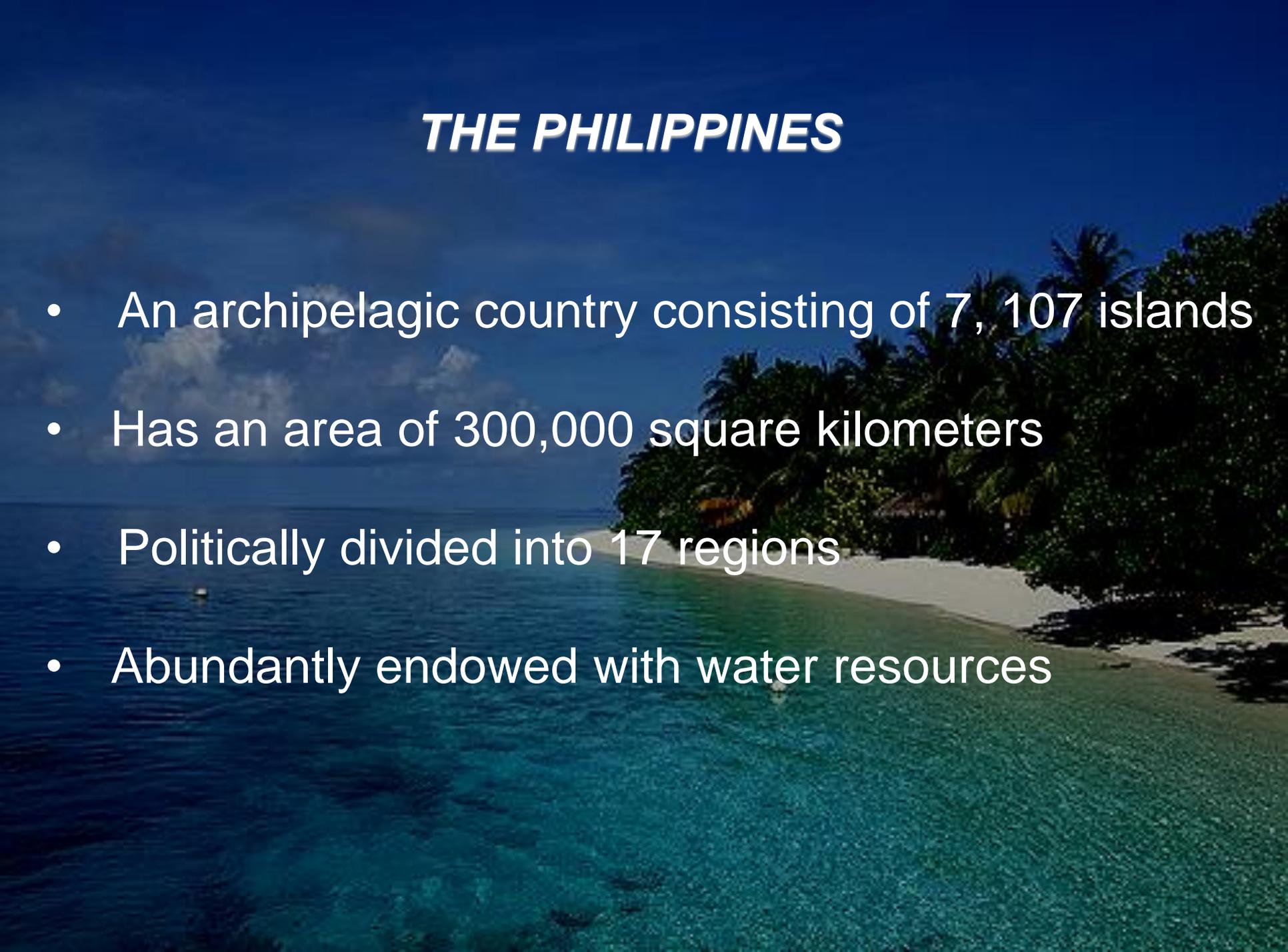




THE PHILIPPINE CLEAN WATER ACT AND WATER QUALITY MANAGEMENT PROGRAMS

***Ms. Leza A. Acorda-Cuevas
Environmental Management Bureau
Department of Environment and Natural Resources***

THE PHILIPPINES

- An archipelagic country consisting of 7, 107 islands
 - Has an area of 300,000 square kilometers
 - Politically divided into 17 regions
 - Abundantly endowed with water resources
- 
- A tropical beach scene with turquoise water, white sand, and palm trees. The water is clear and shallow, showing the sandy bottom. The beach is lined with lush green palm trees and other tropical vegetation. The sky is a deep blue with some light clouds. The overall atmosphere is serene and idyllic.

EXISTING WATER RESOURCES

➤ Inland Freshwater

❖ Rivers

- 18 major river basins (at least 1,400 sq km drainage area)
- 421 principal rivers (less than 1,400 sq km drainage area)
- 296 principal rivers classified as of 2013 (70%)

❖ Lakes

- 79 natural lakes
- 10 lakes are major host for aquaculture production

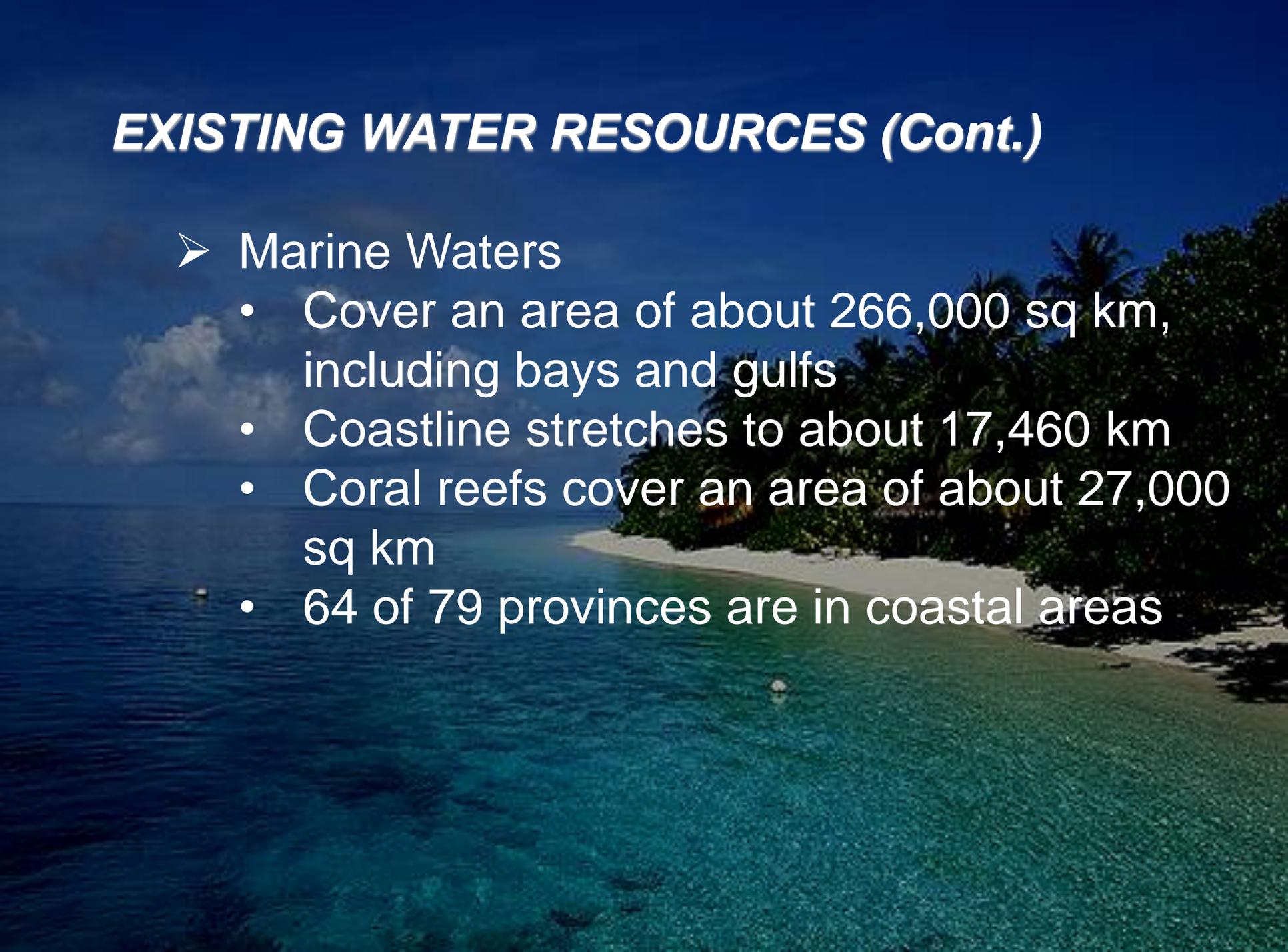
EXISTING WATER RESOURCES (Cont.)

- Groundwater
 - Extensive reservoir with an aggregate area of about 50,000 sq km
 - Recharged by rain and seepage from rivers and lakes
 - Favorable groundwater basins are underlaid by about 100,000 sq km of various rock formations

EXISTING WATER RESOURCES (Cont.)

➤ Marine Waters

- Cover an area of about 266,000 sq km, including bays and gulfs
- Coastline stretches to about 17,460 km
- Coral reefs cover an area of about 27,000 sq km
- 64 of 79 provinces are in coastal areas



MAJOR RIVER BASINS

River Basin	Region	Drainage Area (sq. km.)
Cagayan River	Cagayan Valley	25,649
Mindanao River	Southern Mindanao	23,169
Agusan River	Northern Mindanao	10,921
Pampanga River	Central Luzon	9,759
Agno River	Central Luzon	5,962
Abra River	Ilocos	5,125
Pasig-Laguna Lake	Southern Luzon	4,678
Bicol River	Bicol	3,771
Abulug River	Cagayan Valley	3,372

MAJOR RIVER BASINS (Cont.)

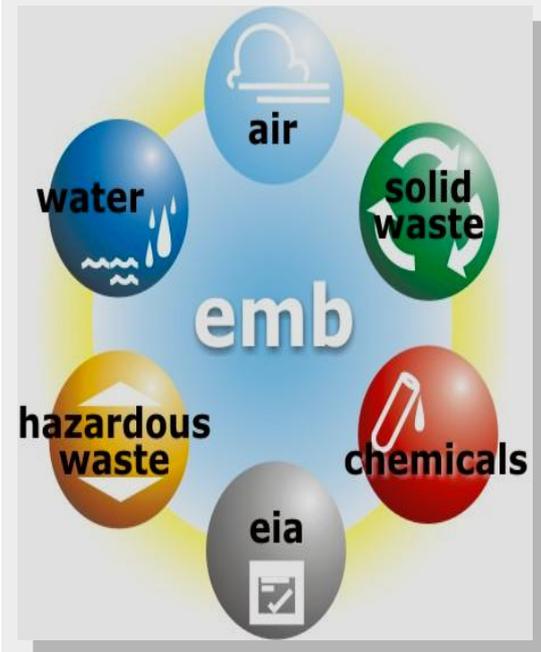
River Basin	Region	Drainage Area (sq. km.)
Tagum-Libuganon River	Southeastern Mindanao	3,064
Ilog-Hilabangan	Western Visayas	1,945
Panay River	Western Visayas	1,843
Tagoloan River	Northern Mindanao	1,704
Agus River	Southern Mindanao	1,645
Davao River	Southeastern Mindanao	1,623
Cagayan River	Northern Mindanao	1,521
Jalaud River	Western Visayas	1,503
Buayan-Malungun River	Southeastern Mindanao	1,434

MAJOR LAKES

Name of Lake	Location	Area (ha.)
Laguna de Bay	Laguna and Rizal	90,000
Lake Lanao	Lanao del Sur	34,700
Taal Lake	Batangas	23,356
Lake Mainit	Surigao del Norte/Agusan del Norte	17,430
Naujan Lake	Oriental Mindoro	7,899
Lake Butuan	Sultan Kudarat	6,134
Lake Buhi	Camarines Sur	3,800
Lake Labas	Cotabato	2,140
Lake Calaungan	Mindoro	2,111
Lake Bato	Camarines Sur	1,800

EMB MANDATE

EMB was created under EO 192 and became a line Bureau by virtue of Sec. 34 of Philippine Clean Air Act of 1999. It is mandated to implement on a nationwide scale the said Act and other environmental laws to wit:



- PD 1586 (Environmental Impact Statement System of 1978)
- RA 6969 (Toxic Substances and Hazardous Waste Control Act of 1990)
- RA 8749 (Clean Air Act of 1999)
- RA 9003 (Ecological Solid Waste Management Act of 2000)
- **RA 9275 (Philippine Clean Water Act of 2004)**
- RA 9512 (Environmental Awareness Act of 2008)

EMB is also mandated to provide research and laboratory services; and serve as secretariat in the adjudication of pollution cases.

Sources of Pollution - National



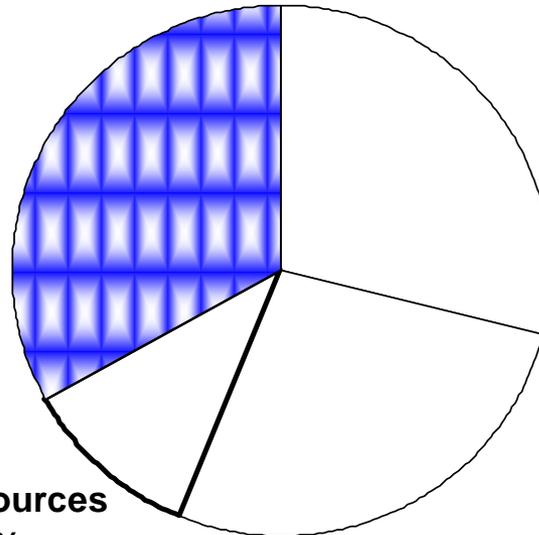
**Domestic
Sources 33%**



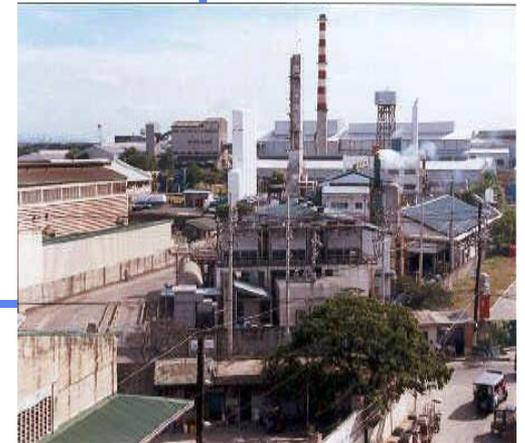
**Agricultural
29%**



**Other Sources
11%**



Industrial 27%



RELEVANT LEGISLATIONS AND POLICIES

**Republic Act No. 9275
or the Philippine Clean Water Act of 2004**

“Policy of the State to protect, preserve and revive the quality of fresh, brackish and marine water”

“DENR as the primary agency in the implementation of RA 9275”



DENR Administrative Order No. 2005-10
IMPLEMENTING RULES AND REGULATIONS
of the
Philippine Clean Water Act of 2004
(Republic Act No. 9275)



ENVIRONMENTAL MANAGEMENT BUREAU
Department of Environment and Natural Resources
2005

RA 9275

**THE CLEAN WATER ACT
IS A MILESTONE
LEGISLATION THAT CAN
DELIVER THE MUCH
NEEDED SUPPORT IN
OUR EFFORT TO
ADDRESS WATER
CONCERNS. THIS LAW
CALLS FOR AN
INTEGRATED, HOLISTIC,
DECENTRALIZED AND
PARTICIPATORY
APPROACH TO ABATING,
PREVENTING AND
CONTROLLING WATER
POLLUTION.**

DECLARATION OF PRINCIPLES AND POLICIES

Sustainable Development Framework

- # Holistic National Program
- # Operate under an Integrated WQ Framework
- # Self-regulation among industries thru MBIs
- # Focus on pollution prevention
- # With a system of accountability
- # Streamline procedures and processes
- # Mobilize/Encourage participation of Civil society and other sectors through education and access to information

Conceptual Framework

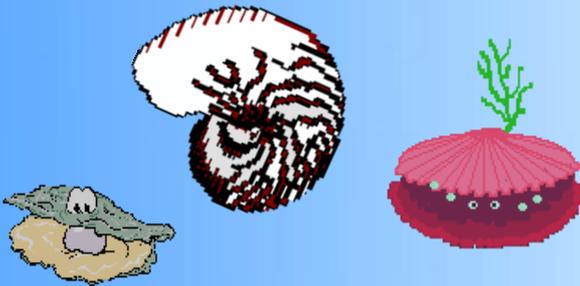
Integrated Water Quality Management Framework

Water Quality Mgt. Action Plan (WQMAP)

Households

Industries

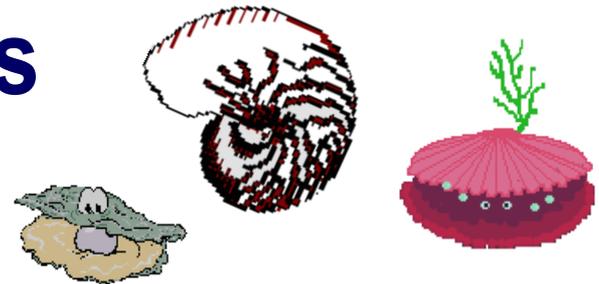
Other Non-Point Sources



- Designation of Water Quality Management Areas (WQMA)
- Non-Attainment Areas (NAA)
- Natl. Sewerage and Septage Management Program
- Classification/Reclassification of water bodies
- Groundwater Vulnerability Mapping
- WQ Guidelines
- Effluent Standards
- Categorization of Industry
- Wastewater Charge System
- Discharge Permits
- Financial Liability
- Programmatic EIA
- Incentives and Rewards
- Prohibitions/Sanctions/Actions

Coverage

- ✓ **Water Quality Management in all water bodies**
- ✓ **Primarily apply to abatement & control of pollution from land-based sources**
- ✓ **Enforcement of WQ standards, regulations and penalties**

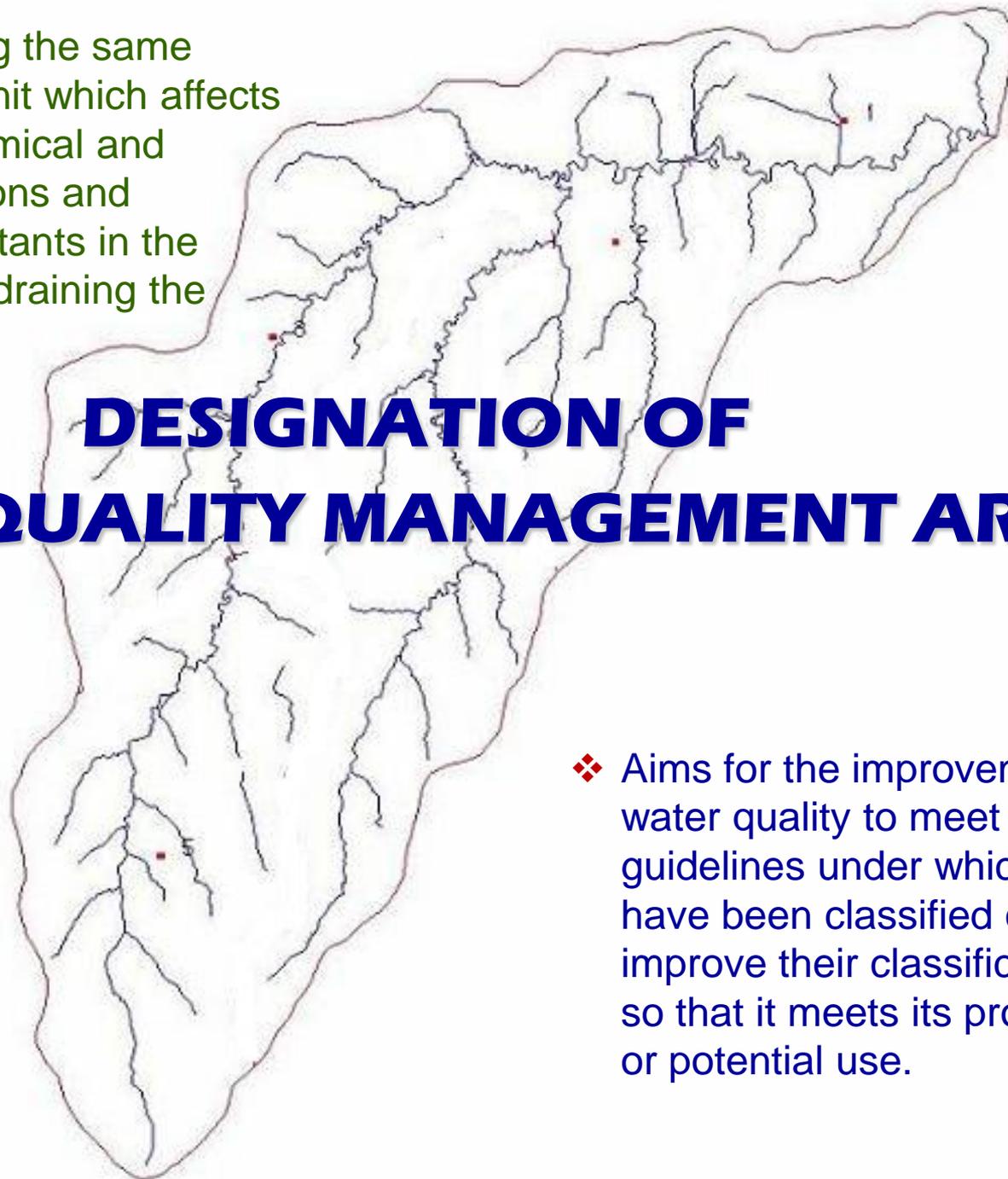




WATER QUALITY MANAGEMENT PROGRAMS

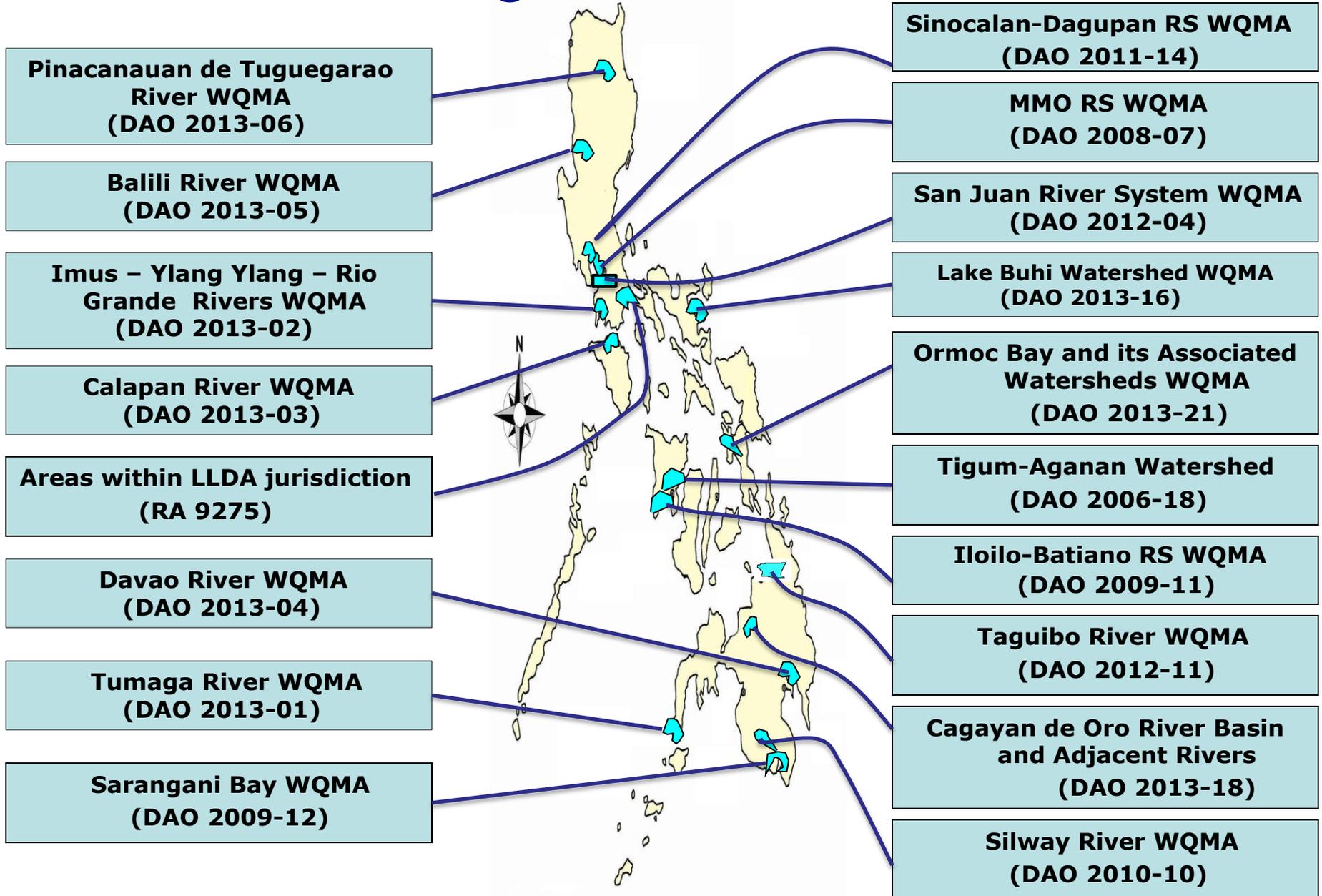
- ❖ An area covering the same physiographic unit which affects the physico-chemical and biological reactions and diffusion of pollutants in the bodies of water draining the said area.

DESIGNATION OF WATER QUALITY MANAGEMENT AREAS



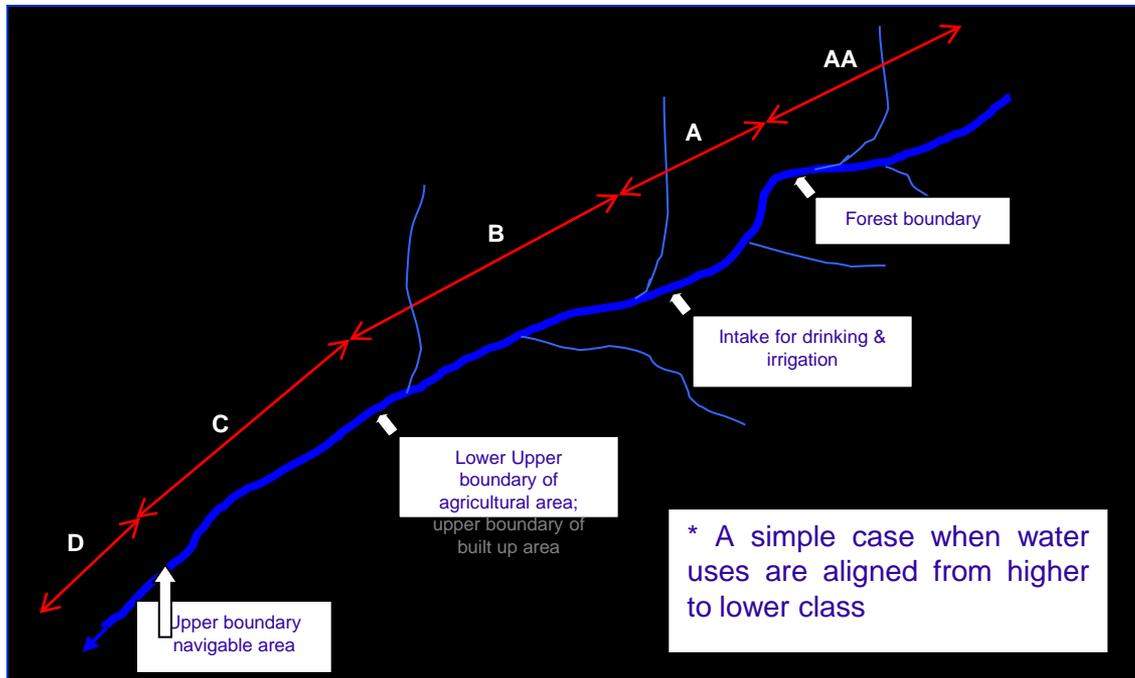
- ❖ Aims for the improvement of water quality to meet the guidelines under which they have been classified or to improve their classification so that it meets its projected or potential use.

Designated WQMAs



WATER BODY CLASSIFICATION

Classification/Reclassification of Surface Fresh Waters, Coastal and Marine Waters



Philippine waters shall be classified based primarily on **beneficial uses** that are expected to last at least for the next 10 years . Assessment of water quality shall be undertaken to determine whether the quality of the water is meeting the criteria for the designated class or uses of the waters.

Water Classification and Usage of Fresh Surface Waters

Classification	Beneficial Use
Class AA	Public Water Supply Class I – Intended primarily for waters having watersheds, which are uninhabited and otherwise protected, and which require only approved disinfection to meet the PNSDW
Class A	Public Water Supply Class II – For sources of water supply that will require complete treatment (coagulation, sedimentation, filtration and disinfection) to meet the PNSDW
Class B	Recreational Water Class I – For primary contact recreation such as bathing, swimming, skin diving, etc. (particularly those designated for tourism purposes)
Class C	1. Fishery Water for the propagation and growth of fish and other aquatic resources 2. Recreational Water Class II (Boating, etc.) 3. Industrial Water Supply Class I (For manufacturing processes after treatment)
Class D	1. For agriculture, irrigation, and livestock watering, etc. 2. Industrial Water Supply Class II (e.g. cooling, etc.) 3. Other inland waters, by their quality, belong to this classification

Water Classification and Usage of Coastal and Marine Waters

Classification	Beneficial Use
Class SA	<ol style="list-style-type: none"> 1. National marine parks and reserves established under Presidential Proclamation 1801, other existing laws), and/or declared as such by appropriate government agency. 2. Waters suitable for the propagation, survival and harvesting of shellfish for commercial purposes. 3. Coral reef parks and reserves designated by law and concerned authorities.
Class SB	<ol style="list-style-type: none"> 1. Fishery Water Class I (Spawning areas for milkfish (<i>Chanos chanos</i>) and similar species 2. Tourist Zones – For ecotourism and recreational activities 3. Recreational Water Class I (Areas regularly used by the public for bathing, swimming, skin diving, etc.)
Class SC	<ol style="list-style-type: none"> 1. Fishery Water Class II (Commercial and sustenance fishing) 2. Recreational Water Class II – For boating, etc.) 3. Marshy and/or mangrove areas declared as fish and wildlife sanctuaries
Class SD	<ol style="list-style-type: none"> 1. Industrial Water Supply – For manufacturing processes after treatment, cooling, etc.) 2. Other coastal and marine waters, by their quality, belong to this classification

Freshwater Body Classification by Region

Region	I	II	III	IV-A	IV-B	V	VI	VII	VIII	IX	X	XI	XII	CARAGA	NCR	CAR	ARMM	Total
Class AA								1				2				2		5
Class A	10	3	18	3	16	25	28	22	1	32	40	9	9	11	1	11		239
Class B	7	8	12	17	14	15	25	15	6	33	1	12	13	1		20		199
Class C	11	34	40	37	30	18	47	10	39	6	11	10	15	12	5	9	2	336
Class D			2		2	2		1				3	5	9				24
Total	28	45	72	57	62	60	100	49	46	71	52	36	42	33	6	42	2	803

Note: There are water bodies that have more than one classification, i.e. Class A upstream, B midstream and C downstream.

Marine Water Body Classification by Region

Region	I	II	III	IV-A	IV-B	V	VI	VII	VIII	IX	X	XI	XII	CARAGA	NCR	CAR	ARMM	Total
Class SA					2		1	2						1				6
Class SB	1		2		4	2	31	6				7	21	5	1			80
Class SC	1		2	1		2	18	4	10		1		5	4			1	49
Class SD									2									2
Total	2	0	4	1	6	4	50	12	12	0	1	7	26	10	1	0	1	137

Note: There are water bodies that have more than one classification i.e. Class SA , SB and SC in one bay.

Total Water Body Classification by Region

	I	II	III	IV-A	IV-B	V	VI	VII	VIII	IX	X	XI	XII	CAR	CARAGA	NCR	ARMM	Total
Fresh Water	28	45	72	57	62	60	100	49	46	71	52	36	42	33	6	42	2	803
Marine Water	2	0	4	1	6	4	50	12	12	0	1	7	26	10	1	0	1	137
Grand Total	30	45	76	58	68	64	150	61	58	71	53	43	68	43	7	42	3	940

REGULAR WATER QUALITY MONITORING



Marikina River



Pasig River

San Juan
River



SAGIP ILOG PROGRAM

- **Linkaging with LGUs, NGOs and other interest groups**



ADOPT-AN-ESTERO/WATER BODY PROGRAM

- The ***Linis Estero Program*** is a collaborative undertaking between and among the Estero Community, Donor-Partner, Local Government Unit/s and the DENR.
- Goal: To achieve a cleaner, safer and healthier metropolitan environment.
- No. Of MOAs signed : **304** (As of 31 Dec. 2013)
- No. Of water bodies adopted: **542** (As of 31 Dec. 2013)

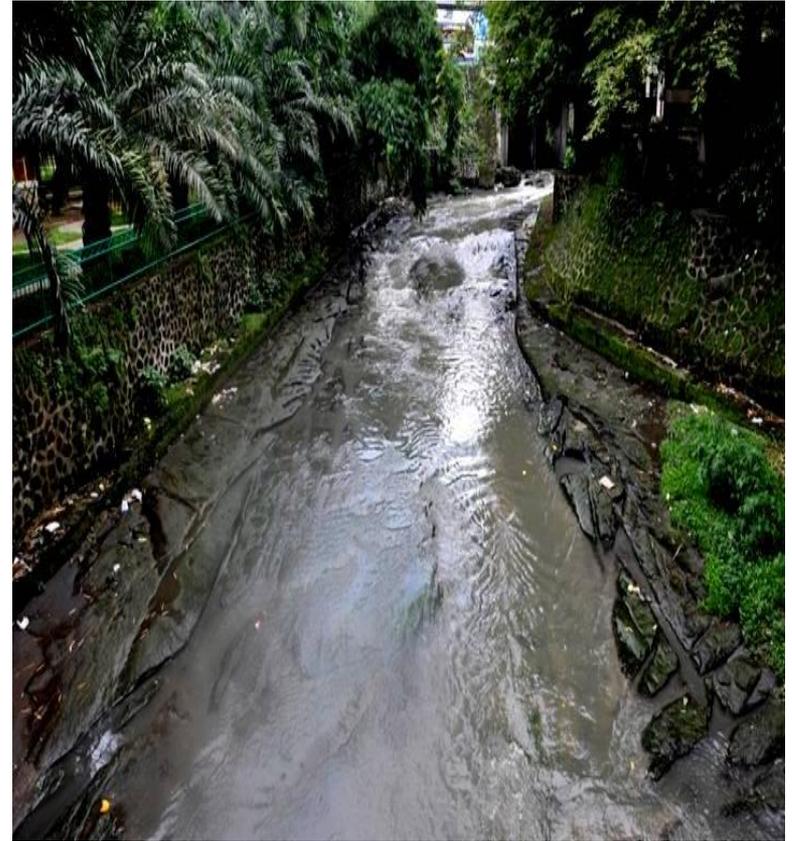
Clean-up of Clogged Creek and *Esteros*



Part of the Diliman Creek along EDSA, Quezon City



BEFORE (December 2010)



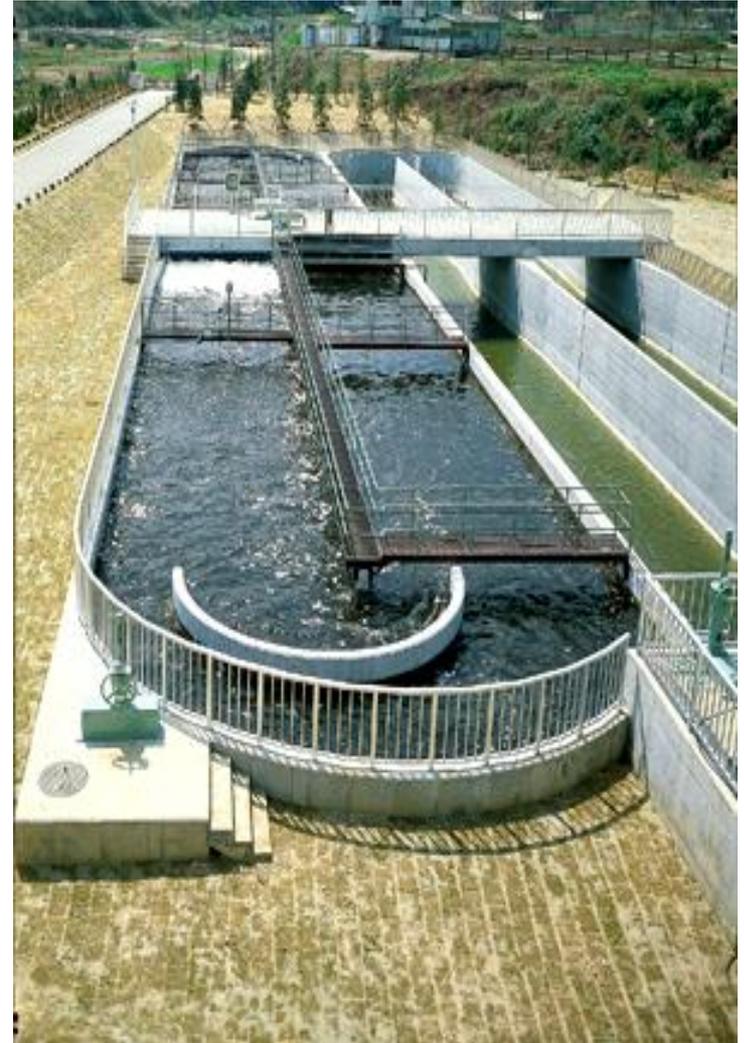
AFTER (August 2011)

BEACH ECOWATCH PROGRAM

Monitoring of DOT's frequently visited beaches by local and foreign tourists



COMPLIANCE MONITORING OF COMMERCIAL AND INDUSTRIAL ESTABLISHMENTS



ENFORCEMENT OF EFFLUENT STANDARDS

DENR AO 35, Series of 1990

- Effluent standards are limits in terms of concentration and/or volume that any wastewater discharge coming from a point sources shall meet
- Consist of a set of water quality parameters and their corresponding numerical limits
- Each set is prescribed for each of the water classes



DAO 2014-02 Appointment/Accreditation of Pollution Control Officer

- This Order shall cover the accreditation of PCOs of establishments that discharge solid, liquid, or gaseous wastes to the environment or whose activities, products, or services are actual and/or potential sources of land, water, or air pollution.
- This Order shall likewise apply to local government units (LGUs), development authorities, government-owned and controlled corporations, and other public establishments.



INDUSTRIAL ECOWATCH PROGRAM

A public disclosure program where the industrial and commercial establishments/firms will be rated with corresponding color in accordance with their environmental performance

- **Gold** – Outstanding
- **Silver** – Excellent
- **Green** – Very Good
- **Blue** – Good
- **Red** – Bad
- **Black** – Very Bad





**PHILIPPINE ENVIRONMENT
PARTNERSHIP PROGRAM**

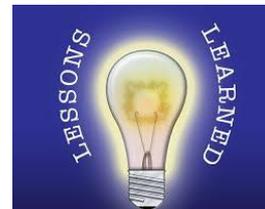
- ❖ Partnership program with industries which aim to support industry self-regulation
- ❖ Seeks to provide a package of incentives and reward mechanisms



Best Practices and Lessons Learned

(National State of the Brown Environment Report, 2007)

- EMB Region 4-A, cited a distillery plant in Lian, Batangas that uses the Reed System in their waste water treatment system. This system entails the use of the nodes or nodules of bamboo roots to cleanse the wastewater.
- EMB in Region 11 has cited a beverage manufacturing company, an industry in their locality that practices “waste to energy conversion” by treating the waste generated from its plant to produce methane gas which is now utilized as fuel in its boiler.





Best Practices and Lessons Learned

(National State of the Brown Environment Report, 2007)

- EMB Region 12 mentioned the use of vetiver grass as erosion control measure being adopted by the National Irrigation Administration, under the Water Resources Development Project.
 - Vetiver grass (*Vetiveria zizaniodes*) is an erosion control method used for erosion-prone areas.





Best Practices and Lessons Learned

- ❑ The program in Region 12 was implemented in Silway-Buayan, Pasada, and Banga River Irrigation Systems, where the use of vetiver grass was found to be effective in controlling erosion and in addressing sedimentation problems in catchment areas, canal embankments and also in critical slopes in the said region.
- ❑ In terms of water quality, it has contributed in reducing sediments and total suspended solids in water.



**“The earth is the Lord’s, and everything in it,
the world, and all who live in it;
for He founded it upon the seas
and established it upon the waters.”**

--- Psalm 24:1

**“Be good environmental stewards
for the glory of God.”**

--- Colossians 3:23



Our Earth
Our Future
Our Choice

Thank You !

