Department of Environment and Natural Resources
Biodiversity Management Bureau

available online at www.wetlands.ph

National Inland Wetland Conservation Program

Forum on Wetlands and Flood Management
Crown Plaza, Ortigas Center
14 December 2018

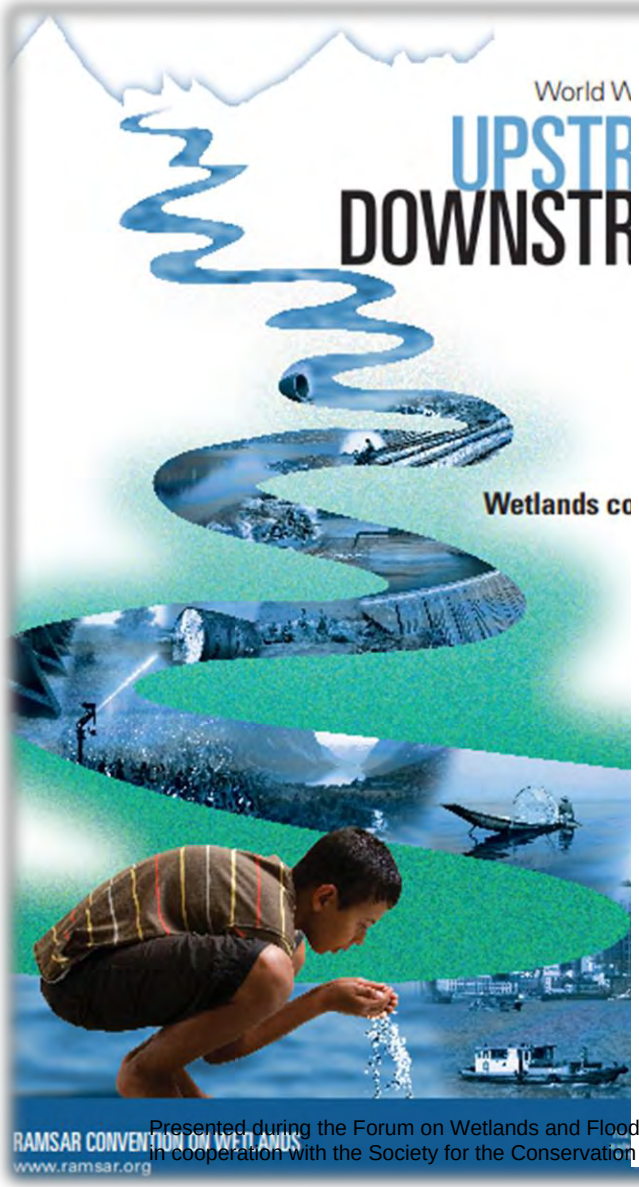
Presented during the Forum on Wetlands and Flood Management, Philippine Water Partnership in cooperation with the Society for the Conservation of Philippine Wetlands, Inc.

Ugnayan ng Iba't-ibang Buhay, Pahalagahan, Pangalagaan.
Biodiversity

Outline

- Wetland and water
- Wetlands and their ecosystem services
- Threats to wetlands
- Global response
- National Inland Wetland Conservation Program (NIWCP)
- Other initiatives

NO WETLANDS – NO WATER!
NO WATER – NO WETLANDS!



Wetlands ensure fresh water for all of us. They provide us with **drinking water**.

1.1 billion people do not have access to safe drinking water.

Only 0.75% of the world's fresh water is accessible for direct human uses. The UN estimates that 2 billion people will not have access to safe drinking water by 2025.

Wetlands NEED water if they are to deliver the quality and quantity of water we depend on.

Wetlands and water play a vital role for the world's 800 million rural poor

Wetlands in a nutshell

"Wetlands provide essential services for nature and people. They provide water for consumption, protect us from floods, store carbon and other functions critical to achieve sustainable development. Yet, wetlands are under threat and are being lost faster than any other ecosystem mainly due to land use conversion, water diversion and infrastructure development. I invite you to take action to conserve, sustainably use and restore this vital ecosystem."

Martha Rojas Urrego, Secretary General of the Ramsar Convention on Wetlands

Why Wetlands are important?

1. Wetlands ensure fresh water for all of us

Wetlands provide us with drinking water. Only 0,75% of the world's fresh water is accessible for direct human uses. The UN estimates that 2 billion people will not have access to safe drinking water by 2025.

2. Wetlands filter harmful waste from water

80% of wastewater is discharged into the natural environment without any form of treatment. the abundant plant life in wetlands absorbs waste, which helps purify water.

3. Wetlands store carbon

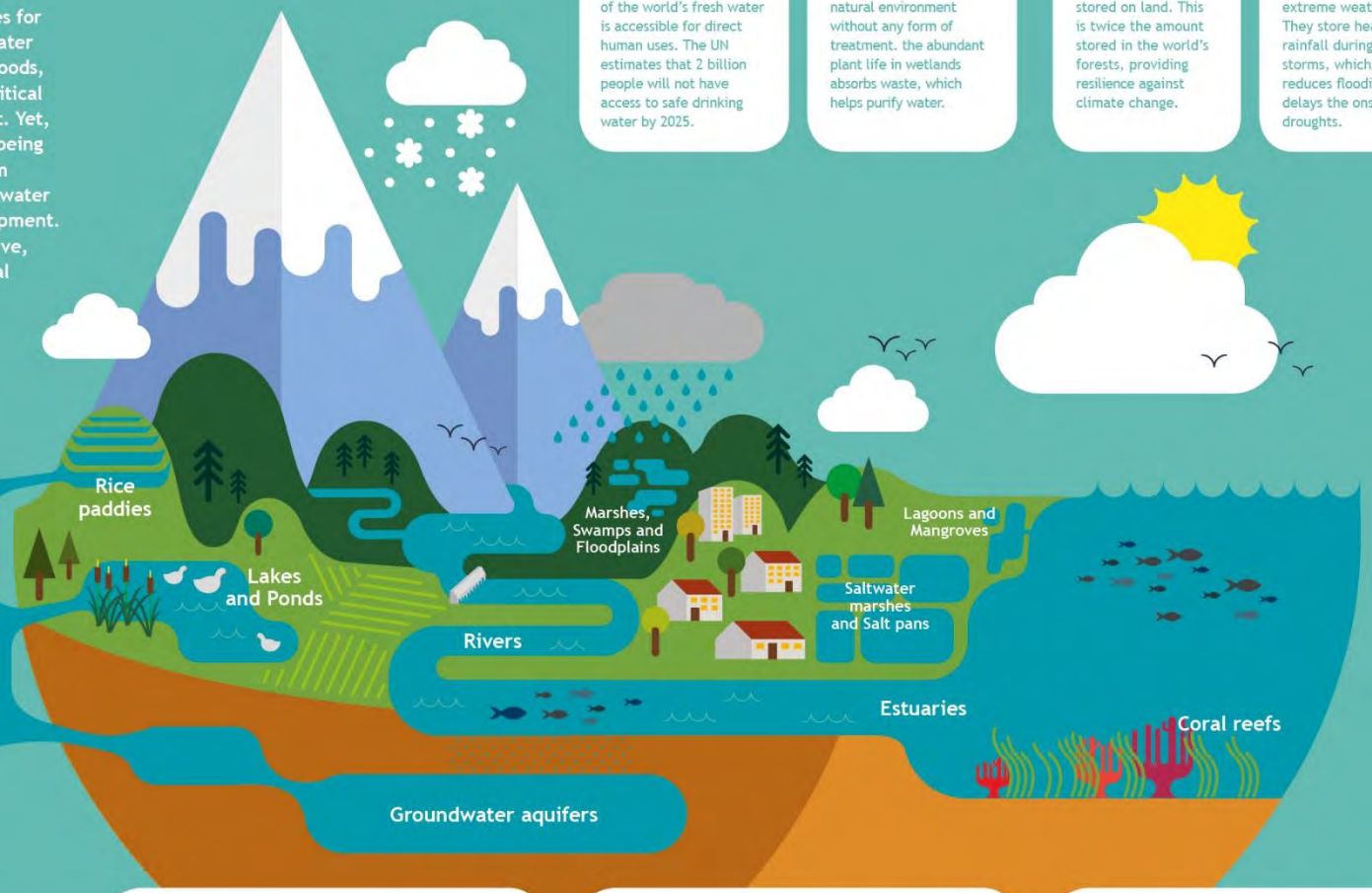
Peatlands alone hold 30% of all carbon stored on land. This is twice the amount stored in the world's forests, providing resilience against climate change.

4. Wetlands are nature's shock absorbers

Wetlands are a natural buffer during extreme weather. They store heavy rainfall during storms, which reduces flooding and delays the onset of droughts.

What are Wetlands?

A wetland is defined as any land area that is saturated or flooded with water, either seasonally or permanently. They can be either inland such as lakes, aquifers and marshes or coastal, as mangroves, estuaries and coral reefs.



We need to conserve wetlands.

64% of the world's wetlands have been degraded since 1900 and degradation continues.

5. Wetlands are critical for biodiversity

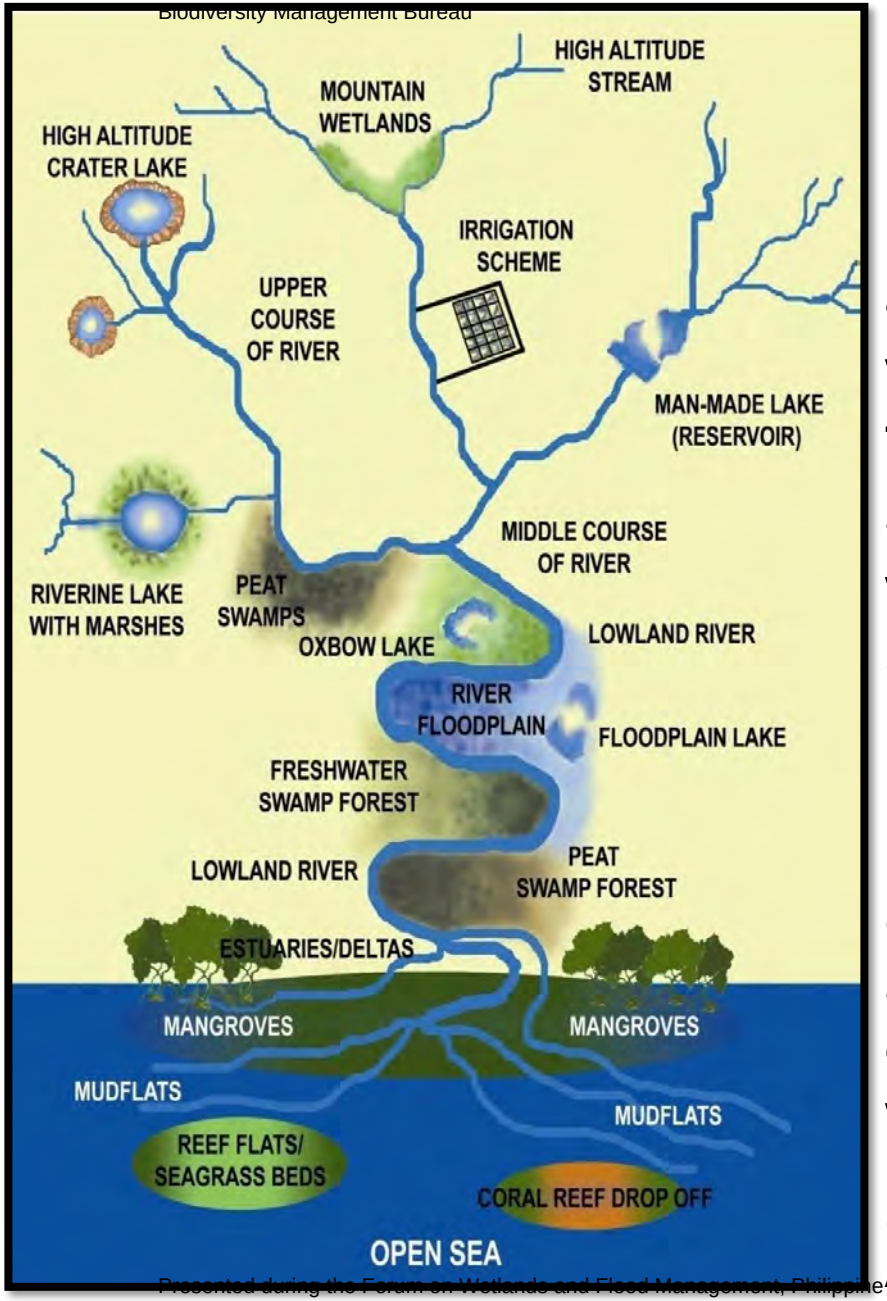
Wetlands are home to more than 100,000 fresh water species. They are essential for many amphibians, reptiles and migratory birds.

6. Wetlands guarantee our food supply

Wetlands provide important food products like fish and rice (20% of the world's nutritional intake).

7. Wetlands sustain livelihoods

Wetlands support 61.8 milion people that earn their living directly from fishing and aqua-culture.



DEFINITION:

'WETLANDS are areas of marsh, fen, peatland or water, whether **natural**, or **artificial**, **permanent** or **temporary**, with water that is **static** or **flowing**, **fresh**, **brackish** or **salt**, including areas of **marine water** the depth of which at **low tide does not exceed six metres**.'

…'**may incorporate** riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands'.

(Ramsar Convention and Joint DENR-DA-PCSD AO 2004-01:Wildlife Act IRR)

Classifications

Inland Wetlands

Usually **freshwater** and found **inland** but also includes **brackish** water located within land boundaries

1 Highland Lake
2 Swamp
3 Peat Lands
4 Marsh
5 River
6 Lake
7 Estuaries

Human-made Wetlands

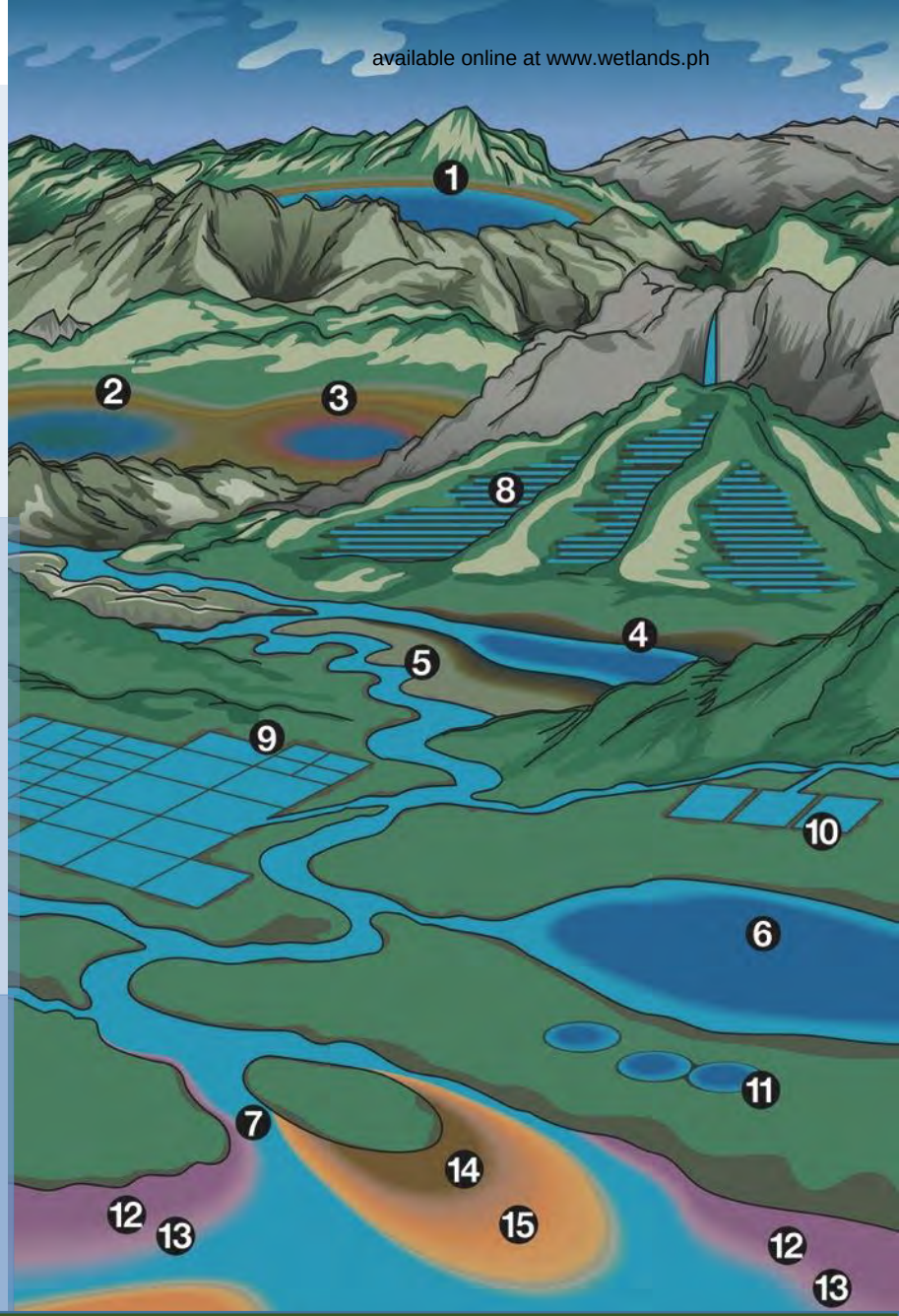
Principally **impound water** for agriculture and power-generation

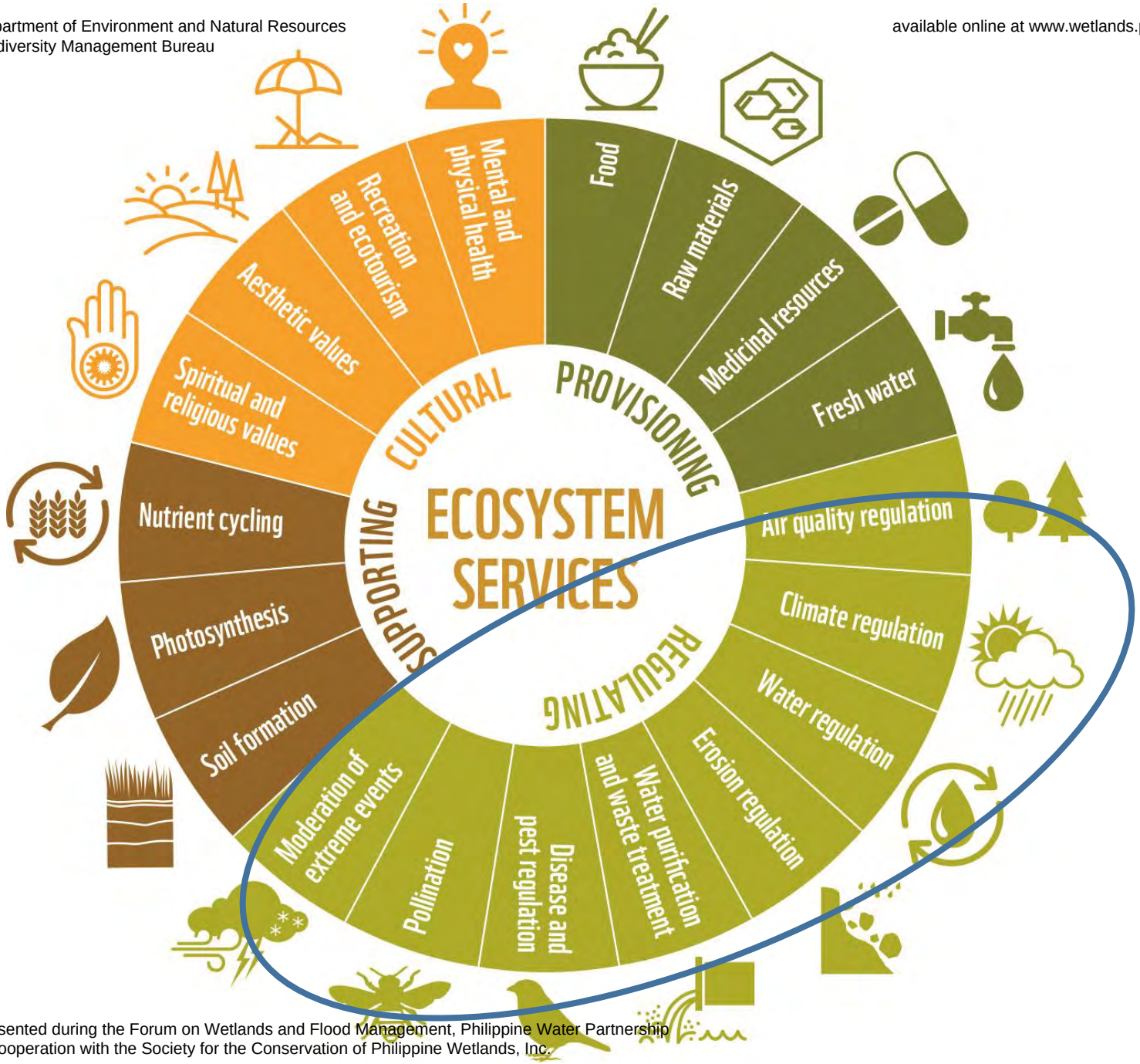
8 Water impound (Rice Terraces)
9 Irrigation (Rice Paddy)
10 Fishpond
11 Reservoir

Coastal and Marine Wetlands

Wetlands located within **coastal watersheds**

10 Mangrove Forests
11 Tidal Flats
12 Seagrass Beds
13 Coral Reefs




ECOSYSTEM SERVICES
PROVISIONING
Food
Raw materials
Medicinal resources
Fresh water
REGULATING
Air quality regulation
Climate regulation
Water regulation
Erosion regulation
Water purification and waste treatment
Disease and pest regulation
Pollination
Moderation of extreme events
SUPPORTING
Soil formation
Photosynthesis
Nutrient cycling
CULTURAL
Spiritual and religious values
Aesthetic values
Recreation and ecotourism
Mental and physical health

Wetlands and Disaster Risk Reduction

- Prevent and mitigate hazards
- Serve as natural buffers
- Store large volumes of water
- Enhance local resilience against disasters

Ipo Dam

- **Peatlands alone cover an estimated 3% of the world's land area, but they hold 30% of all carbon stored on land**

  Twice the amount stored in all the world's forests!

- **In the face of rising sea levels, coastal wetlands reduce the impact of typhoons and tsunamis**

  Saltmarshes, mangroves act as buffers ; their roots bind the shoreline and resist erosion

  Coastal wetlands increase resilience to the impacts of climate change

- **Wet grasslands and peatlands act as natural sponges**

  Absorb rainfall, create wide surface pools, ease flooding in river basins

  Same storage capacity safeguards against drought

A Global Disappearing Act

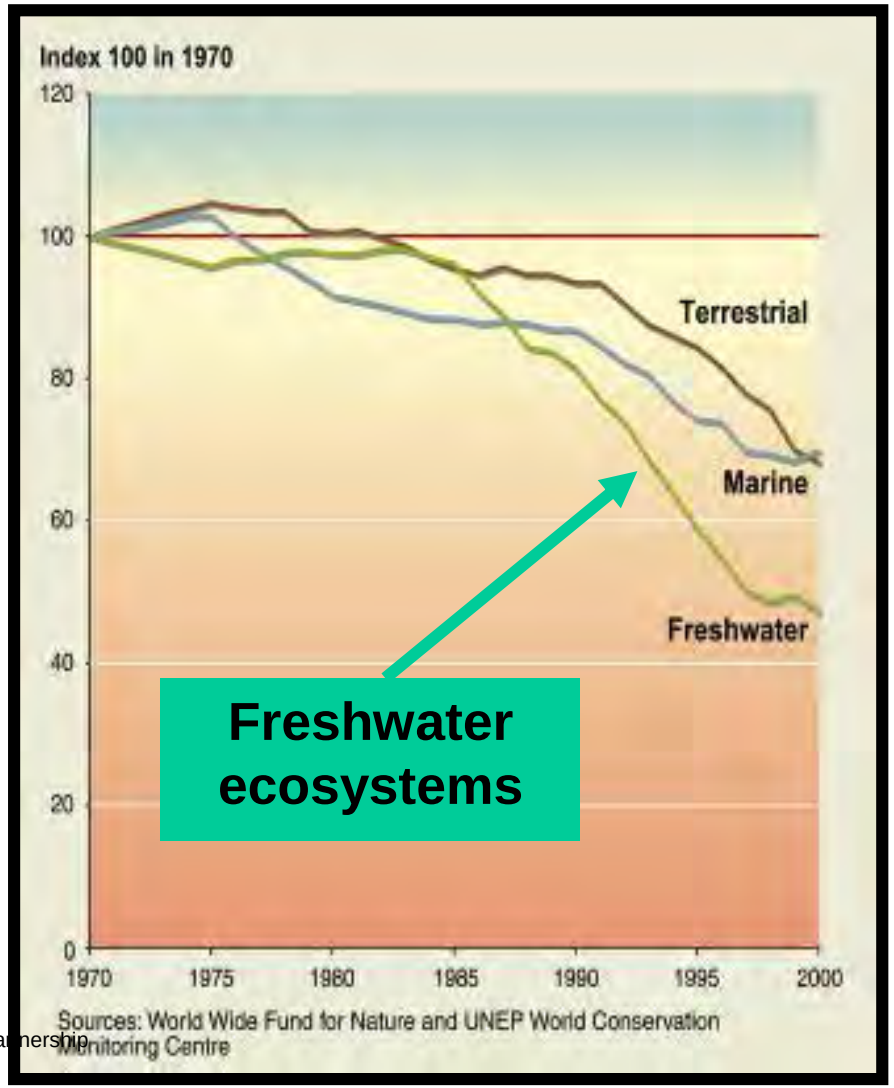
Global wetland loss and degradation continues faster than for other ecosystems - Millennium Ecosystem Assessment (MA)

Scientific studies show that 64 % of the world's wetlands have disappeared since 1900. (Ramsar, 2014)

Measured against 1700, an estimated 87 % have been lost. (Ramsar, 2014)

Living Planet Index: <u>Freshwater ecosystems</u> are more threatened and are deteriorating faster than terrestrial or marine habitats.

Living Planet Index



Issues and Threats Affecting Inland Wetlands

Policy-related Issues

The overarching issue affecting inland wetlands is the overlapping and often conflicting policies on the following aspects:

- Land Use
- Ownership and access over vulnerable wetland areas
- Fraudulent titles, inappropriate instruments, reversion of fishpond lease agreements
- Abandoned, underdeveloped and undeveloped fishponds
- Non-observance of easement and buffer zones for urban, agricultural and forest areas
- Illegal reclamation
- Illegal water use
- Raw water discharges and sewage from industrial and domestic pollution sources
- Gap in vulnerability of low-lying areas to inform climate change-related policy decision

Issues and Threats Affecting Inland Wetlands

Other Inland Wetland Issues and Threats

- Lack of adequate watershed protection and plantation management capability;
- Marginalization of native species in reforestation projects
- Undetermined value of peatlands for climate change mitigation
- Gaps in carbon sequestration functions of specific inland wetlands
- Untapped potential of ecotourism as a conservation and anti-poverty strategy for inland wetlands
- Unsustainable aquaculture practices
- Proliferation of exotic species in inland wetlands
- Undetermined vulnerability of inland aquaculture to climate change

The Urgent Need –
To conserve and use wetlands wisely

The Challenge

How can we have resilient wetland ecosystems that provide for human well-being and at the same time sustain biodiversity and provide wetland services?

The Global Response

Department of Environment and Natural Resources
Biodiversity Management Bureau

Wetland and recent international agreements

Aichi Biodiversity Targets

Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded …

Sustainable Development Goals

6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services… in line with obligations under international agreements

Sendai Framework for Disaster Risk Reduction 2015-2030

Priority 3: 30 (g) Promote the mainstreaming of disaster risk assessment, mapping and management into…. [the] management of, inter alia, mountains, rivers, coastal flood plain areas, drylands, wetlands and all other areas prone to droughts and flooding...and preserving ecosystem functions that help reduce risks;

The Ramsar Convention on Wetlands

- commonly known as the Ramsar Convention
- a global intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. It is the only global treaty to focus on one single ecosystem.

The Fourth Ramsar Strategic Plan 2016–2024

The Vision:
"Wetlands are conserved, wisely used, restored and their benefits are recognized and valued by all."

The Mission:
Conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world.

Strategic Goal 1: Addressing the Drivers of Wetland Loss And Degradation

Human impacts on wetlands are growing. Influencing the drivers of wetland degradation and loss and the integration of the role of wetland values (monetary and non-monetary) into planning and decision making requires the development of a methodology that enables wetland resources and ecosystem benefits to be assessed so that the multiple environmental functions and benefits are understood widely within societies. Contracting Parties, the Secretariat, Regional Initiatives and IOPs will enhance their engagement with relevant stakeholders in order to diminish threats, influence trends, restore wetlands and communicate good practices.

1. Wetland benefits are featured in national/local policy strategies and plans relating to key sectors such as water, energy, mining, agriculture, tourism, urban development, infrastructure, industry, forestry, aquaculture, fisheries at the national and local level.

2. Water use respects wetland ecosystem needs for them to fulfil their functions and provide services at the appropriate scale inter alia at the basin level or along a coastal zone.

3. The public and private sectors have increased their efforts to apply guidelines and good practices for the wise use of water and wetlands.

4. Invasive alien species and pathways of introduction and expansion are identified and prioritized, priority invasive alien species are controlled or eradicated, and management responses are prepared and implemented to prevent their introduction and establishment.

Strategic Goal 2: Effectively Conserving and Managing the Ramsar Site Network

Ramsar Sites constitute the largest network of officially recognized internationally important wetland areas in the world. This network constitutes the backbone of a larger network of wetlands. Parties must commit themselves to efforts to protect and effectively manage the existing Ramsar Sites and enable the full and effective participation of stakeholders, including indigenous peoples and local communities, as well as to expanding the reach of the Convention by continuously working to add more sites and areas of wetlands recognized under the Convention.

5. The ecological character of Ramsar sites is maintained or restored, through effective planning and integrated management.

6. There is a significant increase in area, numbers and ecological connectivity in the Ramsar Site network, in particular under-represented types of wetlands including in under-represented ecoregions and Transboundary Sites.

7. Sites that are at risk of change of ecological character have threats addressed.

Strate
Wisely Using All Wetlands

The wise use of all wetlands requires that Parties ensure they are addressing wetlands beyond those currently included in the Ramsar Site network. This work may occur at the national, subnational, regional, and transboundary levels, including at basin level. Mainstreaming recognition of ecosystem functions, services and benefits into a wide range of sectors and with a broad array of actors will help ensure the success of this effort.

8. National wetland inventories have been initiated, completed orupdated and disseminated and used for promoting the conservation and effective management of all wetlands.

9. The wise use of wetlands is strengthened through integrated resource management at the appropriate scale, inter alia, within a river basin or along a coastal zone.

10. The traditional knowledge, innovations and practices of indigenous peoples and local communities relevant for the wise use of wetlands and their customary use of wetland resources are documented, respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention, with a full and effective participation of indigenous peoples and local communities at all relevant levels.

11. Wetland functions, services and benefits are widely demonstrated, documented and disseminated.

12. Restoration is in progress in degraded wetlands, with priority to wetlands that are relevant for biodiversity conservation, disaster risk reduction, livelihoods and/or climate change mitigation and adaptation.

13. Enhanced sustainability of key sectors such as water, energy, mining, agriculture, tourism, urban development, infrastructure, industry, forestry, aquaculture and fisheries, when they affect wetlands, contributing to biodiversity conservation and human livelihoods.

Operational Goal 4: Enhancing Implementation

It will be vital for the survival of wetlands and the success of the Convention for Parties to enhance implementation of the Strategic Plan. Various approaches will help strengthen the implementation of the three Strategic Goals, and ultimately of the Convention itself. They involve critical actions to be undertaken by Contracting Parties themselves, and in partnership with other Parties and other entities, in particular with regard to scientific and technical advice and guidance, resource mobilization, public awareness, visibility and capacity building. The Ramsar Secretariat will also play a vital role in raising awareness and visibility of the Convention, as well as mobilizing resources to support enhanced implementation.

14. Scientific guidance and technical methodologies at global and regional levels are developed on relevant topics and are available to policy makers and practitioners in an appropriate format and language.

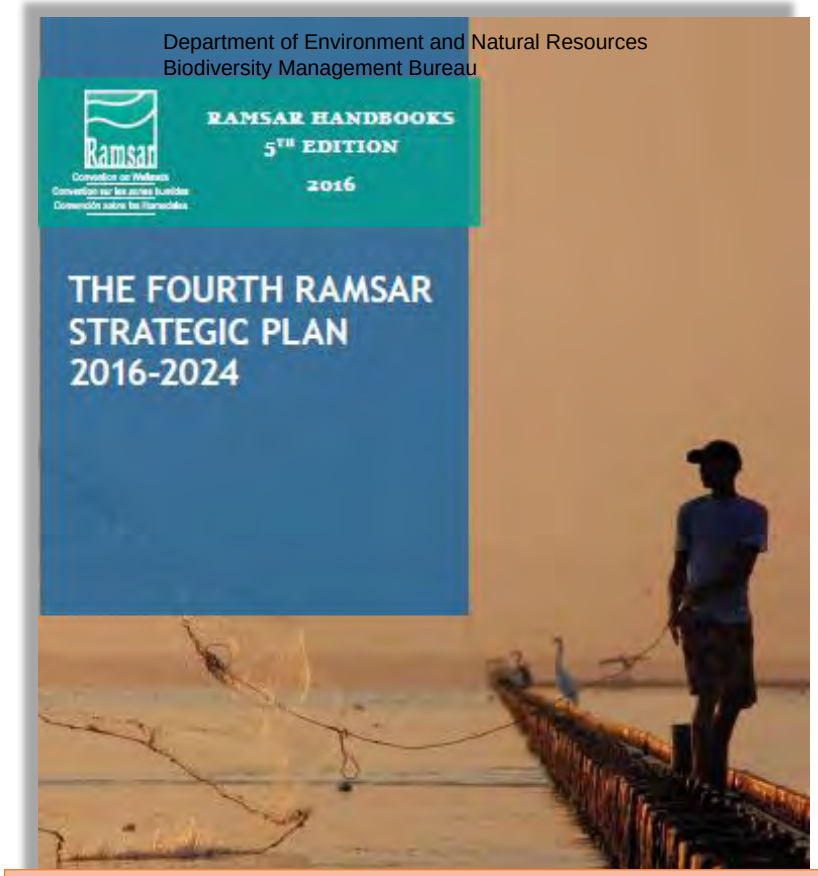
15. Ramsar Regional Initiatives with the active involvement and support of the Parties in each region are reinforced and developed into effective tools to assist in the full implementation of the Convention.

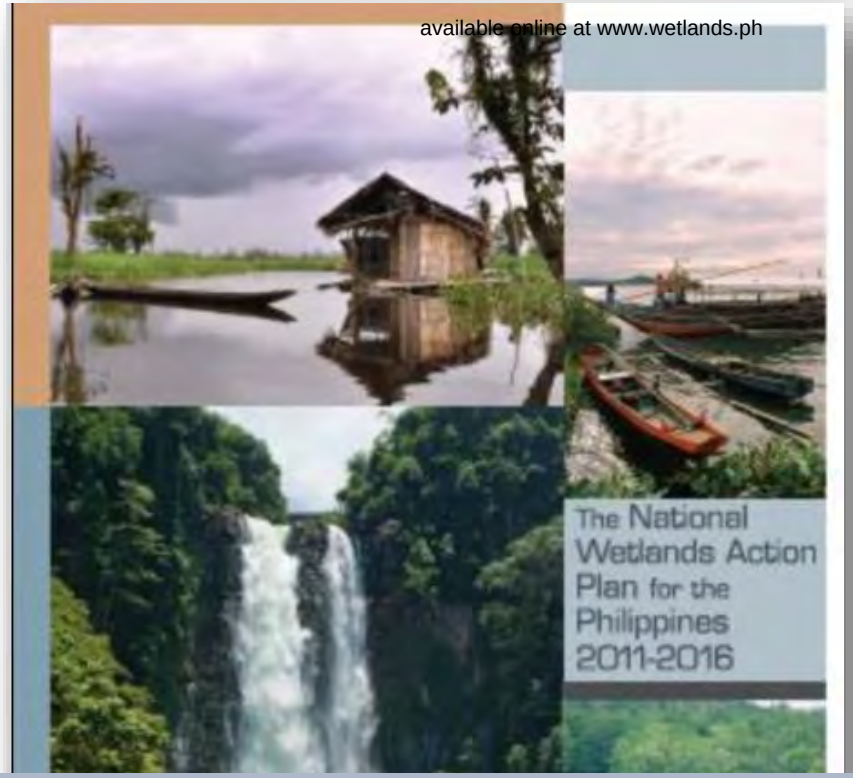
16. Wetlands conservation and wise use are mainstreamed through communication, capacity development, education, participation and awareness.

17. Financial and other resources for effectively implementing the fourth Ramsar Strategic Plan 2016 – 2024 from all sources are made available.

18. International cooperation is strengthened at all levels.

19. Capacity building for implementation of the Convention and the fourth Ramsar Strategic Plan 2016 – 2024 is enhanced.





Mission:

"…the conservation and wise use of all wetlands through local and **national actions** and international cooperation, as a contribution towards achieving sustainable development throughout the world."

Mission:

To provide an effective framework and integrating tool for the conservation and wise use of Philippine wetlands, in support of the overall sustainable goals of the country.

The Philippine Wetlands Conservation Program

Department of Environment and Natural Resources
Biodiversity Management Bureau

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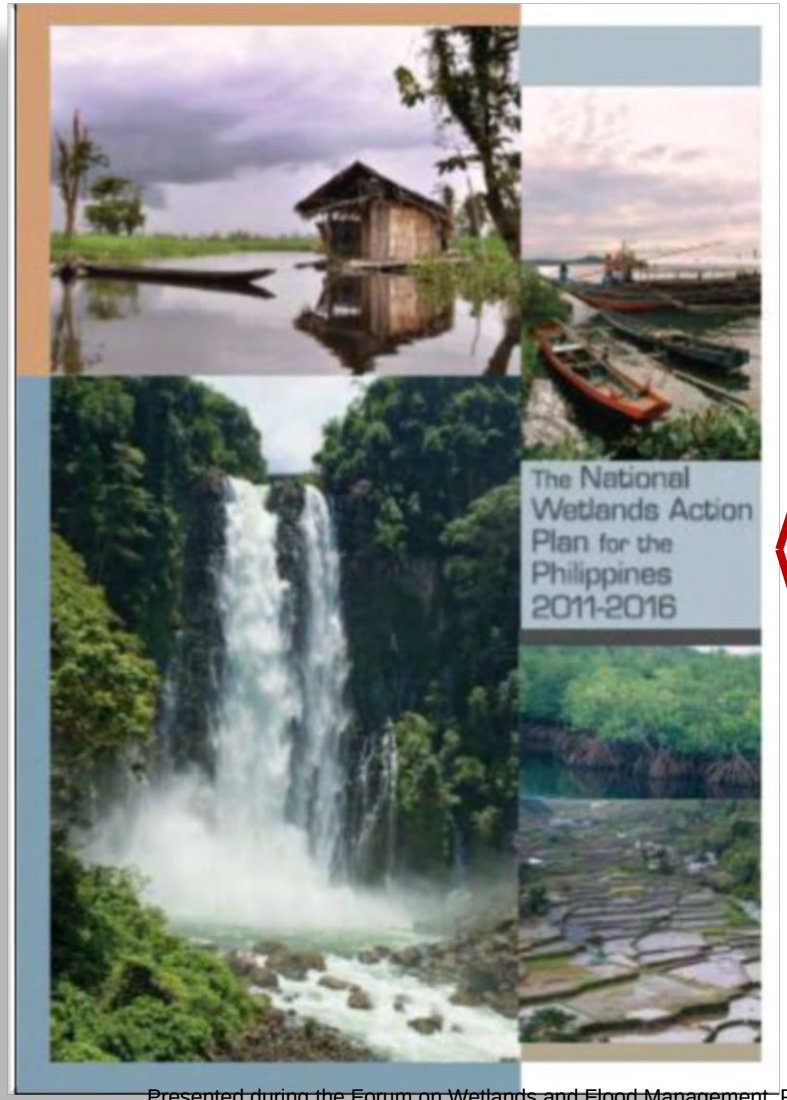
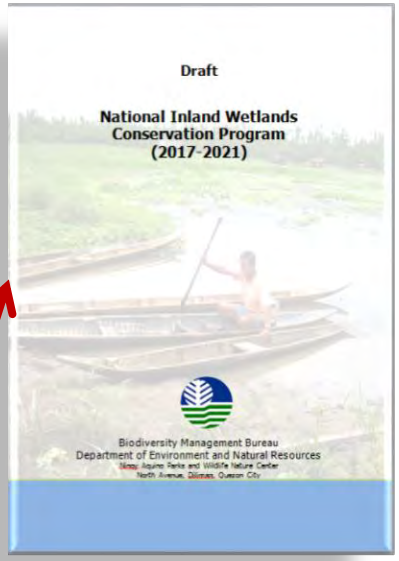


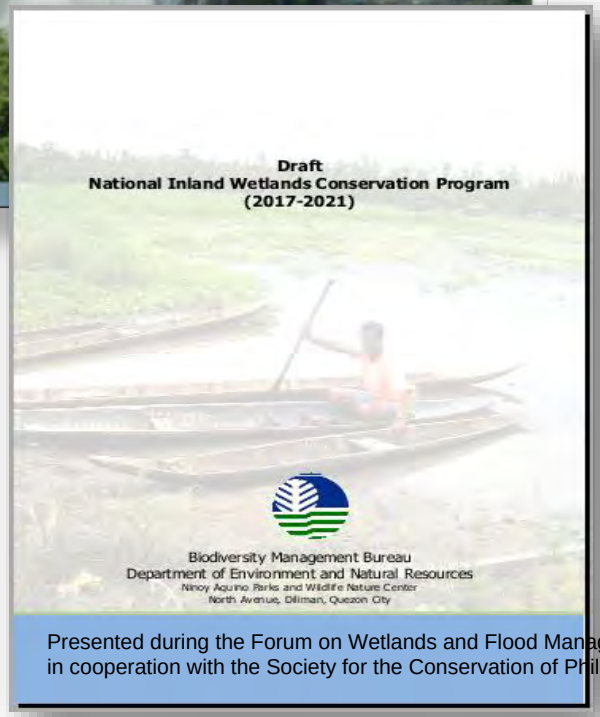


National Inland Wetlands Conservation Program

Coastal and Marine Ecosystems Management Program

Presented during the Forum on Wetlands and Flood Management, Philippine Water Partnership
in cooperation with the Society for the Conservation of Philippine Wetlands, Inc.

Updating of NWAPP into NIWCP



- Recommendation to highlight and focus resources and interventions for the next six years on inland wetlands
- This is due to the fact that according to studies, **inland wetlands** are **disappearing at a faster rate** than other wetland ecosystems, and have been neglected in terms of institutional initiatives compared to marine and coastal ecosystem.

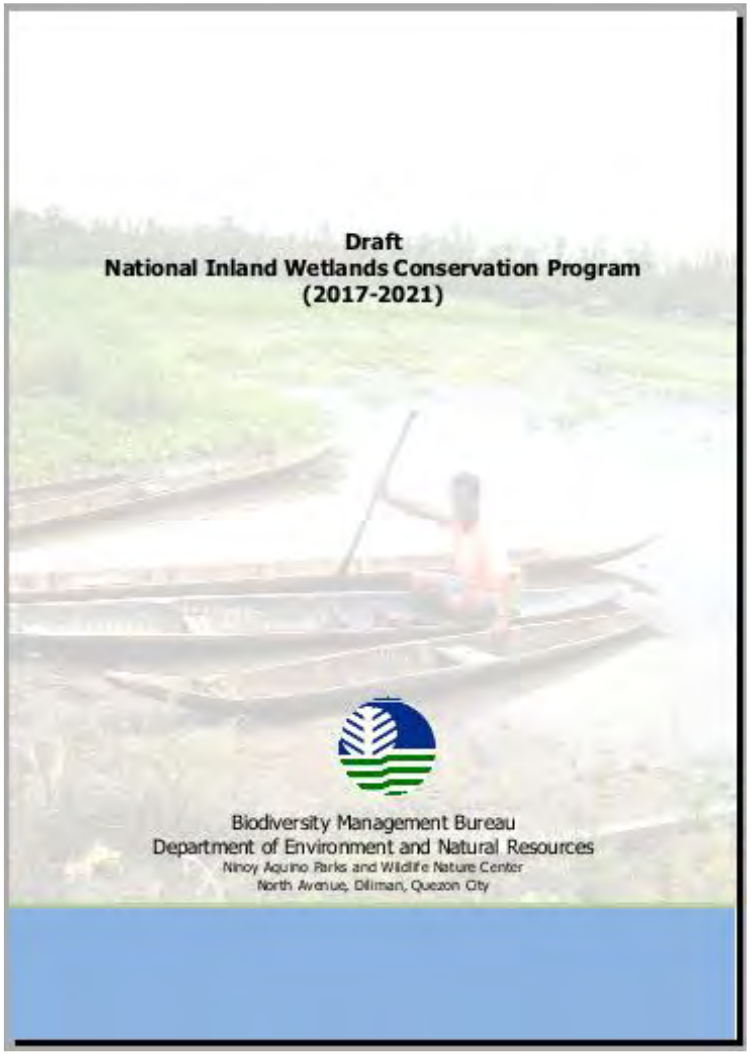
National Inland Wetlands Conservation Program

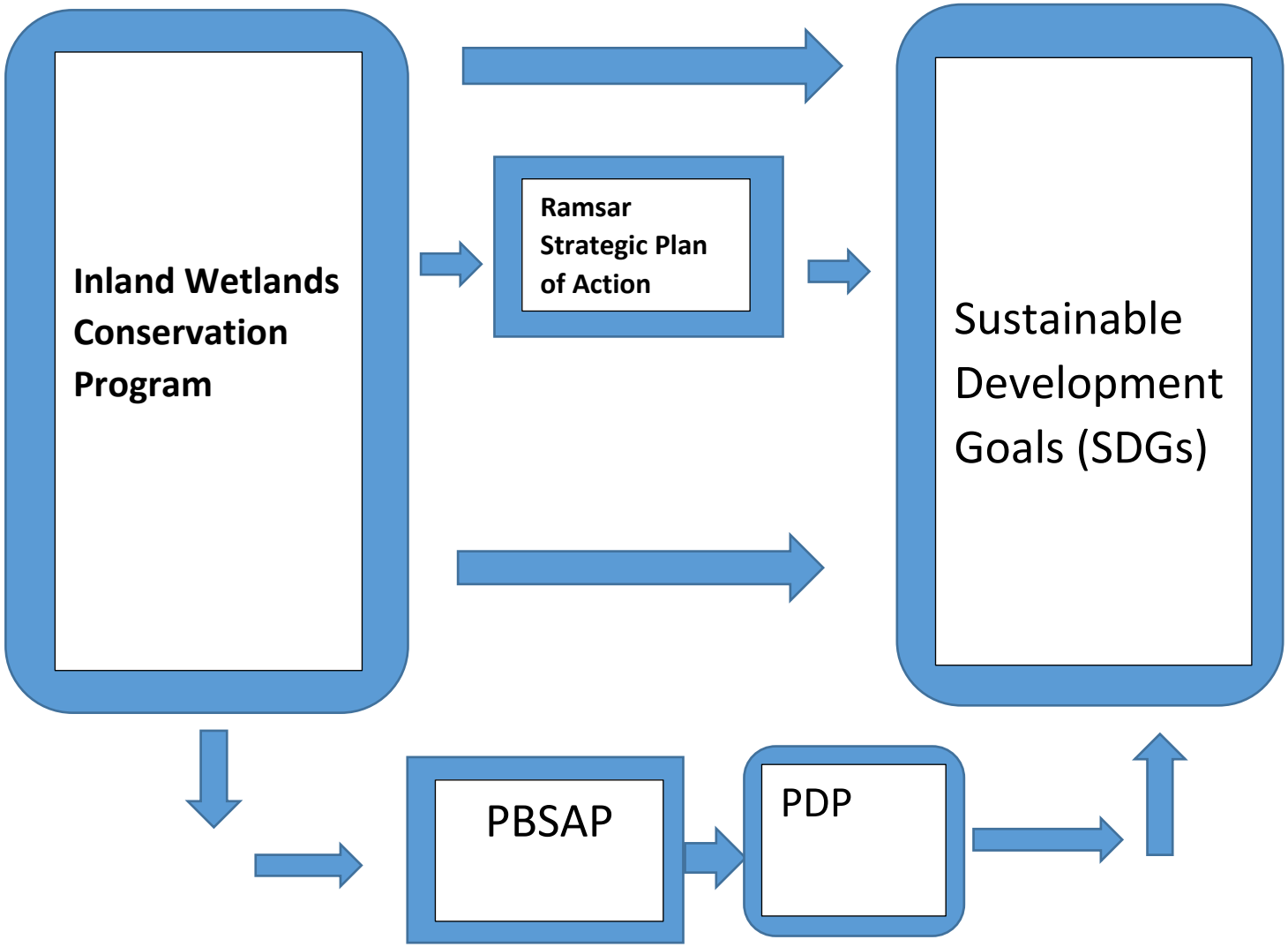
Vision:

"By 2022, all priority inland wetlands are healthy, valued, continuously providing essential ecosystems services and sustainably managed by empowered stakeholders. "

Areas of Intervention:

A. Inland Wetlands Policy
B. Inventory, Assessment and Management of Inland Wetlands
C. Knowledge Management and Capacity Development





Conceptual Framework

National Inland Wetlands Conservation Program

A. Inland Wetlands Policy

Strategy 1 Review of existing land use and management of inland wetlands
Strategy 2 Implement local management and economic measures to conserve wetlands
***Strategy 3* Integrate Climate Change mitigation and adaptation measures in relevant plans and policies**

B. Inventory, Assessment and Management of Inland Wetlands

Strategy 1 Establish baseline data and conduct bio-physical and socio-cultural assessment and monitoring of inland wetlands (using ridge to reef framework)
Strategy 2 Preparation and implementation of Management Plans for priority freshwater wetlands in the country
Strategy 3 Rehabilitate Priority Freshwater Wetlands
Strategy 4 Implement Climate Change mitigation and adaptation strategies
Strategy 5 Promote ecotourism as a conservation strategy for freshwater wetlands
Strategy 6 Implement sustainable aquaculture practices in freshwater wetlands

National Inland Wetlands Conservation Program

C. Implement sustainable aquaculture practices in freshwater wetlands

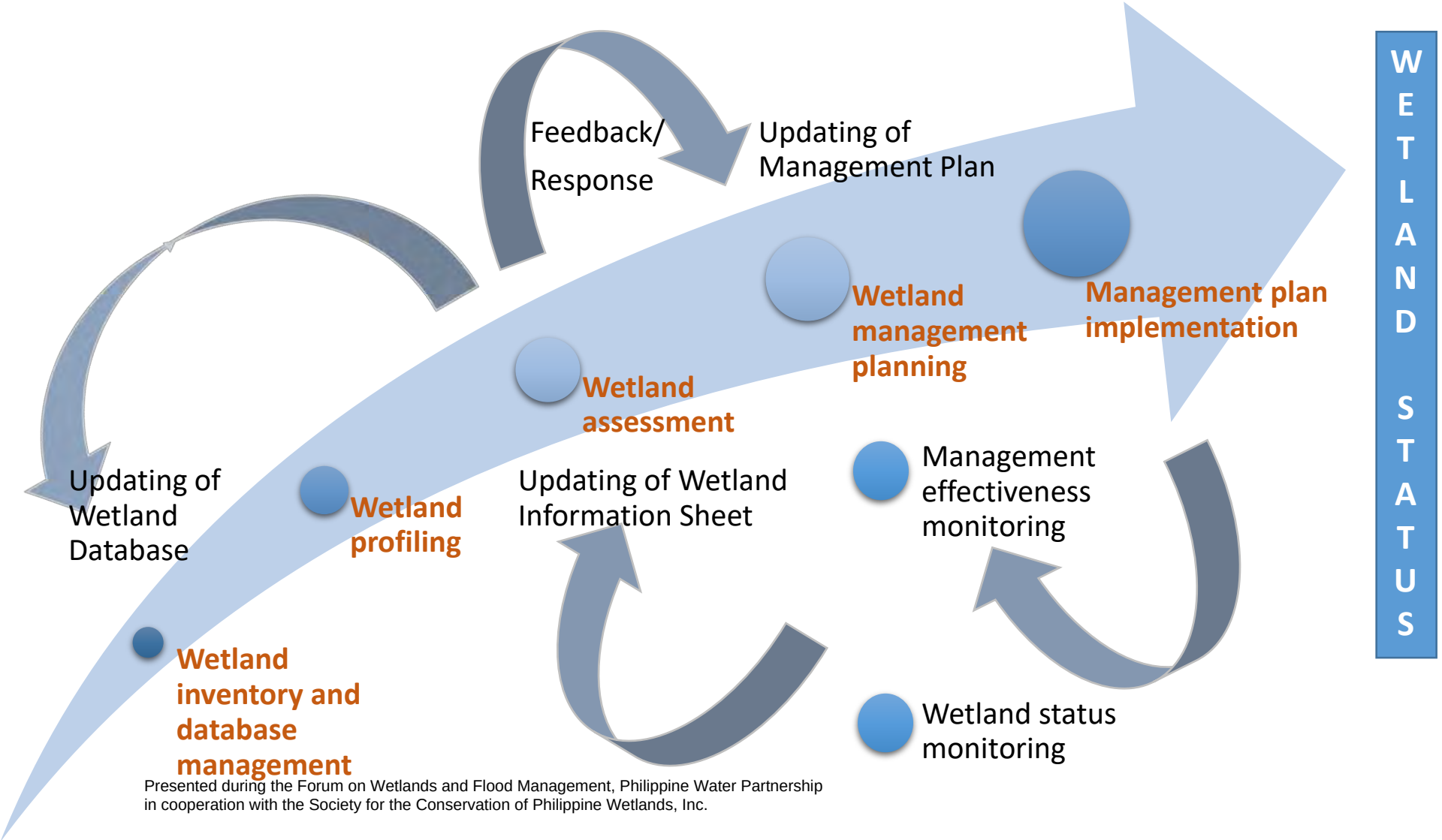
Strategy 1 Compiling and organizing information on Philippine Wetlands and making these accessible to stakeholders

Strategy 2 Knowledge Management

Strategy 3 Preparing, adopting and Implementing the Communication, Education, Participation, and Awareness (CEPA) Action Plan

Strategy 4 Capacity Development and Enhancement

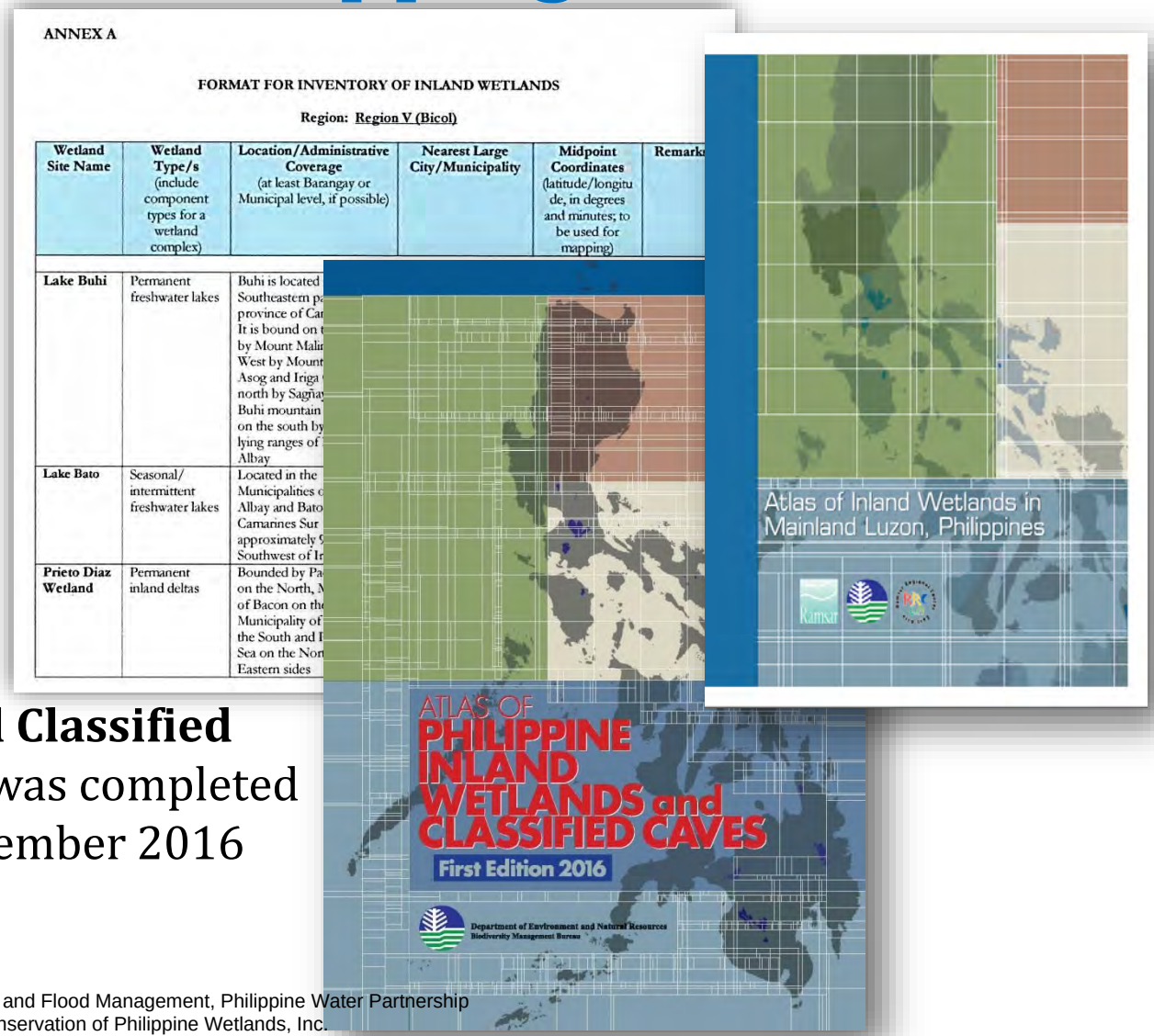
Strategy 5 Development and/or Implementation of Innovative Methods, Tools and Technologies for Wetland Management


Feedback/
Response
Updating of
Management Plan
Wetland
management
planning
Management plan
implementation
Wetland
assessment
Updating of
Wetland
Database
Wetland
profiling
Updating of Wetland
Information Sheet
Management
effectiveness
monitoring
Wetland
inventory and
database
management
Wetland status
monitoring
WETLAND STATUS

Inventory and Mapping

Atlas of Inland Wetlands in Mainland Luzon, Philippines was completed and published in September 2014.

Atlas of Philippines Inland Wetlands and Classified Caves (First Edition) was completed and published in September 2016



ANNEX A

FORMAT FOR INVENTORY OF INLAND WETLANDS

Region: Region V (Bicol)

Wetland Site Name	Wetland Type/s (include component types for a wetland complex)	Location/Administrative Coverage (at least Barangay or Municipal level, if possible)	Nearest Large City/Municipality	Midpoint Coordinates (latitude/longitude, in degrees and minutes; to be used for mapping)	Remarks
Lake Buhi	Permanent freshwater lakes	Buhi is located Southeastern pa province of Car It is bound on t by Mount Malir West by Mount Asog and Iriga north by Sagñay Buhi mountain on the south by lying ranges of Albay			
Lake Bato	Seasonal/ intermittent freshwater lakes	Located in the Municipalities o Albay and Bato Camarines Sur approximately 9 Southwest of Ir			
Prieto Diaz Wetland	Permanent inland deltas	Bounded by Pa on the North, N of Bacon on the Municipality of the South and I Sea on the Nor Eastern sides			

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available online at www.wetlands.ph

Mapping Wetland Priorities for Ecosystem-Based Disaster Risk Reduction (Eco-DRR) and Climate Change Adaptation (EbA) in the Philippines

Wetlands for our future

12th Meeting of the Conference of the Parties to the Convention on Wetlands (Ramsar, Iran, 1971)

Punta del Este, Uruguay, 1-9 June 2015

Resolution XII.13

Wetlands and disaster risk reduction

1. RECALLING Resolution VIII.35 on *The impact of natural disasters, particularly drought, on wetland ecosystems* and Resolution IX.9 on *The role of the Ramsar Convention in the prevention and mitigation of impacts associated with natural phenomena, including those induced or exacerbated by human activities* which, respectively, recognized the role of wetlands in providing water during times of drought and in preventing and mitigating the impacts from natural phenomena, including those induced or exacerbated by human activities, but RECOGNIZING that there exists no specific framework to operationalize this urgent role;

2. RECALLING Resolution X.24 on *Climate change and wetlands*, that affirmed the role of healthy wetlands in increasing resilience to climate change and extreme weather events, as well as ensuring climate change responses that would not lead to serious damage to the ecological character of wetlands;

3. FURTHER RECALLING that Resolution X.3 on *The Changwon Declaration on human well-being and wetlands* and Resolution X.23 on *Wetlands and human health and well-being* emphasized the importance of sustainable wetland management and the restoration of wetlands to ensure future human well-being;

4. ALSO RECALLING Decision X/28 of the Conference of Parties to the Convention on Biological Diversity (CBD) that encourages recognition of the role of healthy ecosystems, and in particular wetlands, in protecting human communities from some natural disasters and to integrate these considerations into relevant policies;

5. AWARE of the UN Declaration on the Rights of Indigenous Peoples (2007), and RECALLING Resolution VII.8 on *Guidelines for establishing and strengthening local communities' and indigenous people's participation in the management of wetlands* that recognized the contributions of indigenous peoples and local communities in the management and wise use of wetlands;

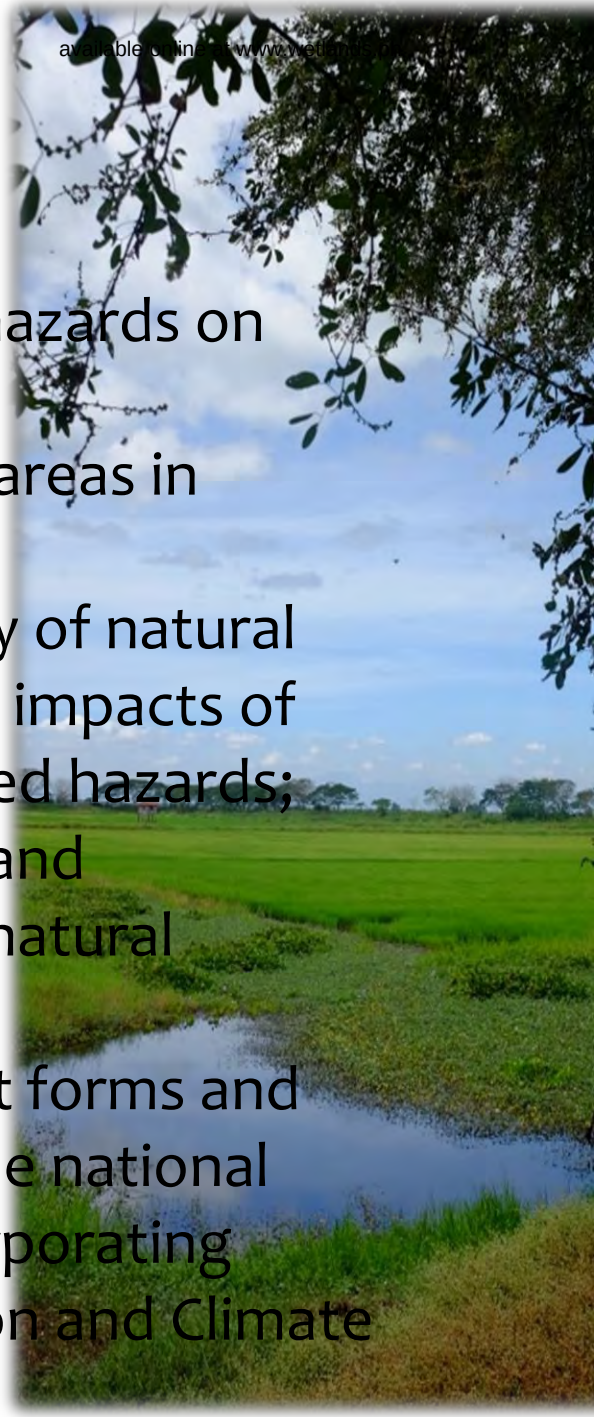
ecosystems, including wetlands, provide to human communities in regulating the frequency and

Affirmed the vital role of wetland ecosystems in reducing disaster risk and adapting to climate change

Presented during the Forum on Wetlands and Flood Management, Philippine Water Partnership
in cooperation with the Society for the Conservation of Philippine Wetlands, Inc.

Project's Objectives

- identify the probable DRR- and CCA-related hazards on wetlands areas in the Philippines;
- map out and identify the hazard-susceptible areas in priority wetlands of the Philippines;
- initiate documentation of the potential ability of natural and rehabilitated wetland areas to offset the impacts of both hydro-meteorological and climate-related hazards;
- create awareness among local communities and stakeholders on the benefits of wetlands as natural mitigation to the impacts of hazards;
- improve the site-specific wetland assessment forms and wetland management plan, and ultimately the national wetlands conservation action program, incorporating elements that address Disaster Risk Reduction and Climate Change Adaptation.



Outputs of the Project

Maps showing wetlands that are susceptible to hazards

Communication Plan and materials (brochures)

Final version of the National Inland Wetlands Conservation Program

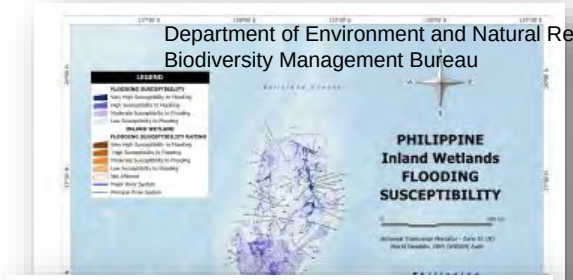
Updated Wetland Information Sheet incorporating RAWES and updates to the Wetlands Management Planning Guidelines

Listing of wetlands that provide ecosystem services that reduce disaster risk

Documentation of the activities implemented

Department of Environment and Natural Resources
Biodiversity Management Bureau

available online at www.wetlands.ph



Annex 8.3

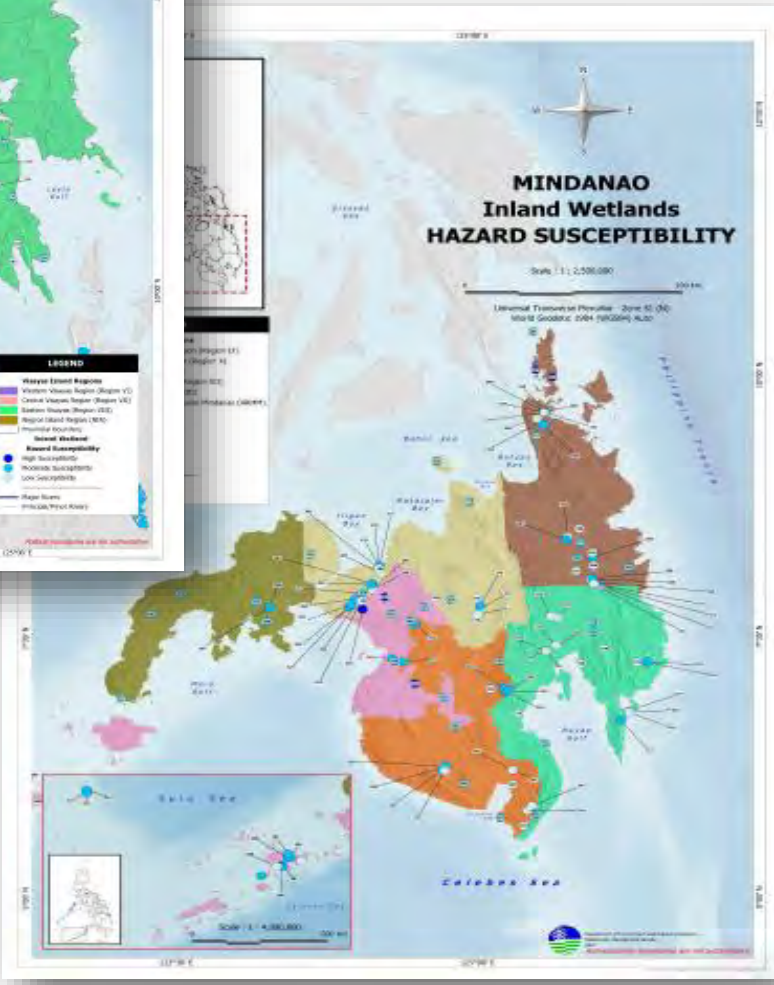
Annex 8.4

Maps showing wetlands that are susceptible to hazards

Presented during the Forum on Wetlands and Flood Management, Philippine Water Partnership in cooperation with the Society for the Conservation of Philippine Wetlands, Inc.

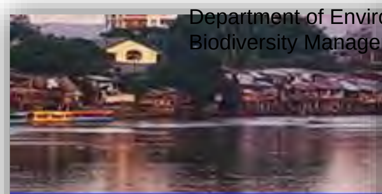
nnex B.5
LUZON
Inland Wetlands
HAZARD SUSCEPTIBILIT
LEGEND
Philippine Sea
West Philippine Sea

VISAYAS
Inland Wetlands
HAZARD SUSCEPTIBILITY
LEGEND
Sulu Sea


MINDANAO
Inland Wetlands
HAZARD SUSCEPTIBILITY
Sulu Sea
Celebes Sea

Department of Environment and Natural Resources
Biodiversity Management Bureau

available online at www.wetlands.ph



PROOFING THE FUTUR[E]
Davao City: Preventin[g]

Davao City is a thriving city in Mindanao Island t[h]
continues to grow and develop like its counterp[a]
Visayas which is Cebu City, and Manila in Luzon.
Philippine's largest city in terms of land area an[d]
its agricultural and technological successes wh
contributes to its modernization and continuing

Like many cities of the world, Davao also has it's
history rooted to its river. The local newspaper S
reported that the word "Davao" is from the blen[d]
words from ethnic Bagobo subgroups which ref[e]
main river that traverses the city: the Obo calls
K'lata, Diangan or Guingan, "Duhwow"; and the Ta
Bagobo, "Dabu"[1]

Davao river is the third largest river in Mindanao
kilometers long, it is part of the Davao River Bas
the 18 major River Basins in the country. Davao
significant benefit to the city which it traverses
potential as freshwater supply[2].

Its positive benefit to the city however was off
it overflowed and affected an estimated 31,00
6,614 families on December 22, 2017-just a fe
before Christmas- due to typhoon Vinta[3].

Another catastrophic event is the flooding of B
River which killed 20 people while 15 people we
missing in 2012.

Learning from past flooding incidents and to av
recurrence of such, the local government of Da
recognizes the need to rehabilitate the rivers a
of the city. A major problem now is the siltation
the present Mayor, Sara Duterte. According to h
a need to allow desilting operations within the w
areas to address the heavy siltation problem in
streams, which could result in overflowing of w
flooding during rainy seasons"[4]

Note (1) The Rise of Davao City, Sunstar Philippines (2017
http://www.sunstar.com.ph/article/423711/) (2) Formulati
River Basin Management and Development Plan Executive S
Volume 1, 2015, DENR-RBCO (From http://rbco.denr.gov.ph/
uploads/2017/10/executivesummary.pdf) (3) Over 31,000
flooding in Davao City, Mick Basa, 2017. (from https://www
move-ph/issues/disasters/192067-hundreds-davao-city-r
ate-river-overflows) (4) Davao creates group to desilt city's
streams. F. Pearl A. Gajunera, 2018. (From http://manilastan
mobile/article/264598)

Viva Candaba! Celebrat[ing]
Luzon's Great Floodplai[n]

The Candaba wetland is a vast complex of freshwa
ponds, swamps and marshes with surrounding are
seasonally flooded grassland, arable land and palm
on a vast alluvial flood plain[1]. Known also as "Pina[c]
32,000 ha area is usually flooded in the wet seaso
most of it dries out during the dry season (late No
April) and is converted into rice fields and plantati
watermelons and corn.

The area is notably known also for being a sanctua
migratory birds that traverses the East Asian-Aus[t]
Flyway (EAAF). Because of this, the Candaba Wetl
been declared as an Important Bird Area and one o
(6) priority areas in Luzon for the protection of wa
and threatened species.

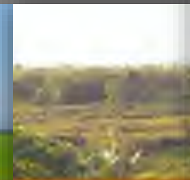
Candaba wetlands is a natural flood retention bas
by the deposition of sediments from the Pampang
Angat Rivers that surround the swamp. Despite th
constant flooding however, the Pinac is not witho
even long before the Spanish conquest in the Phil

Unknown to many, the site is also one of the olde
settlements in Luzon as evidenced by the foundin
basalt adze that dates to about 3,000 BC. H. Otley
theorized that this was used to hollow out logs to
boats used to reach deeper portions of the wetla
Various pottery shards dating to as far back as 10
were also found evidencing settlement and trade.
Candaba is the home to 102,399 individuals base
2010 census[5].

The long history of settlement in the extensive flo
produced unique cultural activities or "Fiestas" th
be found in the area.

The "Fiesta" or Feast is an important Filipino cultu
religious event wherein a patron saint is honored w
different festivities. Coming from Spain's 300-yea
influence, it is celebrated by a particular area by ha
street dancing, and events wherein the community
expected to participate. A Philippine Fiesta can als
celebration of anything a town deems important to
identity.

Note: (1) SCPW. Agricultural Wetlands as a Showcase for Wetlands Co[nservation]
The Utilization of Candaba Swamp from Prehistoric to Present Time: Evi[dences from]
Archaeology, History, and Ethnography (Melendrez R.C.)
http://www.academia.edu/10441416/The_Utilization_of_Candaba_Swam[p]
toric_to_Present_Time_Evidences_from_Archaeology_History_and_Ethno[graphy]
(3) https://businessmirror.com.ph/pampanga-river-boats-171st-
fluvial-parade-honoring-st-peter/



Saving Pe[atlands]

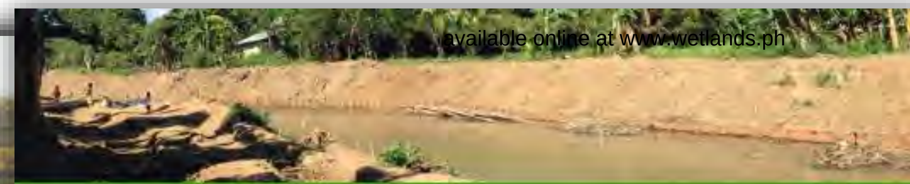
Of all types of Philipp[ine]
are waterlogged area[s]
organic matter, are th[e]
identify – requiring ch
verification- compare
marshes which can b[e]
peatlands have alway
though it is the wetla
water sequestration

IUCN mentioned that
world's carbon. Conti
emitted and thus add
atmosphere each yea

If left undisturbed an
not only repository of
contributes to climat
storing water during
dry season. These ec
fact that peatlands is
fauna, makes it an im

Initiatives on Philippi[ne]
development of the N
Use and Protection o
Before that, there we
provided brief descri

Note: (1) http://www.asea
=view&catrievaid=4241



In focus: Mabitac River Rehabilitation

The Philippines, geographically located in the busiest typhoon belt in the world- the Pacific- is one of the most disaster prone countries in the world. A study by R.T Perez on 2003 reported that an average of 20 typhoons pass the country each year bringing with it heavy rains that causes flooding in low-lying areas. This then lead to major economic and social setbacks in the community, and emotional and financial problems for those affected (Pati et al. 2014)[1].

Mabitac River and Flooding

Mabitac River is one of the many rivers draining into Laguna de Bay- the Philippines' largest lake. Part of the Pasig-Laguna- Marikina River Basin, it traverses the municipality of Mabitac in Laguna- a community of about 20,530[2]

With the River crossing the municipality, the Mines and Geosciences Bureau classified Mabitac as having a moderate to high susceptibility to flooding. Adding to this is the municipality's proximity to Laguna de Bay such that most barangays are flooded during heavy rains

But while geography contributes to the municipality's vulnerability to disaster, the Municipal Disaster Risk Reduction and Management Office (MDRRMO) recognizes that this could be reduced if the waterways are managed well

Solid Waste and Sedimentation

As with water bodies around the world, solid waste and sedimentation is a problem in the management of the Mabitac River. Mr. Manny Artiches of the MDRRMO said during an interview that solid wastes have been clogging the flow of the water body, and sedimentation has been persistent in making the depth of the river shallower. These then lead to reducing the ability of the river to hold and channel raging waters especially in times of rain and typhoons.

Rehabilitation of Mabitac River

Acknowledging the problems on solid waste and sedimentation, the MDRRMO started programs to rehabilitate the river by employing new ordinances, capacity building and training of the local population, coupled with some infrastructure development.

Note (1) Vulnerability to Flooding of the Towns of Mabitac and Santa Maria, Laguna, Philippines (Pati et al. 2014) https://journals.uplb.edu.ph/index.php/JESAM/article/viewFile/1270/pdf_17
(2) 2015 census http://citypopulation.info/php/philippines-luzon-admin.php?adm1id=0434
(3) Resource book on DPR-CCA Users Review Workshop with WFP Partners (2017)

Solid Waste Management

To solve the solid waste problem, the MDRRMO of Mabitac started de-clogging, clean-ups and IEC drives on solid waste management. Incentives were given for the first three months of the program to residents who can collect 60 kg of plastic waste. Segregation at source was also encouraged while awards were given to Barangays with the Best Sanitation Project from 2013-2015. Meanwhile through the support of the United Nations World Food Programme (WFP), the improvement of the Materials Recovery Facility (MRF) was initiated. This was to promote waste segregation, proper disposal and recycling. Through the assistance of the WFP, Mr. Artichea said that their municipality also obtained a shredding machine for making plastic bricks/hollow blocks that they can sell as construction material.

Other measures

Another Disaster Risk Reduction (DRR) measure that Mabitac employed is capacity building and training through a sectoral approach. Here, even farmers, and the youth is trained. Mr. Artichea shared that they sought the help of the Society for the Conservation of Philippine Wetlands, Inc. for their yearly Youth Eco Camp on DRR to engage the youth in DRR and DPR activities. For the sedimentation of the river, MDRRMO has limited dredging activities. They also constructed a concrete wall in heavily eroded portion of the river to prevent erosion its banks.

Less Flooding

The measures employed by the LGU of Mabitac is now paying off as there was a reduction in flood occurrences and flooding time. What was then 3-5 days of flood is just 2-3 hours according to a report by the WFP. Because of their efforts on DRR, Mabitac LGU is continually being recognized. From 2014- 2016, they bagged the Kalasag Award of the NDRRMC- the country's premiere award in DRR category. MDRRMO personnel now also serve as resource speaker to other nearby LGU on the topic[3].

Mapping Wetland Priorities for Ecosystem - based Disaster Risk Reduction (Eco-DRR) and Climate Change Adaptation (EbA) in the Philippines

scpw society for the conservation of Philippine wetlands
DENR-BMB
RRC-EA

Society for the Conservation of the Philippine Wetlands, Inc.
Department of Environment and Natural Resources - Biodiversity Management Bureau
Ramsar Regional Centre - East Asia

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Thank you!

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Ugnayan ng Iba't-ibang Buhay, Pahalagahan, Pangalagaan.
Biodiversity