

Wetlands, Water, Biodiversity and Climate Change





Wetlands Defined

Wetlands are areas of marsh, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including area of marine water the depth of which at low tide does not exceed six (6) meters (Ramsar Convention on Wetlands)

Wetland Categories

Inland Wetlands

Lakes, marshes, floodplain forests, rivers, and flooded caves, snowfields, glaciers

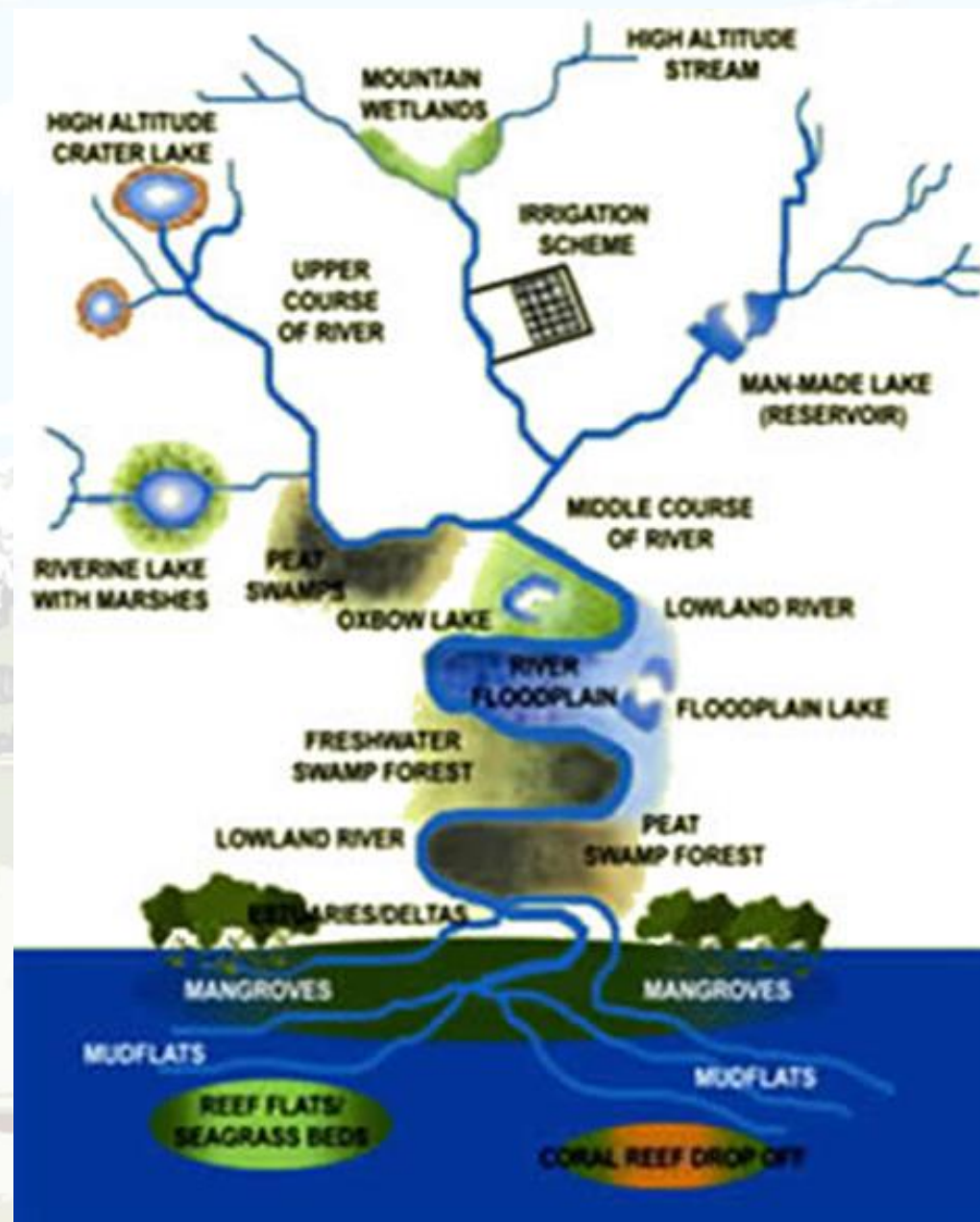
Coastal and Marine Wetlands

Mangroves, coral reefs, sea-grass beds, tidal-flats, estuaries, up to 6m depth at low tide

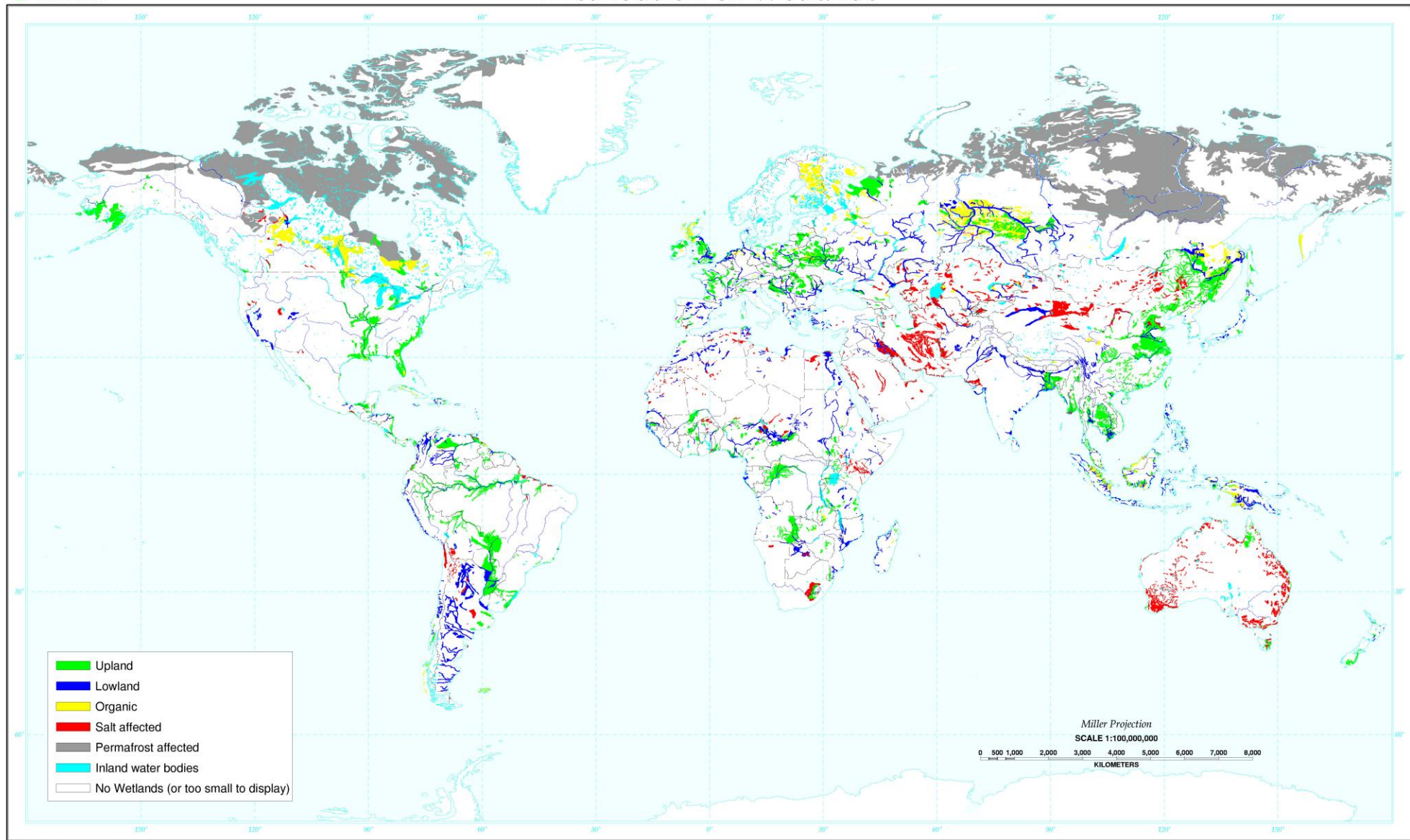
Human-made wetlands

Rice fields, fish ponds, reservoirs, ditches and canals





Distribution of Wetlands

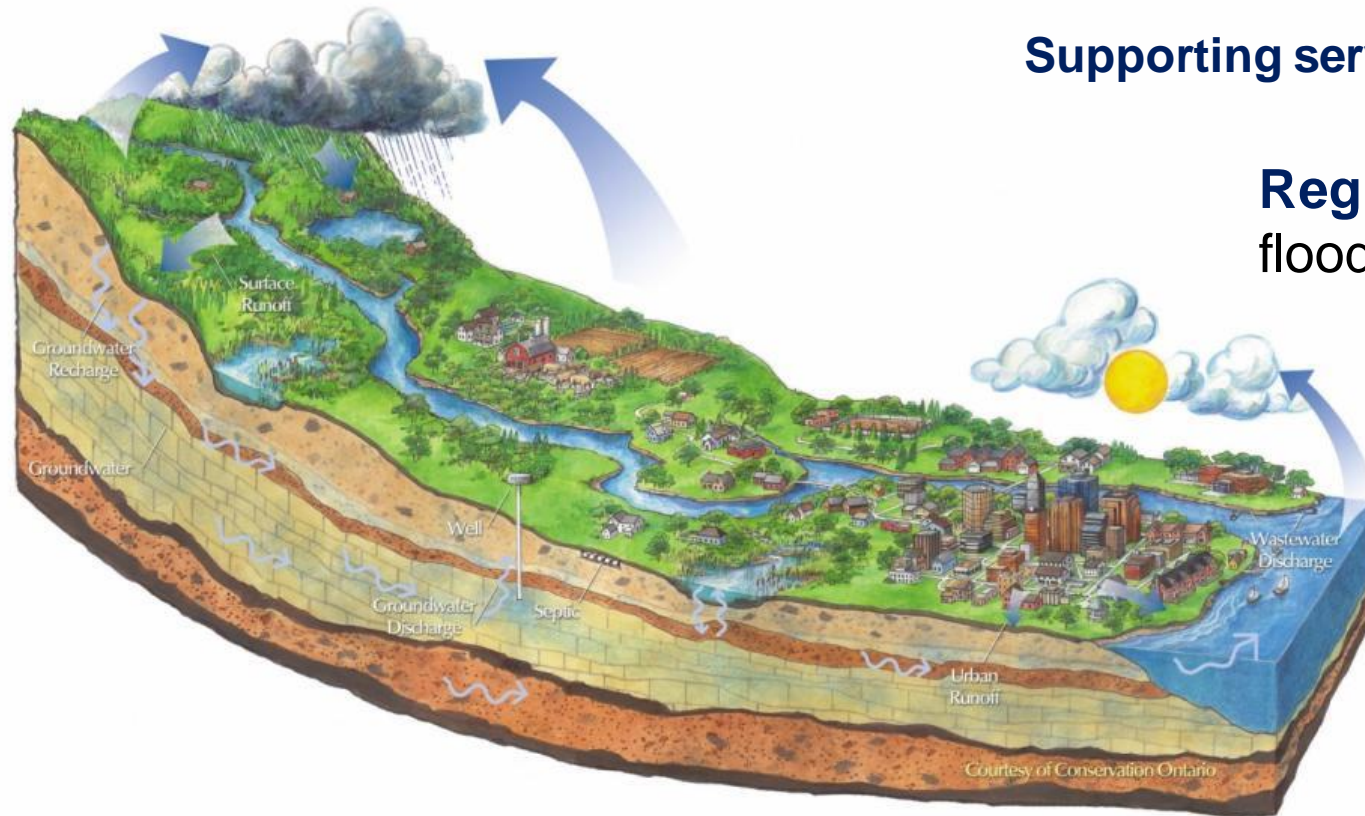


Wetland Services

Provisioning services: e.g. water, food, biodiversity, and hydroelectricity

Supporting services: e.g. bio-geo-chemical cycles,

Regulating services: e.g. regulation of floods, and drought



Cultural services: recreation, spiritual, education

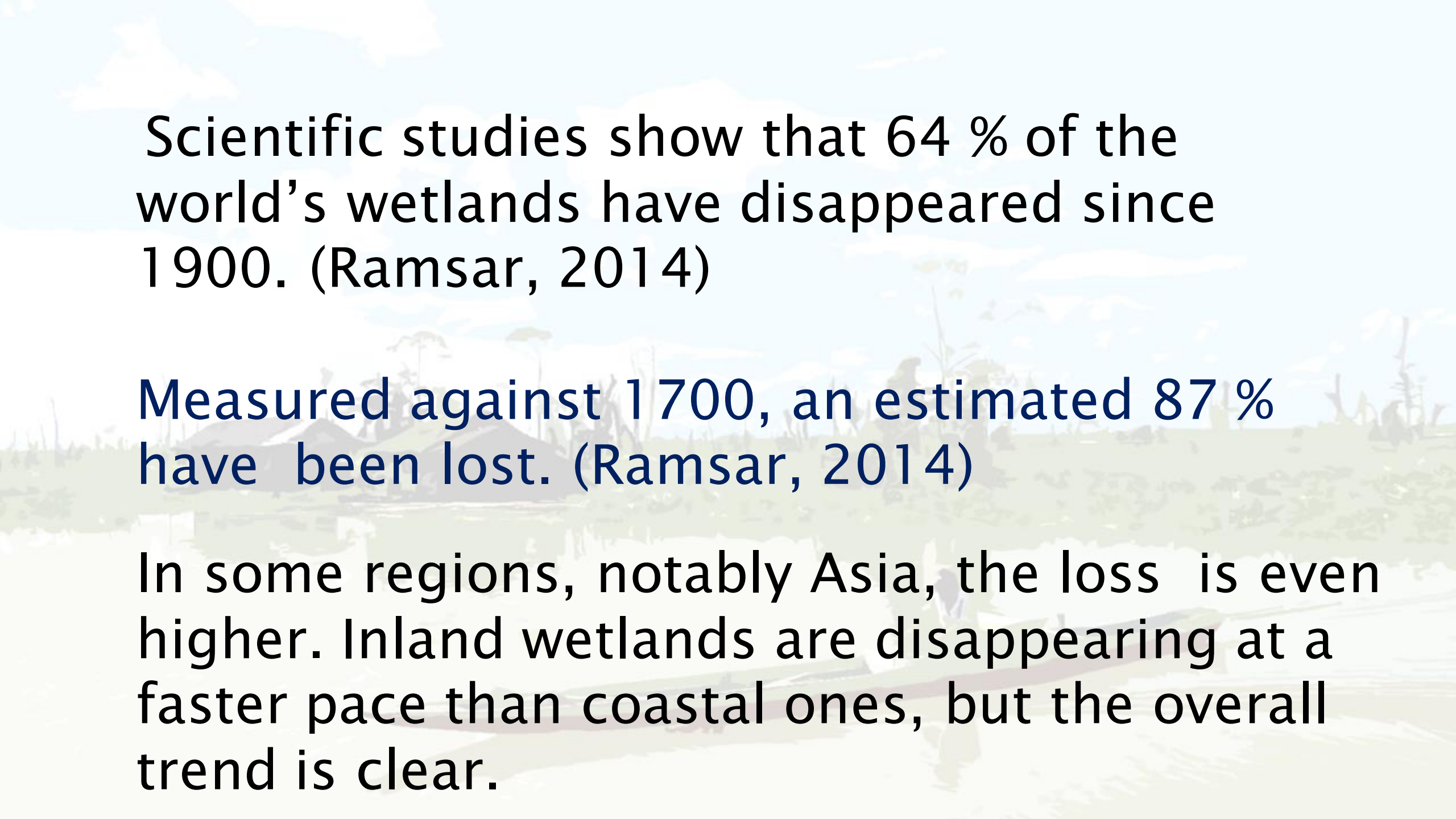


Some of the Threats to Wetlands	
Drainage; Filling; Reclamation	Releasing Toxic Chemicals
Dredging and Stream channelization	Introducing Non-Native Species
Deposition	Changing Nutrient Levels
Damming	Erosion
Poor Agricultural Practices	Subsidence
Construction	Sea Level Rise
Runoff	Droughts
Air and Water Pollutants	Severe Storms

WETLANDS

A GLOBAL DISAPPEARING ACT





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)

In some regions, notably Asia, the loss is even higher. Inland wetlands are disappearing at a faster pace than coastal ones, but the overall trend is clear.

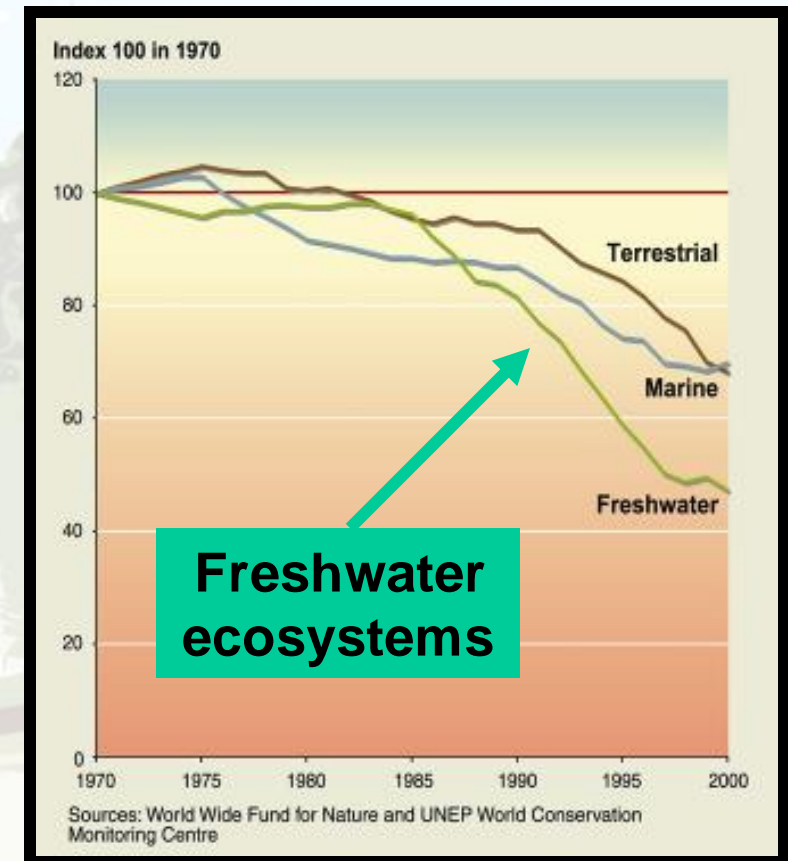
Threats to Wetlands

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

- Water abstraction
- Land-use changes
- Agriculture
- Poor wetland management decisions

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

Living Planet Index



Climate Change Impacts on Wetlands

Climate change is just one of a number of threats affecting wetlands and their biodiversity

...the other factors being associated with rapid economic development

The challenge is to find the most effective way to conserve and manage wetlands so that they can receive a reliable supply of water of the correct quality and quantity, with minimal variations

...to maintain the biodiversity and the ecological services the wetland provides.



Wetlands and Climate Change Mitigation

- Wetlands are more important as carbon stores than other biomes. Peatlands alone, store twice the carbon present in forest biomass of the world and they store this carbon for thousands of years, contrary to forests.
- Wetland degradation by drainage and fire will therefore make a significant contribution to carbon emissions.
- The conservation, restoration or creation of wetland will thus help to mitigate against climate change.



Wetlands and Climate Change Adaptation

- Wetlands are a natural infrastructure to strengthen climate change adaptation.
- Conservation management of coastal wetlands will then contribute towards
 - Climate change mitigation through carbon storage,
 - Climate change adaptation as mangroves and salt marshes can provide partial protection from the impacts of sea level rise, AND
 - Secure wetland ecosystem services.



Wetlands and Climate Change Adaptation

- Flood exposure can be reduced by restoring floodplain function, especially when this is combined with effective land-use planning. This also restores the ecosystem services the wetland provides.
 - Natural solutions will be better for wetlands, biodiversity and people than will any engineered infrastructure.



Threats from human responses to climate change



Construction of large dams for water storage that may have impacts on wetlands downstream.



Projects to divert the course of river from water richer areas to water deficit areas.

Threats from Human Responses to Climate Change



Mangrove planting programs for carbon offset that may cause the loss of intertidal habitats



Wave energy plants that cause the impoundment of coastlines that may impact on intertidal areas.

What are the drivers of the continuing loss of wetlands?

- Lack of awareness
- No comprehensive picture of the extent and condition of wetlands
- Wetland values not quantified
- Ecological nature of loss and degradation are not well known; not quantified
- Non-ecological causes are given less attention
- Lack of capacity to implement wetland conservation measures



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?



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The Global Response

The Ramsar Convention

(The Convention on Wetlands of International Importance, 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 Ramsar Convention

Number of Contracting Parties: 169

Number of Ramsar Sites: 2,241

Total surface of designated sites: 215,240,652 ha

Conservation Initiatives

- Designation as Wetland of International Importance
- Establishing Conservation Areas
 - National Intergrated Protected Areas System (NIPAS)
 - Biodiversity Conservation Policies
 - Designation of Critical Habitats
- Recognizing Best Practices through Conservation Awards
- Other Wetland Conservation Programs and Projects



Ramsar Sites in the Philippines

- Agusan Marsh Wildlife Sanctuary
- Lake Naujan National Park
- Tubbataha Reefs National Marine Park
- Olango Island
- Puerto Princesa Subterranean River National Park
- Las Pinas–Paranaque Critical Habitat and Ecotourism Area



Ramsar Sites in the Philippines

- Agusan Marsh Wildlife Sanctuary





Ramsar Sites in the Philippines

- **Tubbataha Reefs National Marine Park**





Ramsar Sites in the Philippines

- Olango Island





Ramsar Sites in the Philippines

- Lake Naujan National Park





Ramsar Sites in the Philippines



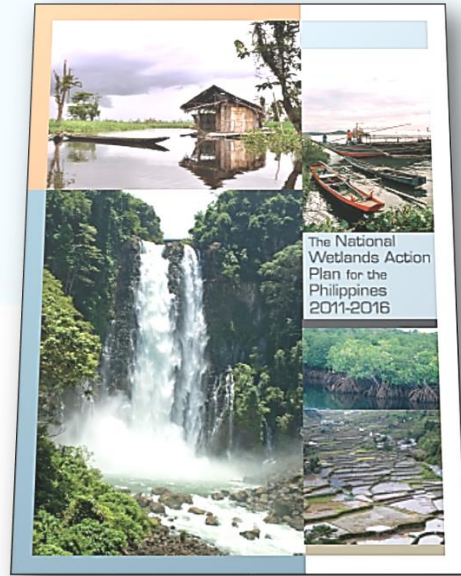
- **Puerto Princesa Subterranean River National Park**



Ramsar Sites in the Philippines



- **Las Pinas–Paranaque Critical Habitat and Ecotourism Area**



The National Wetlands Action Plan for the Philippines (2011–2016)

Thematic Area 1 : Wetlands Policy

Thematic Area 2: Inland Wetlands

Thematic Area 3: Coastal and Marine Wetlands

Thematic Area 4: Enabling Strategies

Overall Outcome

- Wetlands of the country are ecologically healthy, functioning, delivering services and products
- Resilient and stable inland, coastal and marine wetland ecosystems
- Priority wetlands in the country are managed well and used wisely

Summary

- Wetlands provide a range of ecosystem services;
- Wetland ecosystems and their biodiversity are threatened and in most case, the rate of deterioration is faster than for other ecosystems and species;
- Climate change is one of the causes for the threat, the other key causes are associated with rapid economic development and pressure associated with growing human population;
- Wetlands have an important role in climate change mitigation and adaptation;

Summary

- Degraded wetlands are a significant source of atmospheric carbon;
- The restoration and conservation management of wetlands for climate change mitigation and adaptation is often more efficient than hard engineering solutions;
- Apart from the direct threat to wetlands and their biodiversity from climate change, actions taken by people in response to climate change may also have a serious impact.



Thank You

