



# Lake Basin Management Initiatives in the Philippines

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# Outline



**ENABLING POLICIES AND  
FRAMEWORKS**



**ATLAS OF PHIL. LAKES**



**INTEGRATED LAKE BASIN  
MANAGEMENT APPROACH**



**MODELS OF LAKE  
MANAGEMENT IN THE PHIL.**



**COMMON ISSUES**



**STRATEGIES**



**WAY FORWARD**

# Enabling policies and frameworks

**At present,**  
there is **no**  
**national**  
**policy specific**  
**on wetlands**  
**conservation**  
but there are  
relevant  
laws in place  
that provide for  
their  
conservation and  
sustainable use.

1986 Philippine Constitution  
RA 8371 (Indigenous Peoples Rights Act)  
RA 8550 (Fisheries Code )  
RA 7586 (National Integrated Protected Areas System Act [NIPAS])  
RA 11038 (Expanded NIPAS Act)  
RA 9147 (Wildlife Act)  
RA 9072 (Cave Act)  
RA 7160 (Local Government Code)  
RA 9275 (Clean Water Act)  
RA 9729 (Climate Change Act)  
PD 1067 (Water Code )  
EO 111 (Ecotourism Policy)  
EO 578 (Policy on Biodiversity and Verde Island Marine Corridor)  
EO 533 (Integrated Coastal Management Policy)  
RA 4850 (Creation of the Laguna Lake Development Authority) and its amendment PD813, and EO927



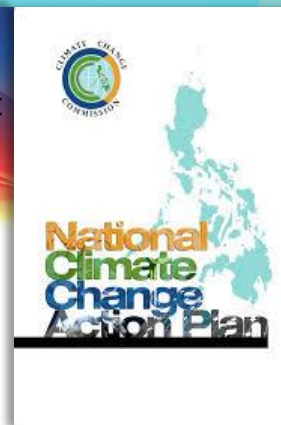
# Enabling policies and frameworks

## International Commitments



**SEDAI FRAMEWORK**  
FOR DISASTER RISK REDUCTION 2015-2030

## National Plans and Frameworks



National  
Disaster Risk  
Reduction  
Management  
Plan

Integrated Water  
Resources  
Management Plan



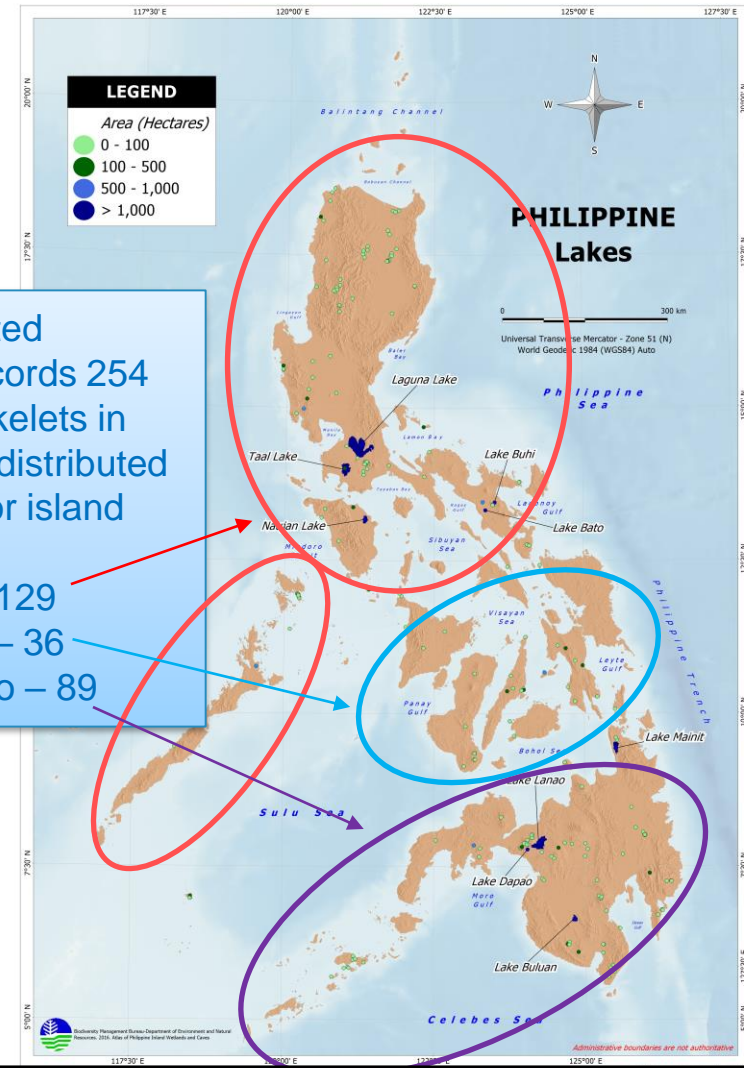
# Atlas of Philippine Lakes



DENR updated inventory records 254 lakes and lakelets in the country, distributed in the 3 major island group:

- ✓ Luzon – 129
- ✓ Visayas – 36
- ✓ Mindanao – 89

- ✓ 221 lakes identified
- ✓ more than 15 are protected under NIPAS





# Major Lakes of the Philippines



## Laguna de Bay

in Metro Manila, Laguna, and Rizal; 92,707.15 ha



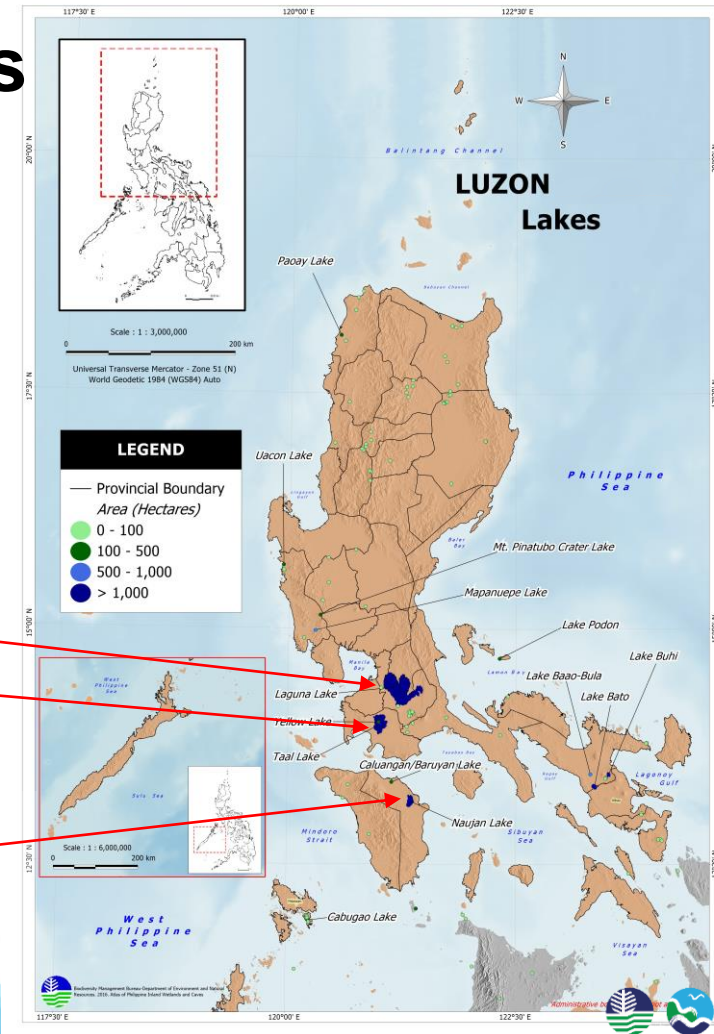
## Taal Lake

Within Taal Volcano Protected Landscape in Batangas  
26,360.25 ha



## Naujan Lake

Within Naujan Lake National Park in Oriental Mindoro  
8,665.84 ha



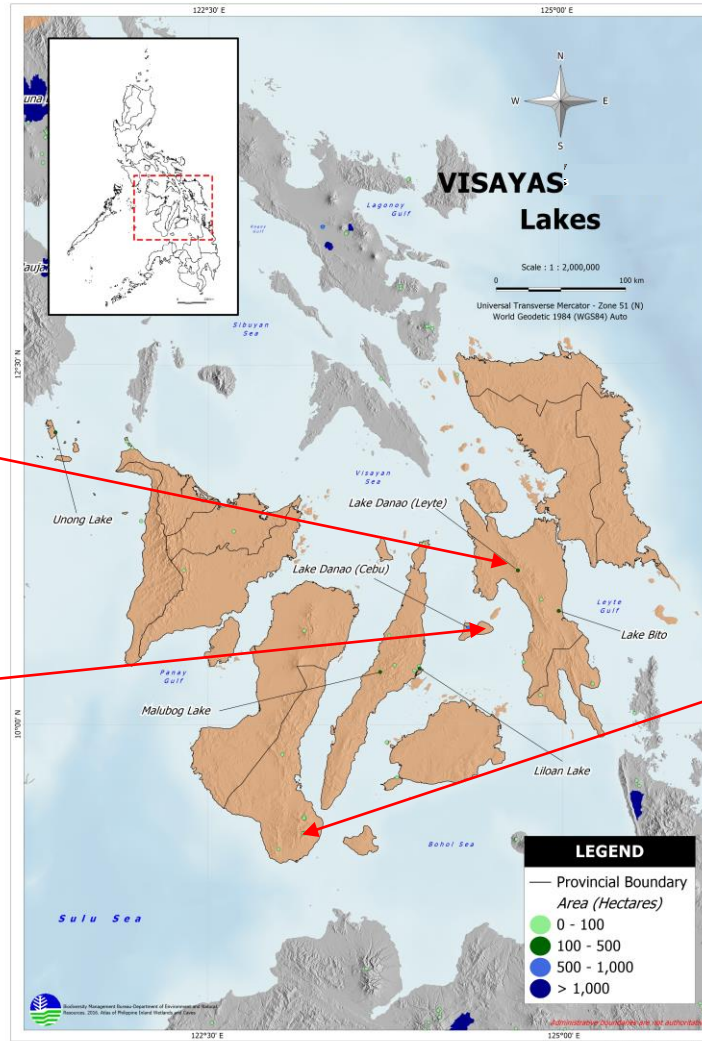
# Major Lakes of the Philippines

## Lake Danao

Within Lake Danao  
Natural Park in Leyte  
139.71 ha

## Lake Danao

Within Camotes Island  
Protected Landscape and  
Seascape in Cebu  
578.61 ha



## Lakes Balinsasayao and Danao

Within Balinsasayao  
Twin Lakes  
Natural Park  
in Negros Oriental  
72.98 and 27.08 ha





# Major Lakes of the Philippines

## Lake Mainit

In Agusan del Norte &  
Surigao del Norte  
14,287.14 ha



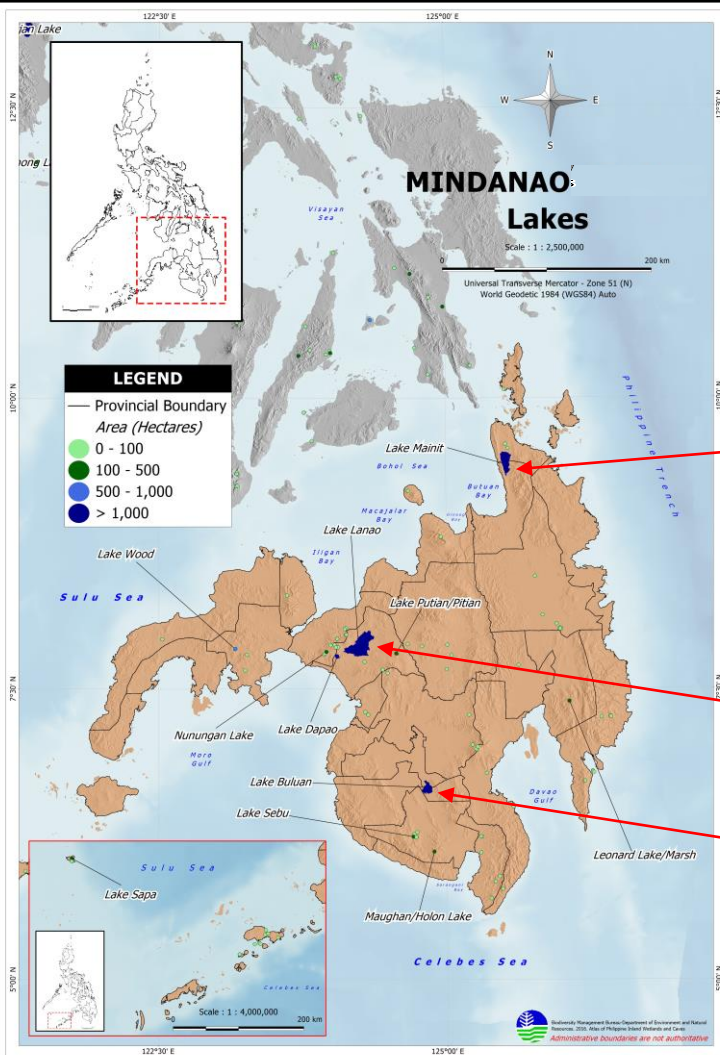
## Lanao Lake

In Lanao del Sur  
35,347.33 ha



## Buluan Lake

In Maguindanao,  
South Cotabato, & Sultan Kudarat  
7,830.87 ha





# Importance of Philippine Lakes

## MAJOR FUNCTIONS

- Source of 15% of country's total fisheries production (BFAR, 2014)
- Habitat to rich biodiversity: High in endemism but also with highly threatened species
- Provides fresh water, generates power, used as flood retention areas and catchment basins
- Known for cultural and religious values



Kayaking at Bulusan Lake, Sorsogon. © Ellie Balangue

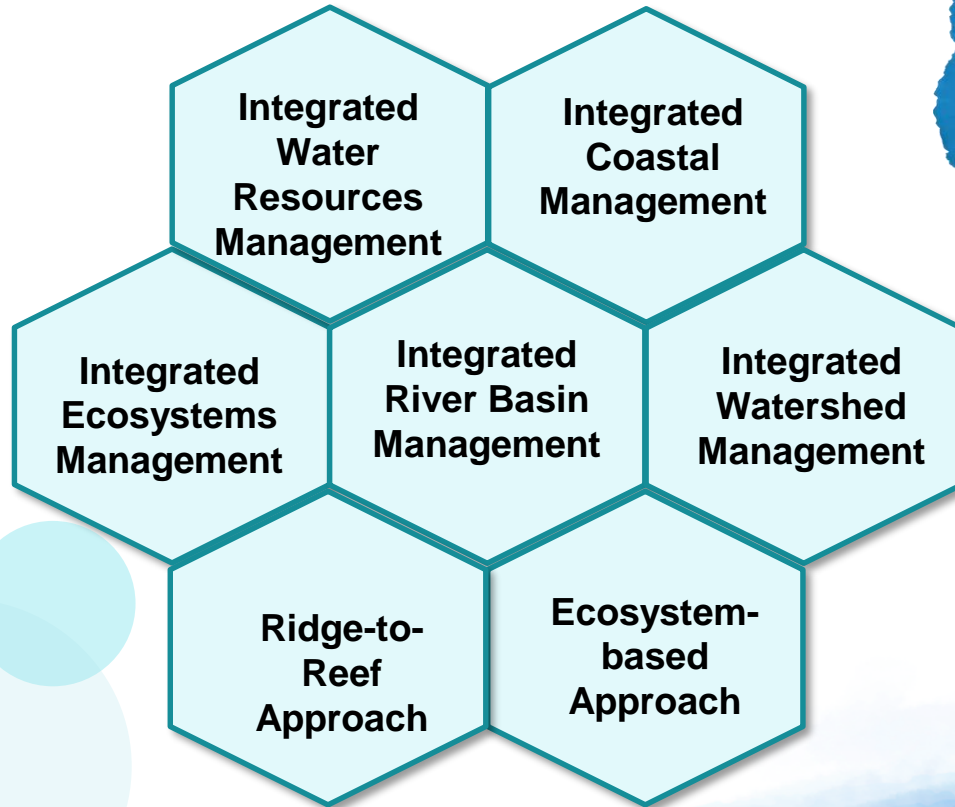


Taal Lake is a primary source of native commercial fishes such as Tawilis and Maliputo



Map showing lakes within Agusan Marsh Wildlife Sanctuary frequented by migratory birds. The marsh and its lakes also serves as catchment for Agusan River Basin. Source: PAMO AMWS

# Existing Approaches related to Integrated Lake Basin Management

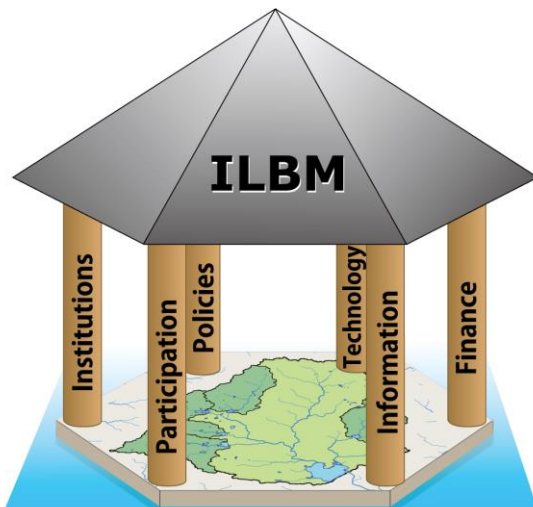


## INITIATIVES on:

- Watershed characterization and vulnerability assessments of critical watersheds
- Integrated river basin master plans for 20 major river basins
- Inventory and mapping of wetlands, with emphasis on connectivity of ecosystems
- Development of individual wetland management plan for critical wetlands

# Integrated Lake Basin Management through LLDA

- ILBM is already being applied by the Laguna Lake Development Authority (LLDA), an attached agency of the Department of Environment and Natural Resources (DENR)
- Another initiative on ILBM: Training by ILEC in collaboration with the LLDA, DENR and with the Save Lake Lanao Movement (SALLAM)



© ILEC





# Lake Management Models

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01

**National Integrated Protected  
Area System**

02

**Lake Management Authority**

03

**Local Government Administration**

04

**Declared Critical Habitat**

05

**International Recognition or  
Site Network member**  
(e.g. Ramsar Site, EAAFP Site etc.)



# National Integrated Protected Area System

- A Protected Area Management Board (PAMB) is required in all protected areas
- Composed of a multi-sectoral body, chaired by the DENR

Holon Lake (Allah Valley Protected Landscape)



PROTECTED AREA	NAME OF LAKE
<b>REGION I</b>	
Paoay Lake National Park*	Paoay Lake
<b>REGION III</b>	
Lake Malimanga BFS	Lake Malimanga
<b>REGION IV-A</b>	
Island of Alibijaban**	Dagatan Lake
Taal Volcano PL	Taal Lake, Yellow Lake
<b>REGION IV-B</b>	
Naujan Lake National Park	Naujan Lake
<b>REGION VII</b>	
Balinsasayao Twin Lakes NP	Lake Balinsasayao, Danao Lake, Kabalin-an Lake
<b>REGION VIII</b>	
Lake Danao Natural Park	Imelda Lake (Lake Danao)
<b>REGION XII</b>	
Lake Buluan GRBS	Lake Buluan
Allah Valley WFR	Lake Sebu
	Holon /Maughan Lake
<b>REGION XIII</b>	
Agusan Marsh WS	Lakes within Agusan Marsh
<b>ARMM</b>	
Lake Butig NP	Lake Butig
Lake Dapao NP	Lake Dapao
Pantuwaraya Lake NP	Pantuwaraya Lake
Lake Lanao WR	Lake Lanao

01

# National Integrated Protected Area System

## Taal Volcano Protected Landscape



- Habitat of site-endemics:
  - Tawilis (*Sardinella tawilis*)
  - Duhol or Freshwater snake (*Hydrophis semperi*)

- Legislated as a protected area through the Expanded NIPAS Act (Republic Act 11038)
- Managed by a Protected Area Management Board (PAMB) composed of 258 members:
  - 243 local government units,
  - 5 other government agencies,
  - 3 non-government organizations,
  - 1 academe,
  - 1 private sector and
  - 4 district representatives





01

# National Integrated Protected Area System

- The Buhi Wildlife Sanctuary PAMB manages the Rinconanda Lakes – **Lake Buhi**, Lakelets Manapao, Katugday, Makuwaw and Danao
- Home of the world's smallest commercial fish – sinarapan or tabios (*Mistichthys luzonensis*)



© Herre (1910)



© Dr. Abe Rotor

## Buhi Wildlife Sanctuary



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(2018)

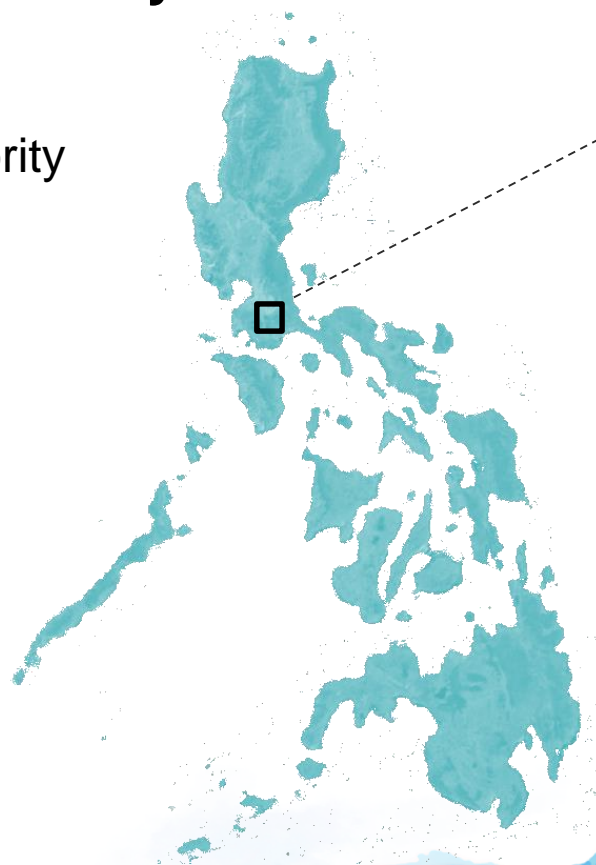
AREA  
1,672.53 ha

PROVINCE  
Camarines Sur



## Laguna Lake Development Authority (LLDA)

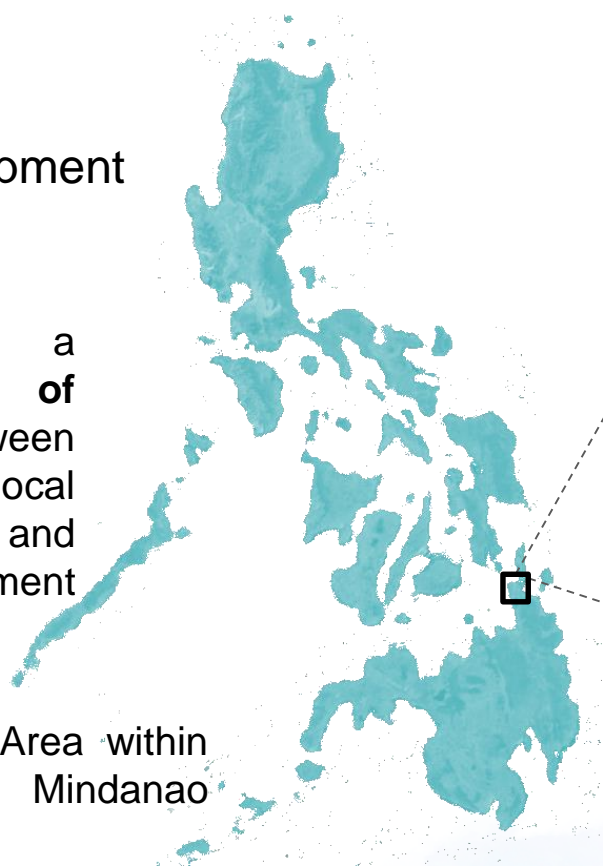
- The only lake basin management authority in the country **created through a special law** - Republic Act 4850 (1969)
- Other lakes within the Laguna de Bay Region are also under the jurisdiction of LLDA (7 crater lakes of San Pablo City and Tadalac Lake in Los Baños, Laguna)





## Lake Mainit Development Alliance

- Created through a **Memorandum of Agreement** between concerned local government units and National Government Agencies
- A Key Biodiversity Area within the Eastern Mindanao Biodiversity Corridor



AREA  
14,287.14 ha

PROVINCE/  
Surigao del Norte  
& Agusan del Sur

## Local Government Administration

Don Carlos **Lake Pinamaloy** Protected Landscape and Ecotourism Park

The Local Government Unit of Don Carlos in Bukidnon signed a **city ordinance** declaring the “*Don Carlos Lake Pinamaloy Protected Landscape and Ecotourism Park*” – to regulate fishing, ecotourism, and other related activities in the lake.

Clean-up drive

CEPA

**City Ordinance**

Tree planting

Infrastructure Development



## Declared Critical Habitat

### Malasi Tree Park and Wildlife Sanctuary

- Declared as a Critical Habitat of Philippine Ducks as per DENR Administrative Order 2012-01
- **Malasi Lakes**
  - Malasi Dakal Lake (11.91 has),
  - Malasi Baddi Lake (23.58 has),
  - Macabanning Lake (3.87 has)



©Merlijn van Weerd(2014)

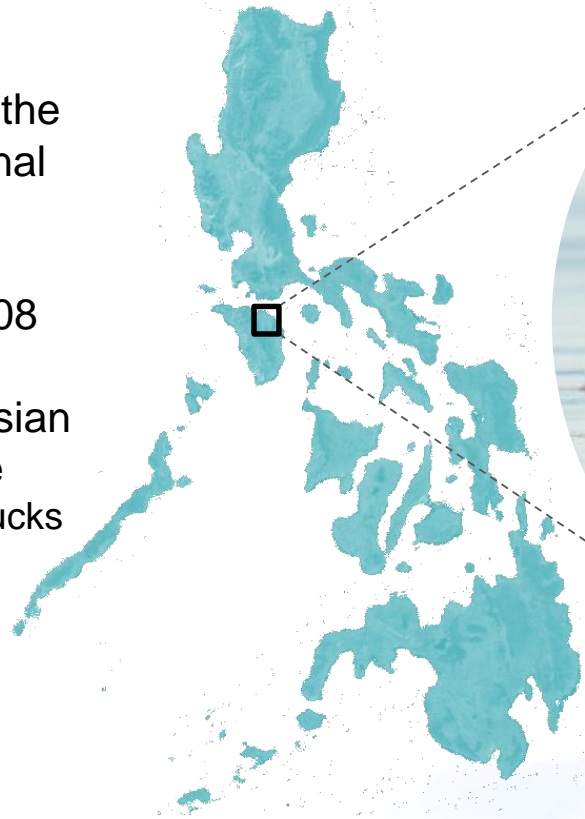
AREA  
39.37 ha

PROVINCE  
Isabela

05

## International Recognition or Site Network member

- Naujan Lake, within the National Lake National Park
- Ramsar Site No. 1008
- East Asian-Australasian Flyway Network Site specifically for tufted ducks (*Aythya fuligula*)



AREA  
8,665.84 ha

PROVINCE  
Oriental Mindoro



# Common Issues related to ILBM Implementation

01

Transboundary management

04

For some lakes, tributaries are not within the Protected Area or do not share common management unit

02

Lack of wetland (lake) management plan

05

Insufficient information on biodiversity and ecosystem services

03

Lentic-lotic ecosystems dynamics

06

Weak stakeholder participation in management for common use resource

# Strategies and Current Efforts

## NATIONAL POLICY AND PROGRAM ON WETLANDS/LAKE CONSERVATION

- harmonization of different mandates and policies
- creation of inter-agency working group or committee
- national policy and framework on Philippine Lakes

## STRENGTHENING CONSERVATION MEASURES

- additional Local Conservation Areas, NIPAS, Critical Habitat, Ramsar Sites etc.

## CAPACITY-BUILDING AND CEPA

- continuous CEPA and concerted efforts on lake basin management
- National Lake Congress
- Freshwater Biodiversity Symposium

## STAKEHOLDER ENGAGEMENT AND PARTNERSHIPS

- DA-BFAR\* and DENR-BMB convergence initiative
- private sector partnerships
- encourage citizen science and volunteerism

(\*DA-BFAR = Department of Agriculture – Bureau of Fisheries and Aquatic Resources)



**The Philippine  
Government, through the  
DENR-BMB, supports  
the global initiative  
towards mainstreaming  
of lakes in the global  
water agenda.**

**THANK YOU!**  
*Maraming Salamat!*



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