



Policy Brief

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Water is arguably the most important natural resource and because it is scarce, its optimal usage and proper management must be ensured.

Water governance in the Philippines, however, has become too complex with so many institutions involved, all with different hierarchical coverage, varied mandates and representing the interests of diverse constituencies.

It is thus worthwhile to look at the proposed reform measures to improve the country's regulatory and institutional frameworks for sustainable water resource management.



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Turning the Tide: Improving Water Resource Management in the Philippines

Introduction

Water is a basic human need, and access to it is regarded as a fundamental human right. For centuries, human progress and development has been dependent upon the ability of communities to access clean water and harness its potential as a productive resource. Many early Philippine societies were established along the country's extensive coastline and along the banks of great rivers such as Cagayan River, Rio Grande de Mindanao, and Pasig River.

The role of water as a tool for progress and development has become increasingly important through the centuries. According to the 2006 United Nations Human Development Report (HDR), "*water for life in the household and water for livelihoods through production are two of the foundations for human development.*" Unfortunately, water scarcity is already a serious problem in many developing countries across the globe.

In the Philippines, 2010 data from the National Statistical Coordination Board (NSCB) revealed that 16 percent of all households remain without access to clean and potable water. This situation is expected to worsen in the near future given the rising population that results in an increasing demand for the country's already dwindling water supply. The dwindling water supply was brought about by decades of resource mismanagement, inadequate investments in physical infrastructure, and the growing threat of climate change. A study by the Japan International Cooperation Agency (JICA) and National Water Resources Board (NWRB) estimated that all major cities in the Philippines will experience water shortages by 2025 (Table 1).

The Philippine national government has sole ownership and control over the country's water resources, as provided by the 1987 Constitution. Section 2, Article XII of the Constitution states that "*all lands of the public domain, waters, minerals, coal, petroleum, and other mineral oils, all forces of potential energy, fisheries, forests or timber, wildlife, flora and fauna, and other natural resources are owned by the State.*" In addition, "*the exploration, development, and utilization of natural resources shall be under the full control and supervision of the State.*"

However, the poor state of the country's water resources reflects the national government's inability to prevent resource degradation and ensure the provision of safe and adequate water supplies for the human population. Studies have attributed the government's poor performance

to weak regulatory institutions and the absence of a clear and organized framework for water resource governance. The purpose of this paper therefore is to propose policy measures that seek to address these issues and provide the impetus for sustainable water resource management in the country.

Table 1: Supply and Projected Demand of Groundwater in Major Metropolitan Areas in the Philippines

Area	Exploitable Groundwater (1998) MCM*	Projected Water Demand (2025) MCM*
Metro Manila	191	2883
Metro Cebu	60	342
Davao City	84	153
Baguio City	15	87
Angeles City	137	31
Bacolod City	103	111
Iloilo City	80	47
Cagayan de Oro City	34	98
Zamboanga City	54	203

* MCM – million cubic meters

Source: JICA/NWRB (1998)

Water Resources: Supply and Demand

It is ironic that a country with a looming water crisis like the Philippines is actually rich in water resources. The country has 421 river basins, 72 lakes and numerous streams and creeks that altogether represent 86.2 percent of the country's total water resource potential (Table 2). In addition to its surface water, the Philippines

Table 2: Water Resource Potential, by Region

Region*	Surface Water Potential (MCM)	Groundwater Potential (MCM)	Total
I	3,250	1,248	4,498
II	8,510	2,825	11,335
III	7,890	1,721	9,611
IV	6,370	1,410	7,780
V	3,060	1,085	4,145
VI	14,200	1,144	15,344
VII	2,060	879	2,939
VIII	9,350	2,557	11,907
IX	12,100	1,082	13,182
X	29,000	2,116	31,116
XI	11,300	2,375	13,675
XII	18,700	1,758	20,458
TOTAL	125,790	20,200	145,990
% SHARE	86.16	13.84	100.00

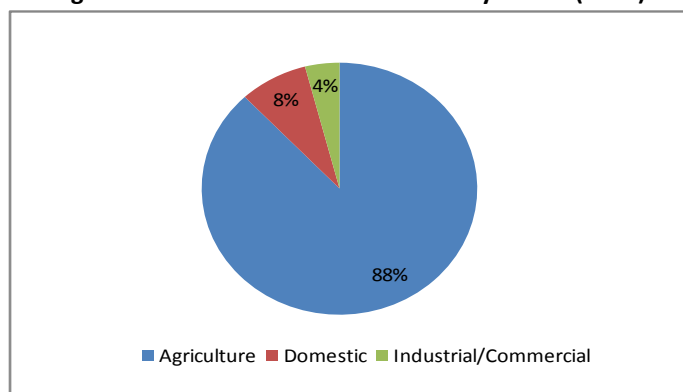
* For purposes of planning, the country is divided into 12 water resource regions (WRRs) based on existing hydrological boundaries. The country's 17 administrative regions should not be confused with the WRRs, which respectively cover the following areas: Ilocos Region; Cagayan Valley; Central Luzon; Southern Tagalog; Bicol; Western Visayas; Central Visayas; Eastern Visayas; Southwestern Mindanao; Northern Mindanao; Southeastern Mindanao; and Southern Mindanao.

Source: Adapted from the Philippine Environment Monitor (2003)

has also extensive groundwater reserves that contribute 13.8 percent to the country's total water resource potential.¹ All in all, it has been estimated that annual water use in the Philippines accounts for only 55 percent of available supply (Food and Agriculture Organization, 2010).

Besides being necessary for sustaining human life, water is used in a number of very important ways in the Philippines: agricultural irrigation, fisheries production, hydroelectric power generation, industrial production and navigation, among others. Among all these uses, agriculture (irrigation and fisheries) consumes the most water, accounting for 88 percent of total water withdrawals (Philippine Water Supply Sector Roadmap, 2003). Domestic water use² accounts for eight percent while the remaining four percent is used for industrial/commercial purposes (Figure 1).

Figure 1: Surface Water Withdrawals by Sector (1995)



Source: World Resources Institute (2003)

While it may appear that there is an overabundance of water resources in the Philippines, it must be pointed out that these resources are unevenly distributed throughout the country due to the Philippines' archipelagic nature. Water supply levels differ from province to province based on a number of important factors such as population distribution, rainfall patterns, watershed quality, and the rate of groundwater recharge.

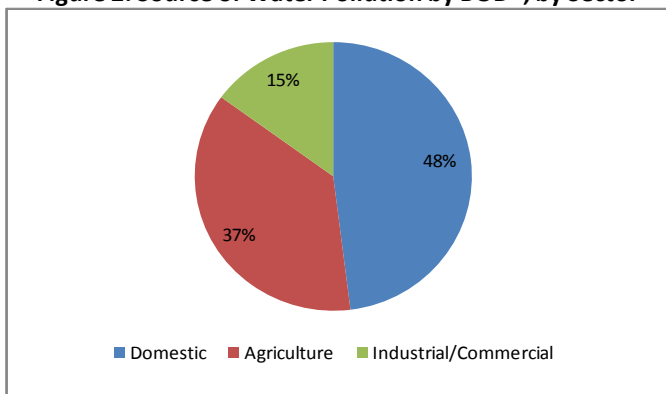
Moreover, in the Philippines, the water problem relates more to the lack of quality rather than quantity. The absence of waste management and sewage treatment facilities in most provinces and municipalities has resulted in the improper disposal of household,

¹ Surface water refers to water found in lakes, rivers, and streams while groundwater refers to subsurface water found in underground aquifers.

² There are five general components of domestic water use in the Philippines: drinking water for survival, water for hygiene, water for sanitation, water for food preparation, and water for laundry (Inocencio, 1999). It has been estimated that each Filipino needed at least 54 liters of water per day to meet his or her daily water requirements for maintaining life and promoting proper sanitation and public health.

industrial, and agricultural wastes that has greatly compromised the quality and availability of ground and surface water in the country, especially near major metropolitan areas.³ An Environmental Management Bureau (EMB) study in 2003 revealed that 66 percent of the country's 611 classified inland bodies of water were deemed unsuitable for human consumption.⁴ The EMB also reported that more than half (57%) of the deep wells being monitored for groundwater extraction were highly contaminated with fecal coliforms (Philippine Environment Monitor, 2003). It has been estimated that the country produces almost 2.2 million tons of organic waste per year, with the bulk coming from domestic use, 48 percent; agriculture, 37 percent; and industrial/commercial purposes, 15 percent (See Figure 2).⁵

Figure 2: Source of Water Pollution by BOD*, by Sector



* BOD - biochemical oxygen demand
 Source: *Philippine Environment Monitor (2003)*

The lack of adequate water infrastructure has also resulted in a grossly inefficient distribution system characterized by pipe leaks, illegal connections, and inaccurate metering and billing systems. The Bureau of Soil and Water Management (BSWM) estimated that non-revenue water (NRW)⁶ accounts for 60 percent of total groundwater extraction in the Philippines. High NRW

³ Based on the results of the 2003 National Demographic and Health Survey (NDHS), only 7 percent of the country's total population is connected to sewerage systems. It has been estimated that more than 90 percent of the sewage generated in the country is not disposed of/treated in an environmentally acceptable manner (Philippine Environment Monitor, 2003).

⁴ One example is the Marilao River in Bulacan Province, considered to be one of the dirtiest rivers in the world due to high levels of chromium, cadmium, copper and arsenic coming from the various industries lined along the river.

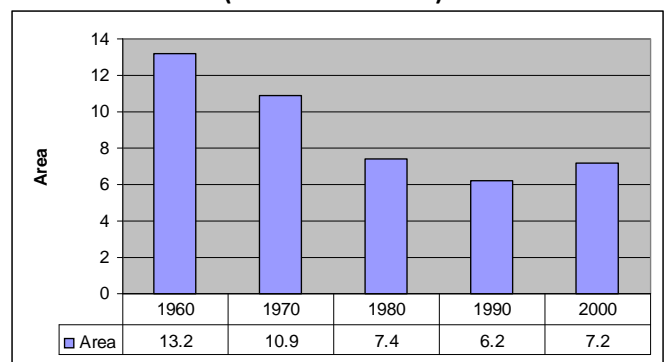
⁵ Water pollution does not only limit the amount of water available for human consumption and production. It also threatens human health in the form of water-borne diseases such as typhoid, cholera, dysentery, hepatitis and diarrhea, among others. Water pollution also leads to declining fisheries production, lowering available food stocks and raising the price of fish and other marine species. Untreated wastewater discharge can also have significant impacts on local tourism.

⁶ NRW is defined as the difference between the volume of water put into a water distribution system and the volume that is billed to customers (World Bank, 2006).

levels penalize consumers by effectively raising the price of water due to increasing costs for water collection, treatment and distribution. High NRW losses also make it very difficult for water utilities to recover their investments and generate income that should be used to improve physical infrastructure and expand service delivery.

Water scarcity has also been attributed to the massive degradation of the Philippines' watersheds and river basins, which are integral to the replenishment and maintenance of ground and surface water. The mismanagement of the Philippines' forest resources over the last 50 years has resulted in a cumulative loss of more than 97 percent of the country's original forest cover. Based on the Forest Management Bureau (FMB) data, only 7.2 million hectares out of the 27 million hectares of original forested area remained in 2008 (Figure 3). The Philippines is considered to be one of the most severely deforested countries in the tropics and is among the countries with the lowest per capita forest cover in the Asia-Pacific region (Food and Agriculture Organization, 2000).

Figure 3: Philippine Forested Land Area (In Million Hectares)



Source: *Forest Management Bureau (2008)*

The effects of deforestation and pollution on the country's water supply will be magnified by the increasing threat of climate change. According to the Department of Agriculture (DA), more than half of the country's provinces are considered vulnerable to the effects of drought and desertification (Table 3). In 2010, agricultural losses attributed to the effects of the dry spell brought about by the El Niño Southern Oscillation (ENSO) were pegged at PhP12.1 billion. Falling water levels likewise constrained the amount of water available for power generation, especially in Mindanao, which relies heavily on hydroelectric power. While exact figures are not clear yet, experts have predicted that the frequency and intensity of droughts and desertification will increase in the near future as the effects of climate change become more pronounced.

Table 3: Provinces/Cities Vulnerable to the Effects of Drought/Desertification

Highly Vulnerable	Moderately Vulnerable
1. Ilocos Norte	1. Abra
2. Ilocos Sur	2. Apayao
3. La Union	3. Benguet
4. Pangasinan	4. Ifugao
5. Cagayan	5. Mountain Province
6. Isabela	6. Nueva Vizcaya
7. Aurora	7. Quirino
8. Bataan	8. Batangas
9. Bulacan	9. Laguna
10. Nueva Ecija	10. Quezon
11. Pampanga	11. Romblon
12. Tarlac	12. Sorsogon
13. Zambales	13. Aklan
14. Cavite	14. Antique
15. Rizal	15. Bohol
16. Occidental Mindoro	16. Samar
17. Palawan	17. Zamboanga del Norte
18. Capiz	18. Zamboanga Sibugay
19. Iloilo	19. Zamboanga del Sur
20. Negros Occidental	20. Bukidnon
21. Misamis Oriental	21. Davao Oriental
22. Zamboanga City	22. Davao del Sur
23. Sarangani	23. Davao City
24. South Cotabato	

Source: Department of Agriculture (2010)

Institutional Arrangements on Water Governance

The complexity of water governance in the Philippines can be attributed to the multiplicity of institutions involved, all with different hierarchical coverage, varied mandates and representing the interests of diverse constituencies. Such a model is described by Malayang (2004) as being multilevel, multisectoral and multithematic.

Agencies and institutions overseeing the governance of a given body of water are *multilevel* in the sense that they often range from the local, regional, national and even global levels (in instances when a body of water is covered by international conventions). At the same time, decisions and actions affecting the water sector are *multisectoral*, in such that both state and non-state sectors are involved including LGUs, industries, fisherfolk, civil society and even communities living near these bodies of water. Lastly, water governance is *multithematic* in the sense that it tries to address a number of concerns such as pollution control, flood control, watershed improvement and sedimentation control, among others.

As part of its natural resource management function under the Philippine bureaucracy, the Department of

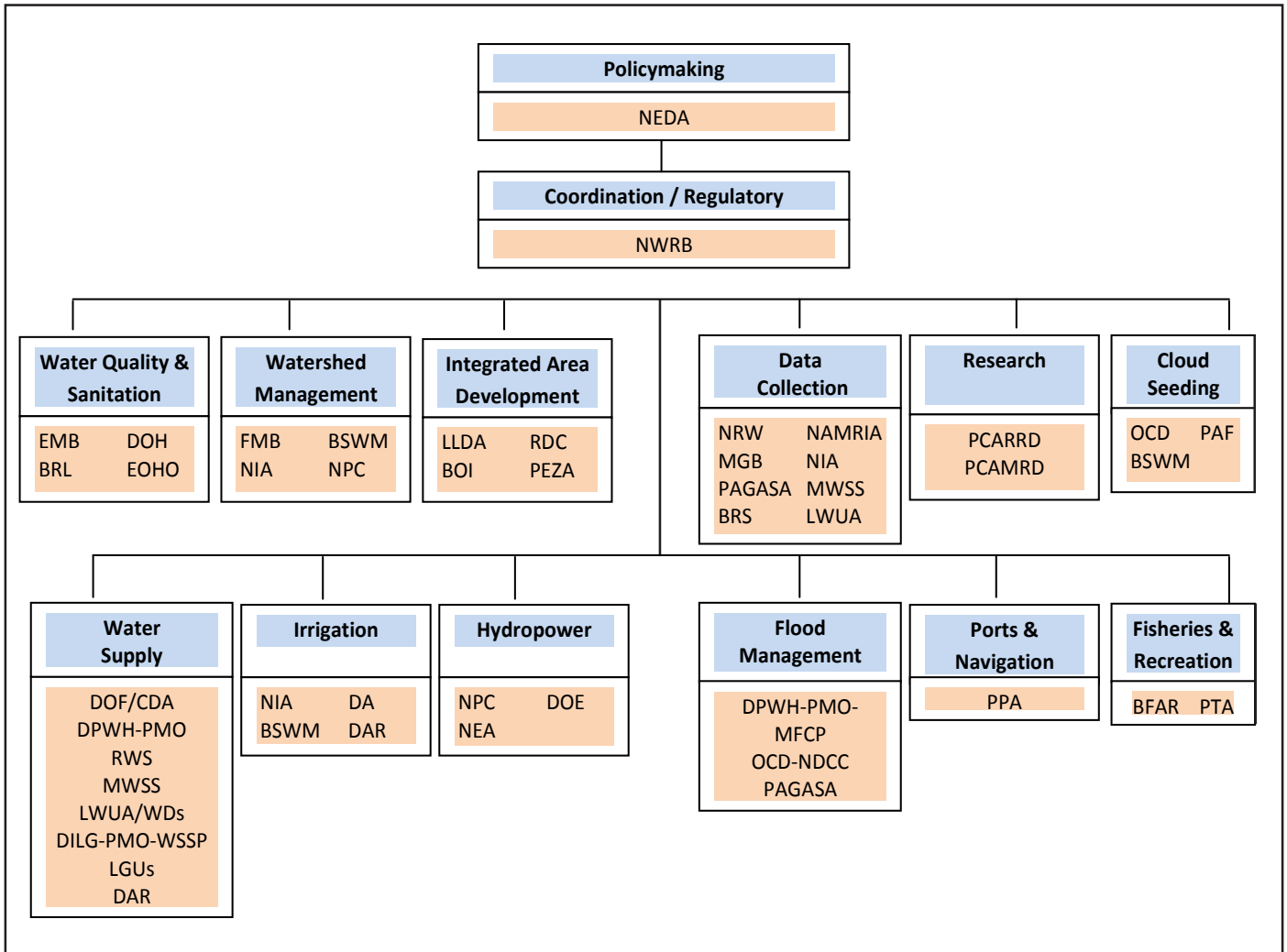
Environment and Natural Resources (DENR) is the lead government agency in charge of water resource management. However, the responsibility of planning and managing the country's water resources is shared with several government departments, bureaus and attached agencies concerned with different aspects of water resource management (Table 4). In addition, local government units (LGUs) are required to provide water supply subsystems, communal irrigation facilities, and implement social forestry and local flood control projects, subject to the supervision and control of the DENR.

Table 4: Key National Government Agencies Involved in Water Resource Management

Department	Line Agency	Functions
National Economic and Development Authority (NEDA)		Coordinates the preparation of national/regional/sectoral development policies and investment programs.
Department of Environment and Natural Resources (DENR)	National Water Resources Board (NWRB)	Administers/enforces the Water Code and serves as the lead coordinator for water resources management programs.
	Forest Management Bureau (FMB)	Formulates/implements policies and programs for the protection, development, and management of forest lands and watershed areas.
	Environmental Management Bureau (EMB)	Sets and enforces water quality and effluent standards, criteria, and guidelines for all aspects of water quality management.
Department of Agriculture (DA)	National Irrigation Administration (NIA)	Undertakes water resource projects for agricultural irrigation and other purposes, such as flood control and drainage, hydropower development, etc
	Bureau of Soil and Water Management (BSWM)	Formulates/implements policies and programs for the protection of existing and potential sources of soil and water for agricultural development
	Bureau of Fisheries and Aquatic Resources (BFAR)	Establishes plans for the proper protection and management of the country's fisheries and aquatics resources.
Department of Health (DOH)	Environmental Health Service (EHS)	Responsible for water supply and sanitation programs and strategies to forestall the spread of water-borne diseases.
National Power Corporation (NPC)		Develops and manages electric generation facilities including but not limited to hydroelectric dams and undertakes other activities related to watershed management.
Metropolitan Waterworks and Sewerage System (MWSS)		Regulates water concessionaires' rates and service standards in Metro Manila and maintains existing assets and infrastructure.
Local Water Utilities Administration (LWUA)		Promotes/finances/regulates the construction and operation of local water utilities outside Metro Manila.

Source: Adapted from Elazegui (2004), Philippine Water Supply Sector Roadmap (2010)

Figure 4: Functional Chart of Water-Related Agencies in the Philippines



Source: Philippine Water Supply Sector Roadmap (2010)

While in principle there is nothing wrong with involving a number of institutions in water resource management, the problem lies in the absence of a single institution that has the overall power and authority to manage water resources in the Philippines. Instead, there are different agencies with varying degrees of power and responsibility over water resource management (Figure 4). These powers and responsibilities are often overlapping, and in some cases, even conflicting given the multiple values and uses that water resources have for different sectors of society.

An oft-cited example is the Utilities Administration (LWUA), which functions as both financing institution and regulator. As Rola, Francisco and Liguton (2004) noted, “no legal basis exists that supports the coordination and complementation of the different functions of the institutions involved.” It was also pointed out that there is an apparent lack of coordination and coherence of activities and standards among agencies involved in water quality monitoring, particularly the

Department of Health (DOH) and the DENR-EMB (Elazegui, 2004).

The Philippines has an extensive body of water and water-related legislations that provide the legal bases for policies and regulations concerning water resource management in the country. These include the Water Code of 1976, Revised Forestry Code of 1975, Provincial Water Utilities Act of 1973, and the National Integrated Protected Areas System Act of 1992, among others (Annex 1). However, many of these laws are considered to be *ad hoc* and limited in coverage, and only constitute “a partial [and] implicit framework” that fail to integrate key areas of water resource management (Bautista and Tan, 2003). It must also be noted that many of these laws are outdated in terms of appropriate policies for water resource management and economic pricing.

Finally, it must be pointed out that the biggest hindrance to effective water resource management in the Philippines is the government’s perceived lack of political will to prioritize the sustainable management

of the country's water resources and effectively implement existing laws and regulations on water resource management. The Philippine government has long been described by pundits as a "soft state"⁷ that is prone to capture by vested interests. The poor state of the country's water resources is proof of the government's continued inefficiency and inability to consistently deliver on its mandate to ensure the "optimum development and rational utilization of these resources."⁸

Policy Options for Improving Water Resource Management in the Philippines

The threat of water scarcity is a complex problem that will involve multiple long-term solutions that cut across different sectors of society. The successful management of the country's water resources will demand an integrated approach that takes into consideration the government's different policies and programs on agriculture, land use planning, energy development, industrial production and population control, among others.

Managing the multiple values and resource uses that water has for different sectors of society will require extensive coordination among the different agencies, institutions and user groups involved in water resource management across all administrative levels. However, coordination among different water institutions in the Philippines is cumbersome and problematic given the sheer number of agencies involved. To address this, a number of legislative proposals in the Senate in the Fifteenth Congress have called for the creation of a supraregulatory body that will take charge of regulating the resource extraction and economic pricing activities of all water utilities in the country.

Senate Bill Nos. 611 and 2641 (Water Regulatory Act) respectively authored by Senators Jinggoy Ejercito Estrada and Edgardo J. Angara seek to streamline the economic regulatory functions of the government through the creation of a Water Regulatory Commission (WRC) that will take over the current functions, powers, and responsibilities of the NWRB. Aside from its policymaking and resource regulatory functions, the

scope of the proposed WRC's functions and controls will be expanded to include the economic regulation functions currently being undertaken by the Metropolitan Waterworks and Sewerage System (MWSS), LWUA, and other offices and agencies concerned with the economic regulation of water.

Proponents of this legislative measure claim that the importance of water as a critical resource demands the establishment of a permanent government commission tasked to monitor and coordinate water resource management efforts in the country. However, it must be pointed out that the powers and functions of the proposed WRC will be strictly limited to policy formulation, coordination, monitoring and economic regulation. The proposed WRC will not be involved in the actual implementation of water resource management policies and programs since these powers and functions will remain with the various key national line agencies (such as DENR) whose heads will no longer be part of the proposed WRC (since the WRC will be composed of three to five commissioners to be appointed by the President). Some quarters fear that the establishment of a permanent government commission will create another level in the bureaucracy that will further complicate the leadership issue among agencies in the water sector and convolute the country's already complex water resource management framework.

Instead of establishing a permanent government commission, there is a proposal for the NWRB to be reorganized in order to reflect the sheer importance of water as a resource and to highlight the government's primary role in ensuring safe and adequate water supplies for the population. The threat of water scarcity is a pressing national issue that affects all sectors of society and demands the attention and leadership of no less than the President. As such, it is proposed that the NWRB be reorganized and placed under the administrative supervision of the Office of the President. Furthermore, it is proposed that the new NWRB be composed of the President as chairman, the DENR Secretary as vice-chairman, and the Secretaries of the National Economic and Development Authority (NEDA) and the DA, and the Director of the University of the Philippines-National Hydraulic Research Center (UP-NHRC) as members. Placing the NWRB under the direct control and supervision of the President will clarify the leadership issue among agencies and allow the President to arbitrate and resolve the various sectoral issues and conflicts over the country's water resources, based on the development goals and thrusts the President identified in his/her Medium-Term Philippine Development Plan.

⁷ "Soft States" as defined by Gunnar Myrdal (1968) are states that are dominated by powerful interests that exploit the power of the State or Government to serve their own interests rather than the interests of their citizens. Policies decided on are often not enforced, if they are enacted at all, and that the authorities, even when framing policies, are reluctant to place obligations on people.

⁸ This is the primary objective of the Water Code of the Philippines under Presidential Decree No. 1067 which took effect in December 31, 1976.

The resource regulatory functions of the national government may also be rationalized by consolidating the powers and functions of different water sector agencies and offices. The mandate of the EMB to ensure that environmental health and safety standards are being met should be expanded to include the public health functions relating to water resource management currently being undertaken by the DOH-Environmental Health Service (DOH-EHS). The development and maintenance of small-scale irrigation facilities being undertaken by the BSWM should likewise be transferred to the National Irrigation Administration (NIA).

Various studies have called for the creation and passage of an omnibus water resource management bill that will rationalize and consolidate all water-related legislations in the country. It is suggested that the Water Code of 1976 be revised to serve as a base for incorporating laws such as the Clean Water Act of 2004, National Water Crisis Act of 1995, and the Rainwater Harvesting Act of 1989, among others. Along with the proposed National Land Use Act,⁹ an omnibus water resource management bill is envisaged to provide order and clarity to the government's complicated land and water resource management framework.

Senate Bill No. 933 (Water Resources Management Act) authored by Senator Manuel "Lito" M. Lapid seeks to adapt an integrated approach to water resources development for a more efficient and sustainable policymaking and implementation. However, the bill needs to be more comprehensive in order to rationalize and consolidate all water-related legislations in the

country which may be attained through an omnibus water resource management measure.

An omnibus water resource management bill must be complemented by critical legislation such as Senate Bill No. 1367 (Final Forest Limits Act) authored by Senator Loren B. Legarda, which seeks to implement Section 4, Article XII of the 1987 Philippine Constitution which states that "*Congress shall, as soon as possible, determine by law the specific limits of forest lands and national parks, marking clearly their boundaries on the ground. Thereafter, such forest lands and national parks shall be consented and may not be increased nor diminished, except by law.*" The permanent delineation of forest lands will go a long way to strengthen the ecological stability of the country's watersheds, improve the rate of groundwater recharge, and reduce the risk of flooding and landslides in environmentally-critical areas.

Finally, it must be stressed that all of these laws will be for naught if they are not implemented consistently and effectively. It may be surmised that the formulation and passage of these laws have done little to stem the steady degradation of the country's water resources. Given the importance of water as a basic requirement for human life and a vital input for socioeconomic progress, Congress must use its significant oversight functions to regularly monitor water agencies' performance and hold them accountable for their actions (or inactions). Congress must likewise ensure that these agencies are empowered with the appropriate budget to enable them to effectively perform their duties.

⁹ Different versions of the proposed National Land Use Act are currently being deliberated at the Committee level in both Houses of Congress. In the Senate, there are five bills being discussed primarily by the Committee on Environment and Natural Resources: Senate Bill Nos. 109, 141, 647, 1369 and 2673, which are respectively authored by Senators Gregorio B. Honasan, Pia S. Cayetano, Jinggoy Ejercito Estrada, Loren B. Legarda, and Juan Miguel F. Zubiri.

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This Policy Brief was principally prepared by Mr. Harry S. Pasimio, Jr. under the supervision of SEPO's Directors and the overall guidance of its Director General.

The views and opinions expressed are those of SEPO and do not necessarily reflect those of the Senate, of its leadership, or of its individual members. For comments and suggestions, please e-mail us at sepo@senate.gov.ph.

Annex 1: Key Water-Related Legislations

STATUTE	PURPOSE/MANDATE	STATUS OF IMPLEMENTATION
Commonwealth Act No. 383, Anti-Dumping Law (1938)	Prohibits dumping of refuse, waste matter or other substances into rivers	Not fully enforced
Republic Act No. 4850, Laguna Lake Development Authority (LLDA) Act (1966), as amended by Presidential Decree No. 813 (1975)	Regulates and controls the pollution of the Laguna de Bay Region, including sewage works and industrial waste disposal systems	Strictly enforcing but not to domestic wastewater
Republic Act No. 6234, Metropolitan Waterworks and Sewerage System (MWSS) Act (1971)	Constructs, operates and maintains water systems, sewerage and sanitation facilities in the Metro Manila area	Limited sewerage and sanitation service coverage
Presidential Decree No. 198, Provincial Water Utilities Act (1973)	Authorizes the creation of water districts to operate and administer water supply and wastewater disposal systems in the provincial areas	Operation and management of wastewater disposal system not implemented
Presidential Decree No. 281, Pasig River Development Council Act (1973)	Regulates and controls the pollution of the Pasig River	Not fully enforced
Presidential Decree No. 600, Marine Pollution Decree (1974), as amended by Presidential Decree No. 979 (1976)	Regulates and controls the pollution of seas	Coverage is not efficiently monitored due to limited resources
Presidential Decree No. 705, Revised Forestry Code (1975)	Provides criteria, guidelines and methods for the proper and accurate classification and survey of all lands of the public domain	Not fully enforced
Presidential Decree No. 856, Sanitation Code (1975)	Requires cities and municipalities to provide an adequate and efficient system for sewage collection, transport and disposal in their areas of jurisdiction	Not enforced and monitored, e.g., connection to sewer system by houses in areas where sewerage system is available
Presidential Decree No. 984, National Pollution Control Decree (1976)	Provides guidelines for the control of water pollution from industrial sources and sets penalties for violations; requires all polluters to secure permits	Not strictly enforced; compliance on the provision of sanitation and sewerage are not met
Presidential Decree No. 1067, Water Code (1976)	Consolidates legislations relating to ownership, development, exploitation and conservation of water resources	Not fully enforced
Presidential Decree No. 1096, National Building Code (1977)	Requires connection of new buildings to a water-borne sewerage system	Wastewater or sewage disposal are not fully enforced
Presidential Decree No. 1151, Environmental Policy Decree (1977)	Recognizes the right of the people to a healthy environment	Not strictly enforced especially on sanitation and sewerage provisions
Presidential Decree No. 1152, Environment Code (1977)	Provides guidelines to protect and improve the quality of water resources and defines responsibilities for surveillance and mitigation of pollution incidents	Only enforced on big polluters (i.e., industries)
Presidential Decree No. 1586, Environmental Impact Statement System Decree (1978)	Mandates the conduct of environmental impact assessment studies for all investments undertaken by the government and private sector	Project review is not strict on sanitation and sewerage provisions

STATUTE	PURPOSE/MANDATE	STATUS OF IMPLEMENTATION
Republic Act No. 6716, Rainwater Harvesting Act (1989)	Mandates the construction of water wells and rainwater collectors in all barangays	Not enforced and monitored
Republic Act No. 7160, Local Government Code (1991)	Devolves enforcement of laws on sanitation to local government units (LGUs) and the provision of basic services such as water supply, sanitation and flood control	Not strictly enforced due to budgetary constraints and low priority for sanitation and sewerage projects
Republic Act No. 7586, National Integrated Protected Areas System Act (1992)	Calls for the protection of outstanding, remarkable areas and biologically important public lands, bio-geographic zones, and related ecosystems	Not strictly enforced due to budgetary constraints and lack of manpower
Republic Act No. 8041, National Water Crisis Act (1995)	Provides urgent and effective measures to address the nationwide water crisis relating to issues on water supply, distribution, finance, privatization of state-run water facilities, the protection and conservation of watersheds and the waste and pilferage of water, including the serious matter of graft and corruption in all the water agencies	Was implemented during that period and resulted in the reorganization of the MWSS and LWUA
Republic Act No. 8371, Indigenous Peoples Rights Act (1997)	Protects the rights of indigenous peoples to own and participate in the planning for and management of natural resources found within their ancestral domain	Not strictly enforced due to budgetary constraints and lack of manpower
Republic Act No. 9003, Ecological Solid Waste Management Act (2000)	Provides the legal framework for a national program that will manage the control, transfer, transport, processing and disposal of solid waste in the country	Not strictly enforced
Republic Act No. 9147, Wildlife Resources Conservation and Protection Act (2001)	Mandates to conserve and protect wildlife species and their habitats in order to promote ecological balance and enhance biological biodiversity	Not fully enforced due to budgetary constraints and lack of manpower
Republic Act No. 9275, Clean Water Act (2004)	Provides for a comprehensive and integrated strategy to prevent and minimize water pollution from land-based sources	Not strictly enforced; compliance on the provision of sanitation and sewerage facilities have not been met
Republic Act No. 9729, Climate Change Act (2009)	Institutionalizes the government's climate change response mechanisms and harmonizes existing policies and programs	Not yet fully carried out and implemented due to budgetary constraints

Source: Adapted from the *Philippine Environment Monitor (2003)*