**Forum:** Environmental Sub-commission 2  
**Issue:** International Cooperation to conserve wetlands to safeguard biodiversity  
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**Position:** Deputy Chair

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**Introduction**

Wetlands or marshlands are regarded as one of the most biologically-diverse ecosystems. IUCN’s Freshwater Biodiversity Unit has estimated that over 126,000 recognized organisms depend on freshwater habitats, such as a variety of fish, molluscs, reptiles, insects, plants, and mammals. Nearly 45% of all fish thrive in freshwater habitats and about 25% of all molluscs are dependent on freshwater for survival. Over 15,000 fish, 4,300 amphibians and 5,600 Odonata (dragonflies and damselflies) require freshwater habitats as well.

Wetlands provide us with a wide range of benefits required for humanity to prosper, such as water for human wellbeing and sanitation, inclusive economic growth and climate control. Revitalization of groundwater basins, water purification and waste management, flood control and rainstorm protection, fisheries and leisure opportunities provided by wetlands hold a valued of over US$14 trillion annually. Nonetheless, wetlands are very susceptible to human commotion. Agriculture, communal development, introduction of invasive species, pollution and over-exploitation all contribute to their ongoing degradation.

This report will outline current wetland preservation efforts with an emphasis on international cooperation, current threats to wetland biodiversity and will try to propose possible solutions to the issue. The report will take the matters of importance of wetlands for realizing Sustainable Development Goals (SDGs), their ecological contributions to societies and the international effort partaking in conservation of biodiversity.

**Definition of Key Terms**

**Biodiversity**
The variety of life in the world or in a particular habitat or ecosystem.

**Habitat**
The natural home or environment of an animal, plant, or other organism.
Ecosystem
A biological community of interacting organisms and their physical environment.

Ecosystem
Though there are two definitions of ecology, this paper will focus on this term as the branch of biology that deals with the relations of organisms to one another and to their physical surroundings.

Sustainable Development Goals
As defined by the United Nations itself, The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

Background Information
Wetlands are crucial incubators of species diversity, as important as tropical rainforests and coral reefs. These occur on all continents, with the exception of Antarctica, including saline coastal wetlands such as estuaries and inland systems. According to geography, soil, and plant life, scientists classify wetlands into bogs, swamps, marshes, and other types.

Importance of Wetlands
Wetlands help filter upstream sources of pollution and surface runoff, which helps keep downstream streams, bays, and oceans dry. Through this way, protected wetlands help to offset the negative impact that human and agricultural waste and some industrial pollution byproducts have on the water of our country. Wetlands help control freshwater flooding along shorelines and avoid wave erosion; they reduce the damage done by drought.

Coastal wetlands protect valuable fish and shellfish spawning and feeding grounds. In North American wetlands, mink, otters and other species of mammals thrive, as do countless plants and insects, amphibians and reptiles. To birds, these are important breeding grounds. According to the United States Environmental Protection Agency (EPA), wetlands are important for the survival of about one-third of the
endangered species of animals and plants in the United States, and about half of these species use wetlands at some point in their lives.

Sadly, the importance of wetlands has been poorly understood, especially in this century. They are considered useless, or worse—seen only as breeding grounds for bugs, other pests, or odor sources. Many wetlands have been drained or destroyed to accommodate farming, dams, and human housing.

It is estimated that since the 18th century, more than half of the wetlands in the continental United States have been lost; and wetlands have fared no better elsewhere. Biodiversity has been harmed with the loss of wetlands, both in the wetland areas themselves and downstream. For instance, nitrogen fertilizer runoff from farms has overwhelmed the capacity of some wetlands to filter pollutants, creating "dead zones" in areas such as the Gulf of Mexico, where algae blooms fueled by this and other nutrients have run riot and displaced a once thriving, diverse ocean ecology.

**Biodiversity**

In a way, wetlands are a laboratory of biodiversity. For one, the heterogeneity of conditions in wetlands sets the environmental parameters that allow the development of new survival strategies, even encouraging them. For example, according to the EPA, many bog species have "special adaptations to low nutrient levels, waterlogged conditions, and acidic waters, and extreme temperatures." Vernal pools, winter ponds, and summer mud flats often include rare species that weather drought like seeds, eggs, and cysts, and then grow into mature form when the soil is again watery. Mangrove swamps are full of salty water-adapted shrubs and trees.

Wetlands are important for water, nitrogen and sulfur-related natural cycles. Instead of releasing carbon into the atmosphere as carbon dioxide, their plants and rich soil can provide one buffer against global climate change.

**Connection to Sustainable Development Goals**

To grasp the extent of the interlink between wetland conservation and the sixth sustainable development goals, one must first look into the services wetlands provide to their neighboring human settlements. They provide access to water for nearby communities, create viable habitats for the biodiversity they contain, which ultimately supports the development of communities; economically via attracting wildlife tourism and health wise through clean water resources.
The services that wetlands provide are invaluable in terms of dollars. For example, according to the Environmental Preservation Agency (EPA), the South Carolina Congaree Bottomland Hardwood Swamp conducts water purification functions equal to a wastewater treatment plant costing five million dollars. Wetlands act like giant sponges, store and slowly release soil, melted snow, and floodwater. Due to the rapid release of water runoff from residential buildings and pavements, wetlands downstream from urban areas provide important flood control services.

In some cases, to create artificial flood control, wetlands have been destroyed. Hardwood wetlands along the river Mississippi once held flood water for 60 days. Now, they store the cost of the 12 days due to filling or draining. There is a change in attitudes. The U.S. in the seventies The Army Corps of Engineers determined that draining 8,500 acres of wetlands near Boston would result in flood damage of $17 million per year—these wetlands have never been drained. Ultimately, however, even the finest wetlands will be degraded or destroyed if too much pollution, silt, and non-native species are sent from the upstream.

Clean Water and Sanitation
The Clean Water Act's Wetlands provision (1987) established a policy of "no net loss" to manage wetlands. This means, in theory, that filled wetland areas with restored wetland acreage should be offset. Through fact, due to the different concerns of governments, farmers, and property owners, this section of the law was reluctant to be enforced.

However, the government has offered tax deductions to individuals who donate or sell wetlands for preservation purposes and has taken other steps to try to protect them. Watershed conservation programs involving federal, state, regional, and native tribal governments have proved useful in the management of streams, waterways, and wetlands.

Climate Action
The survival of species is essential to effectively fight back against climate change. Many familiar animals make use of wetlands—ducks, falcons, bears, deer. Some migratory fowl species depend entirely on wetlands. In coastal marshes and estuaries, most commercial fish breed and nurture their young. Without wetlands, such familiar species like striped bass, shrimp, oysters, clams, and crabs cannot survive.

As a result, wetlands are essential food sources for human populations to burgeon. Other harvests in wetlands include blueberries, cranberries, wild rice, and timber, not to mention medicinal plants. Nearly all commercial fishing on the western hemisphere’s shores rely on safe estuary wetlands.
Commercial fish and shellfish from the coastal marshes of the state of Louisiana added $244 million to the economy of that state in 1991. Animals who bear fur—muskrat, beaver, and mink—bring millions more. With hunters, fishermen and visitors, wetlands are popular: as a result, nearby cities enjoy economic benefits.

**International effort for conservation**

International efforts play a vital role to protect natural wetlands. Together with Wetlands International, the Australasian Wader Studies Group has completed five years of surveying and shore bird counting activities in China during the migration season, a step towards gathering data on the importance of China's inland wetlands to bird species.

Under the Ramsar Convention, Tasek Bera, Malaysia's largest natural freshwater body, has been designated a Wetland of International Importance, raising the profile of many species as an important cradle. The best advocates for wetlands are often groups of concerned citizens and scientists who are willing to conduct exploration and inventory of declining species, and educators who are able to train local groups of people to better manage wetlands. Governments become more sensitive to the need for wetland areas to be protected. In many parts of the world, a number of wetland management strategies are successful across mitigating or preventing damage and protecting biodiversity.

**Major Countries and Organizations Involved**

**Food and Agriculture Organisation (FAO)**

FAO is arguably the organization that has done most for conserving wetlands. Though one of its primary efforts is promoting agriculture, FAO has generated numerous programs to effectively fight back against local and international efforts to dry wetlands to turn them into agricultural fields. FAO has developed programmes in countries such as Zimbabwe and Senegal in collaboration with regional governments to tackle issues of intergovernmental importance.

**People's Republic of China**

Since the 1950s, the development of infrastructure (dams, river training structures, irrigation channels), industrialization and intensive agricultural use has resulted in the transformation of large areas of Chinese wetlands into arable farmland and industrial areas. Although the remaining wetlands are highly fragmented, they have an extremely high biodiversity. These are of great importance to the national economy in their position as a water reservoir and make a significant contribution to mitigating climate change.
The aim of the Chinese government is to stop further wetland destruction and introduce a wetland restoration and rehydration system to tackle the deterioration of their ecological functions. The role of maintaining wetlands needs cross-sectoral cooperation. Nevertheless, the competent government agencies currently have little understanding of the value of participatory wetland conservation approaches and limited knowledge of new methods for their sustainable management.

Zimbabwe
Zimbabwe hosts one of the most important wetlands: the Harare region. The wetlands of Harare play a very important role in providing water for the region. Harare's continuing water supply crisis is compounded by the depletion of its main source of water, the vleis or wetlands. Harare's primary source of water comes from the vleis and open green spaces in and around the city. These are now being sacrificed for production, contaminated with waste, and destroyed by informal urban farming. Greater Harare and its surroundings lie in the Manyame and Gwebi catchment basin's headwaters. Approximately 6.5 million people rely for their water supply on this invisible stream. There is no higher place from which to source Harare's water.

Senegal
Salt poses a threat to the Siné Saloum Delta wetlands of Senegal. In Senegal, water flowing into underground freshwater aquifers slowly raises soil salinity, causing havoc to farming communities living near biodiversity-rich wetlands. Siné Saloum Delta from Senegal is a hotspot for biodiversity. Just 180 kilometers south-east of Dakar, the UNESCO World Heritage Site spans nearly 180,000 hectares, including wetlands, lakes, lagoons and marshes, as well as sandy coasts and dunes, land savannah areas and dry, open forest. It is home to 400 species and plays a vital role in managing flooding and governing the distribution of rainwater to local people and wildlife.

But the salinity of the soil has shot up due to drought, climate change, and unregulated logging of mangrove forests, threatening the livelihoods of thousands of people living there. During the dry season, fresh water retreats underground in the wetland along the Saloum river, allowing seawater to join. This is known as intrusion of saltwater—the movement of saline water into freshwater aquifers—making undrinkable sources of freshwater.

Because of this salinity, Sadio Ba village had to give up rice cultivation. "The salt has caused a lot of damage in the fields. The size of our agriculture is gradually declining because we don't use the salted soil," she said. Siné Saloum Delta has been described as the most important place in Senegal, and even
in West Africa, for its bird species population. Goliath heron, large egret and gray heron are a common sight.

Yet climate change, drought, and unregulated mangrove cutting, a natural saltwater barrier, are growing the soil's salinity with tremendous impacts on the fragile biosphere of the delta, says Ballé Seye, project manager at the International Union for Nature Conservation (IUCN). "Mangrove forests are helping to avoid salinization in crop fields," Seye said. "Now all of these mangroves are just ruins, lost. The result is that salinization in the fields and particularly pastoral zones is advancing strongly. No grass grows on this property, so in a few years' time you can imagine the herders' difficulties," he said.

As part of the Ecosystems Protecting Infrastructure and Communities (EPIC) campaign, the IUCN initiated three pilot projects in six villages in Senegal to enhance environmental conditions. The first effort was to establish ways of controlling forestry and fisheries production. The second was to create anti-salt barriers with local materials and finally to restore 90 hectares of forest to improve the quality of the soil.

**Timeline of Events**

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<tr>
<th>Date</th>
<th>Description of event</th>
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<tr>
<td>February 2nd, 1971</td>
<td>Ramsar Convention was signed</td>
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<tr>
<td>December 21st, 1975</td>
<td>The Ramsar Convention went into effect</td>
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<tr>
<td>1987</td>
<td>The Clean Water Act’s Wetland provision established a policy of “no net loss” to manage wetlands</td>
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<tr>
<td>November 4th, 2016</td>
<td>The Paris Agreement went into effect</td>
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<tr>
<td>December 20th, 2018</td>
<td>Implementation of the Convention on Biological Diversity was put into effect</td>
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**Relevant UN Treaties and Events**

- Observer status for the Ramsar Convention on Wetlands Secretariat in the General Assembly, 14 June 2018, *(A/73/100)*
- Permanent Mission of Uruguay to the United Nations addressed to the Secretary-General, 11 August 2017, *(A/72/194)*


**Previous Attempts to solve the Issue**

The only fully-formed global attempt to solve this issue is the Ramsar Convention. The mission of the Convention is "to protect and use wisely all wetlands through local and national actions and international cooperation as a contribution to achieving sustainable development worldwide. Wetlands are among the habitats that are most diverse and productive. They have essential services and all our freshwater is supplied. These are still being damaged and adapted to other applications, however.

A specific definition of wetlands is used by the Convention. It includes all lakes and rivers, underground aquifers, swamps and marshes, wet grasslands, peatlands, oasis, estuaries, deltas and tidal flats, mangroves and other coastal areas, coral reefs, and all human-made sites such as fish ponds, rice paddies, reservoirs and salt pans.

Under the Convention's "three pillars," the Contracting Parties commit to working towards the wise use of all their wetlands; designating suitable wetlands for the International Importance Wetlands List (also known as the "Ramsar List") and ensure their effective management; and cooperating internationally on transboundary wetlands, shared wetland systems and shared species.

**Possible Solutions**

The most viable path to follow for tackling this issue would be to make the ratification and obeying the clauses of the Ramsar Convention stricter. Currently the most internationally renowned agreement relating to this matter, the Ramsar Convention is of utmost importance for the problem at hand. A similar declaration is the Paris Agreement. Unfortunately, its signatories either fail to follow the regulations stated or are pulling their signatures one by one, posing grave danger for the future of Planet Earth and wetland habitats, hence its biodiversity as well.

Another possible solution would be to propose a regulatory body to be put in effect to oversee the environmental legislations of countries. From one point of view, this will be a violation of a country’s
sovereignty, as their internal matters will be interfered with. However, this would be treated as a humanitarian crisis as local dwellers and nearby populations do suffer from repercussions, most noticeably the increasing droughts and famines due to the drainage of wetlands. This way, the United Nations and its sub-branches such as FAO, the Security Council and even the International Court of Justice can have jurisdiction over regional decisions relating to globally significant landscapes.

Bibliography


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