

# Wetlands and climate change



**Their functioning and threats in a warming world**



By Pieter van Eijk

# Introduction

Wetlands are among the most important ecosystems in the world...

DEMO

DEMO

## Livelihoods & Biodiversity

DEMO

DEMO

# Introduction



## Climate Change Mitigation



# Introduction



## Climate Change Adaptation



...but their critical functioning in relation to climate change remains underestimated...

# Contents

- **Wetland values**
- **Wetland threats**
- **Wetlands and climate change mitigation**
- **Wetlands and climate change adaptation**
- **Impact of climate change on Wetlands**
- **Actions required**

# Wetland Values

**Wetlands cover just 6% of the global land and fresh water surface. Nonetheless they are...**

- **Hotspots for biodiversity**
  - 40 % of the world's species
  - Large genetic diversity
  - Many endemics
  - Important for migratory species
  - Breeding chambers for fish



# Wetland Values

- **Critical for livelihoods**
  - > **1 billion** people directly depend on wetlands
  - Total estimated value: **USD 14.9 trillion** (45% of overall ecosystem values)





# Wetland Values

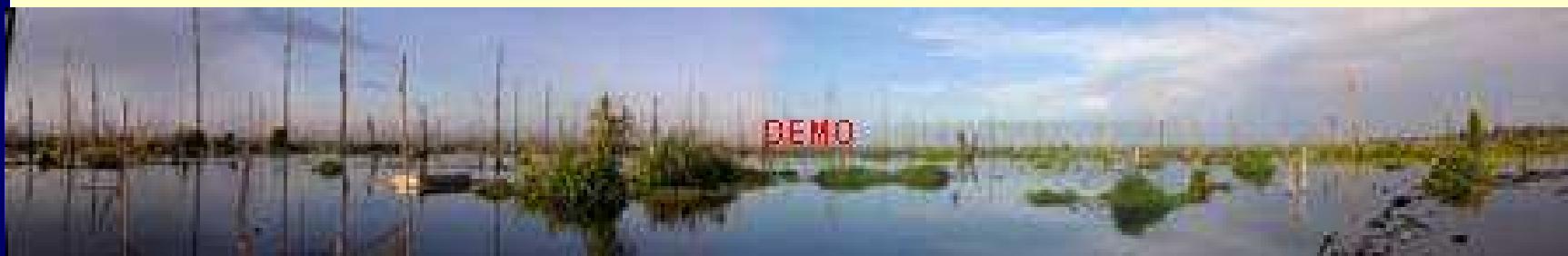
- **Providers of important ecosystem services**
  - Wetland products: food, construction materials, medicinal plants etc
  - Flood & drought mitigation
  - Water supply and purification
  - Erosion control, protection against storms & natural disasters
  - **Climate change mitigation**
  - **Climate change adaptation**





# Wetland Threats

- Conversion & degradation
- Pollution
- Invasive species
- Overexploitation
- **Climate change**



**Biodiversity  
loss**

**Poverty**

**Climate  
Change**

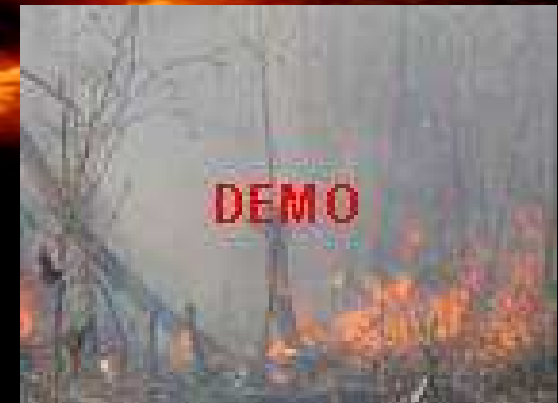
# Wetlands & Climate Change Mitigation

- **Wetlands are huge carbon sinks**
  - They store **> 528.000 Million tons of carbon** (= > 70 years of C emissions)
  - Most carbon in peatlands, but also in mangroves, flood forests & other wetlands
  - Below ground carbon stocks are twice as large as carbon stored in forests
- **Key role in mitigating climate change**
- **But...**

# Wetlands & Climate Change Mitigation

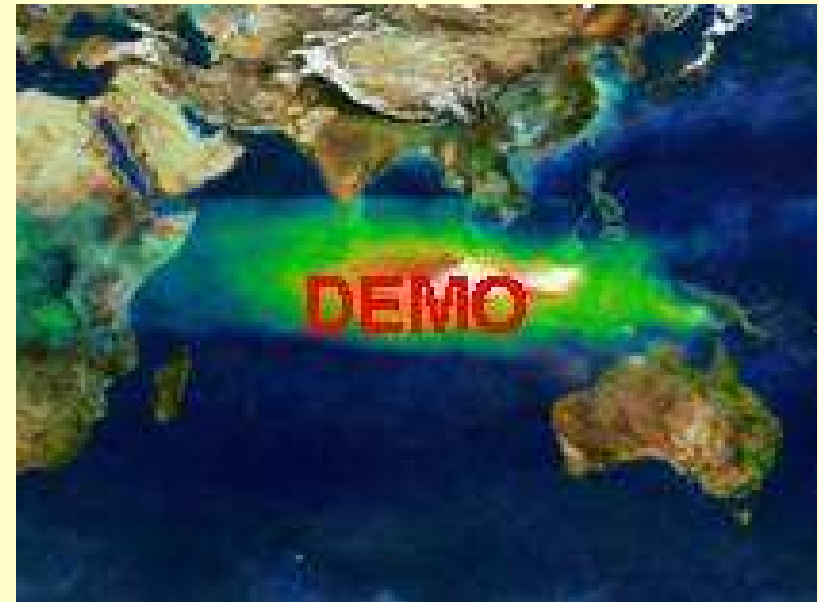


**Wetland degradation destroys these values**



# Wetlands & Climate Change Mitigation

- Degradation of tropical peatlands causes an **annual** emission of **2000 Million ton** per year
  - **0,2 %** of the global land surface emits **8%** of annual C emissions
  - Palm oil for 'green' biofuel is a major driver of degradation of tropical peatlands



# Wetlands & Climate Change Mitigation

- Degradation of mangroves and other carbon rich wetlands significantly contributes to climate change



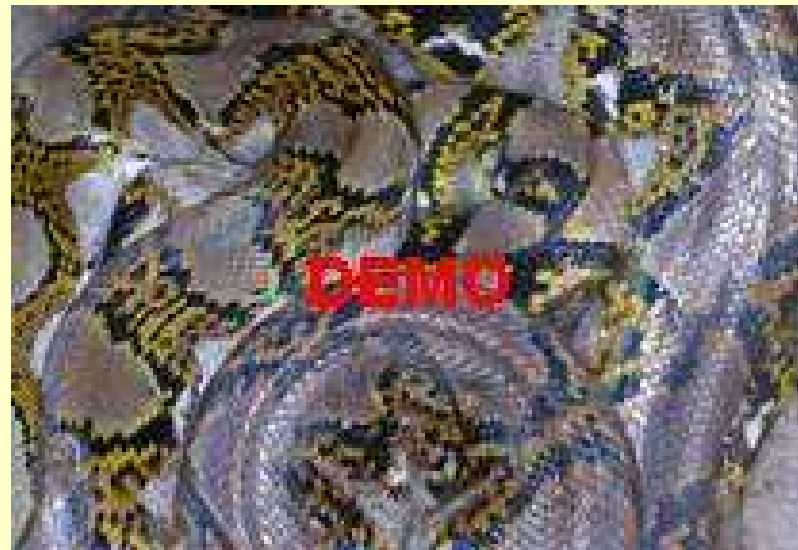
# Wetlands & Climate Change Adaptation

- **Wetlands can mitigate the effects of climate change (1)**
  - Maintenance of water supplies
  - Protection against floods & sea level rise
  - Erosion control
  - Prevention of saltwater intrusion



# Wetlands & Climate Change Adaptation

- **Wetlands can mitigate the effects of climate change (2)**
  - Ensuring availability of natural resources
  - Maintaining ecological networks for biodiversity migration
  - Shelter for plants and animals
- **Wetland degradation leads to the loss of these services**





# Impacts of Climate Change on Wetlands

- **Habitats:** Disappearance, alteration & degradation
- **Biodiversity loss:** Migratory species, endemics, coral bleaching



**Loss of ecosystem services**



**Increased poverty & vulnerability**



# Conclusion



**Wetland conservation and restoration are critical  
for climate change mitigation and adaptation**

**A wetland focused approach is cheap and delivers multiple  
benefits**



## **Actions Required**

- **Get wetlands firmly embedded under UNFCCC**
- **Build capacity and awareness on the critical functioning of wetlands**
- **Perform more detailed research on wetland-climate interactions**

# Actions Required

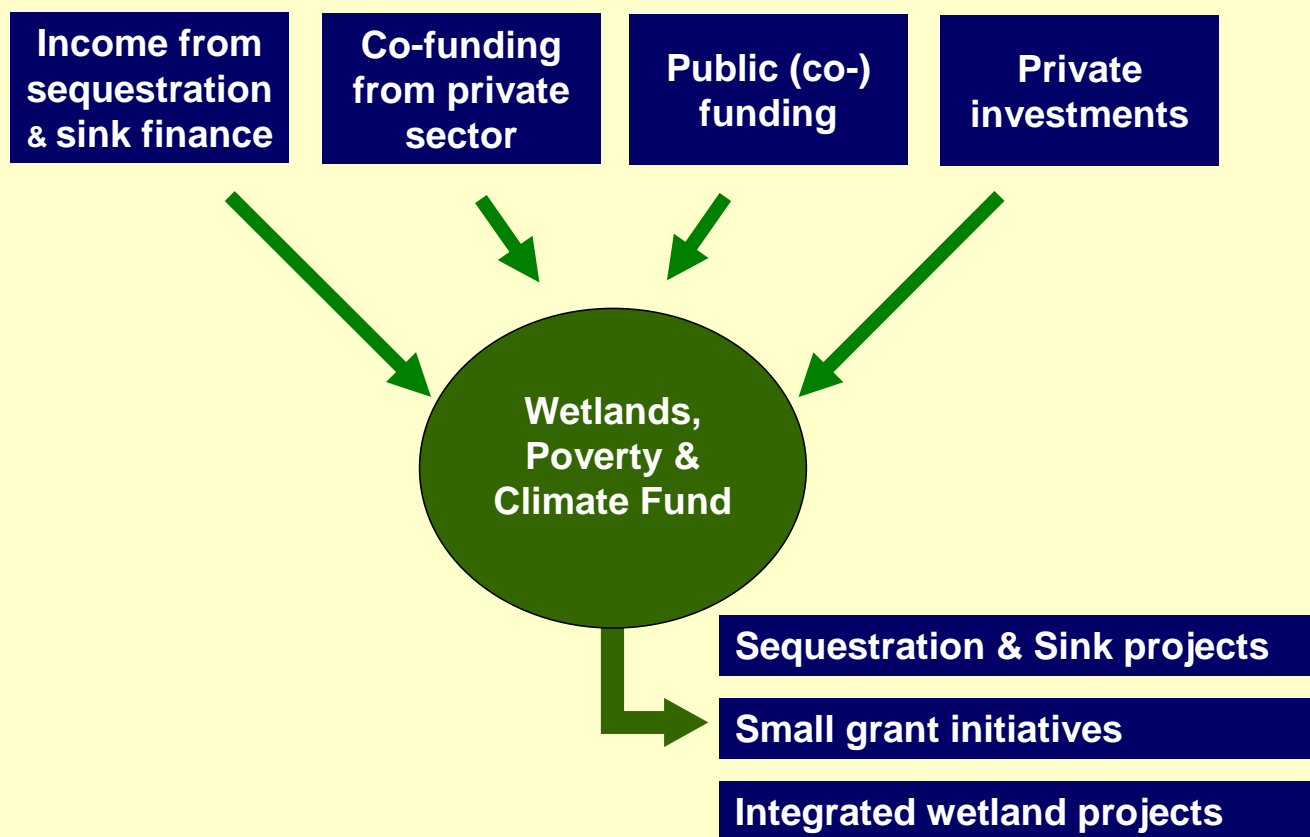


**DEMO**

**We have to act quick: Wetlands can't wait till beyond 2012!!**

# Actions Required

- **Develop financial mechanisms for wetland conservation & restoration, e.g. a wetlands, poverty and climate fund**



# Actions Required

- **Act! Perform field-based conservation and restoration activities**

