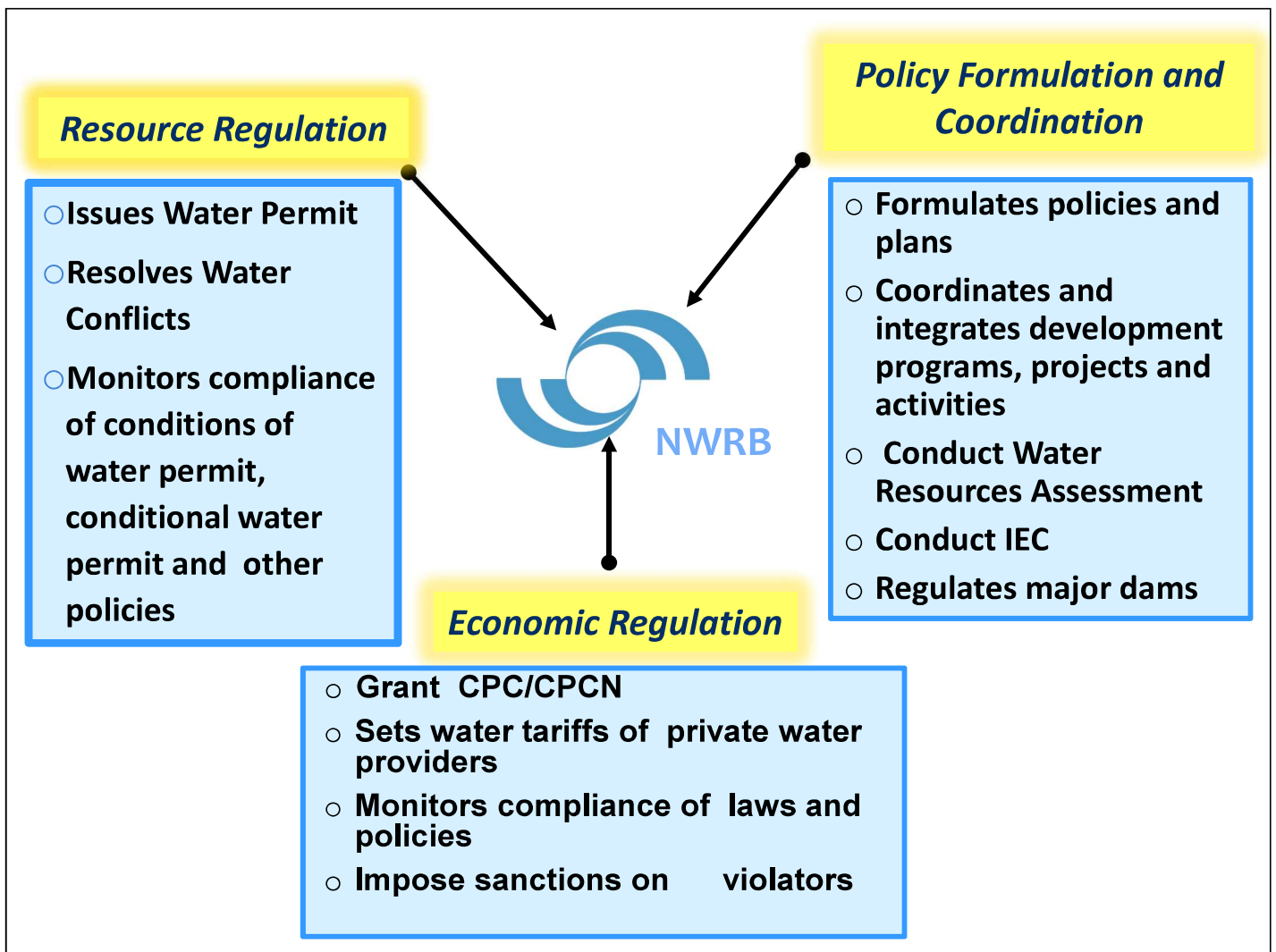
National IWRM Plan Framework

- A directional Plan that serves as a roadmap and collaborative platform for all stakeholders and water-related agencies.

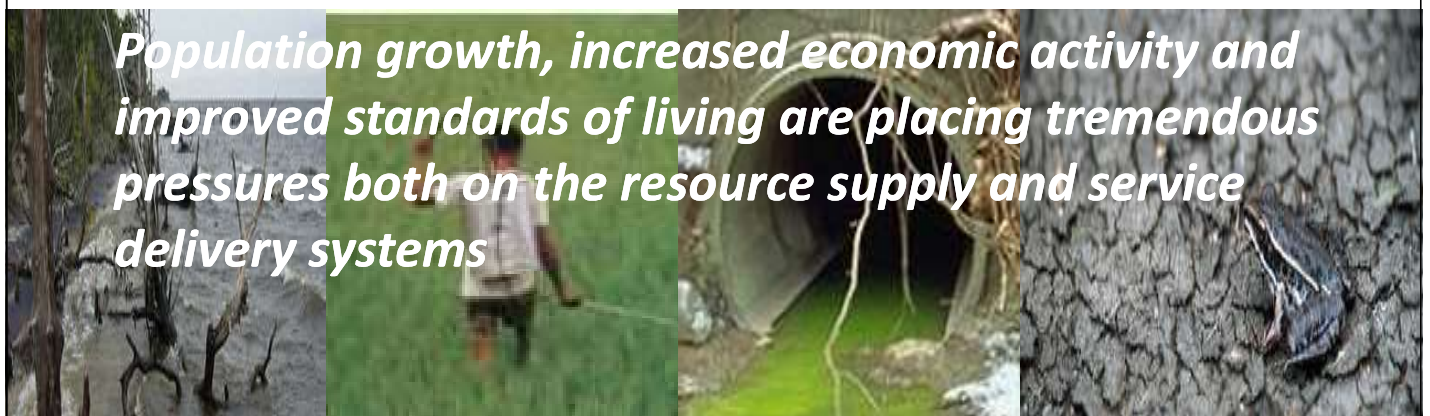


Functional Chart of Water-Related Agencies





Key Water Challenges





Water Issues and Challenges



Increasing Demand

- Water Demand in major urban centers is starting to outstrip existing water supply
- Water in these areas are polluted. Solid waste management is a major concern.



Water Pollution



Water Issues and Challenges

Nine Groundwater Stressed Cities



- Lowering of GW level and saltwater intrusion in coastal areas due to over-extraction
- Water deficit during summer
- Several cities in Metro Manila and Metro Cebu already exceeded safe yield or recharge rate with several cone of depression



Water Issues and Challenges

- 50 rivers (12%) of the 421 rivers in the country are considered biologically dead
- Only one third (36%) of our river systems/ surface water areas are potential sources for drinking water
- 58% of groundwater sample intended for water supplies are contaminated with total Coliform and would need treatment (preliminary data)



Source: Environmental Monitor 2017



Water Issues and Challenges

Threat of Climate Change

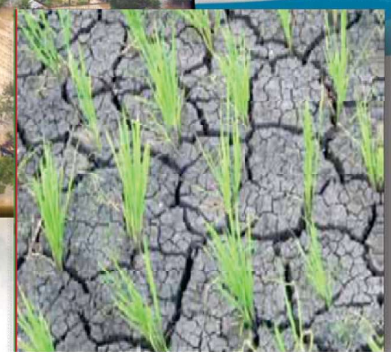
Severe Flooding

- Severe flooding occurs annually, affecting mainly lowland areas and high lying areas have experienced localized flooding
- Landslides and flash floods have taken place on a large scale in mountainous areas



Droughts

- Lowering of water table due to decrease in groundwater recharge
- Reduce water flow affects reservoir operation (e.g. Angat Dam)



Source: Environmental Monitor 2017



Water Resources Management Issues and Challenges

- A need for a policy that will optimize the productive use of water to attain its full benefits and minimize waste
- A need to capacitate the local government units and the community to cope with the current and future changes whether its natural or anthropogenic
- Implementation is confused by overlapping and conflicting policies
- Overlapping jurisdiction
- Lack of reliable, updated and science- based water-related information for a well informed decision making
Improve water governance at river basin through the development of IWRM-based River Basin Plan



Government Initiatives

- 💧 Enhance decision support system for water resources management through evidence and science-based information
 - ❑ *Development and implementation of Groundwater Management Plan (GMP) for Highly Urbanized Water Constraint Cities*
 - ❑ *Groundwater Resources Assessment using Isotope Technique*



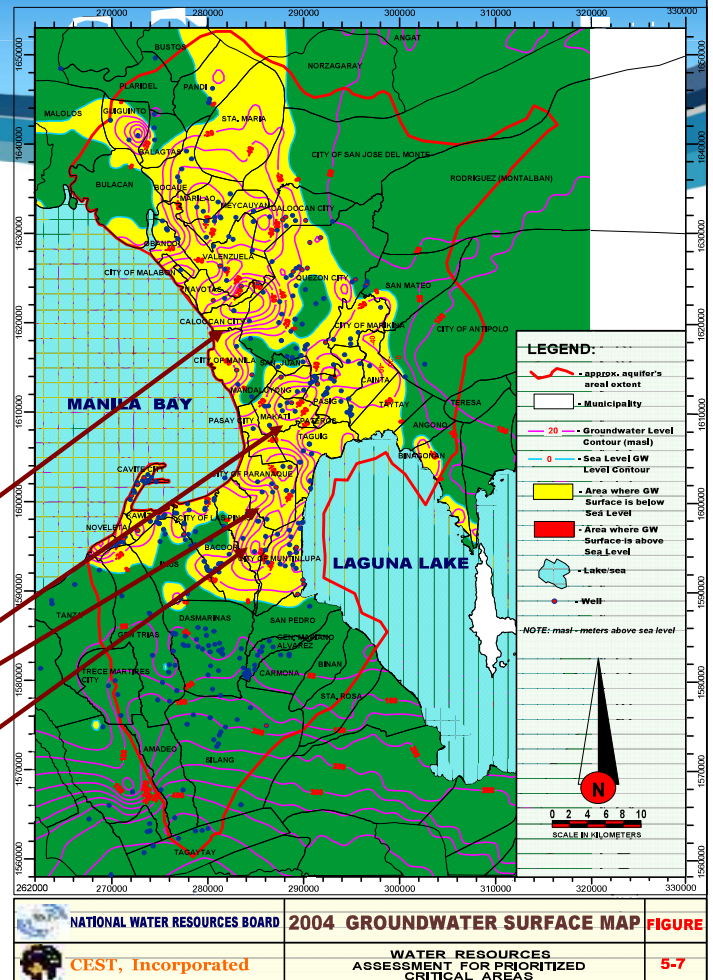
Groundwater Assessment Study for Metro Manila in 2004

Four areas in Metro Manila are considered in need of urgent attention due to major cone of depression found in these areas.

- Area 1: Navotas, Caloocan, West Quezon City
- Area 2: Makati, Mandaluyong, Pasig-Pateros
- Area 3: Paranaque, Pasay
- Area 4: Las Pinas, Muntinlupa

Groundwater Extraction Policy 2009

Source: Water Resources Assessment for Prioritized Critical Areas, NWRB and CEST, 2004



Government Initiatives

- Promote and mainstream IWRM approach and Climate Change Adaptation Strategies through the conduct of conduct of Area-wide Capacity Building Program on IWRM and Climate Change Adaptation for Key Stakeholders**
- Enhance water resources policies/legal and institutional framework to be more responsive to current and future changes**
 - Amendment of Water Code**
 - Implementation of Water Sector Reforms (Creation of super body for the water sector)**



Government Initiatives

- Implement activities to expand and sustain access to water and ensure its affordability by capacitating small scale water service providers

THANK YOU