

COP 17 Side Event: Ecosystem-based Adaptation – South African Case Studies

An overview of expected impacts of climate change on the wetlands of South Africa

Piet-Louis Grundling

www.imcg.net

Contact emails:
peatland@mweb.co.za



INTERNATIONAL MIRE
CONSERVATION GROUP



The importance of wetlands

Wetlands are natural assets able to provide a range of products, functions and services, free of charge:

- water supply
- streamflow regulation
- erosion and flood mitigation
- water quality enhancement
- maintenance of biodiversity
- products (fish, grazing, building and crafts material)
- cultural attributes
- recreation and tourism
- maintenance of natural processes
- Climate change mitigation

Wetlands and climate change : why should we care?

- Wetlands are the most efficient terrestrial ecosystems in storing carbon, especial peatlands
- 50% of all wetlands are peatlands
- While covering only 3% of the world's land area, their peat contains as much carbon as all terrestrial biomass, twice as much as all global forest biomass, and about the same as in the atmosphere.
- Peatlands are the most important long-term carbon store in the terrestrial biosphere. They sequester and store atmospheric carbon for thousands of years.

Wetlands : why should we care?

- Peat wetlands (mires) are critical for biodiversity conservation.
- They support many specialized species and unique ecosystem types, and
- can provide a refuge for species that are expelled from non-peatland areas affected by degradation and climate change.
- Mires play a key role in water resource management, storing a significant proportion (10%) of global freshwater resources.
- Wetland degradation can disrupt water supplies and decrease flood control benefits

Why should we care?

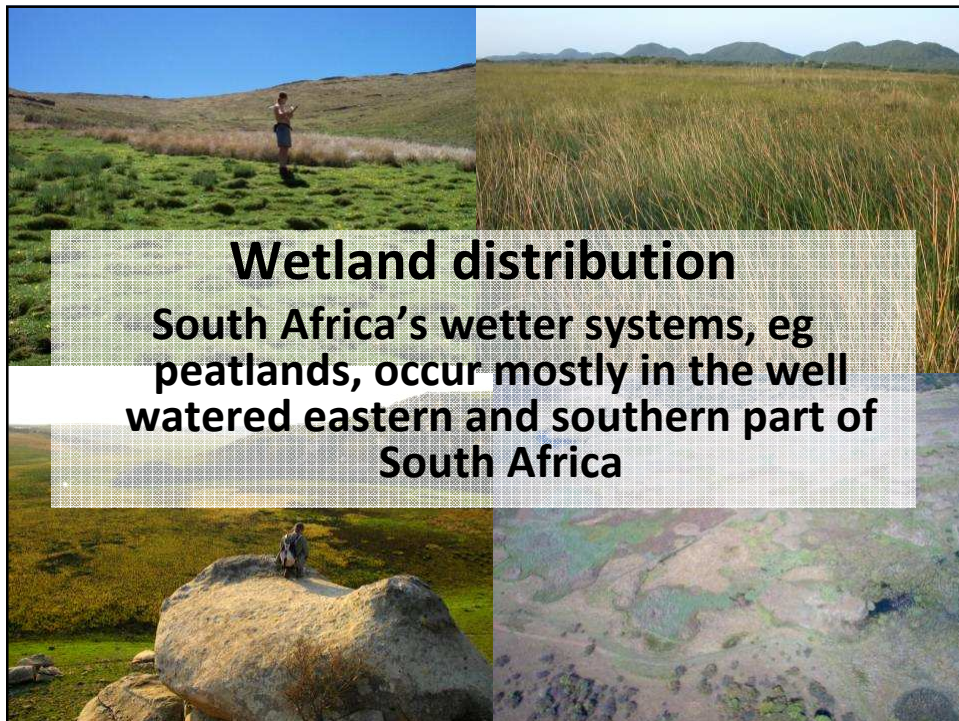
- Degradation of peatlands is a major and growing source of anthropogenic greenhouse gas emissions. Carbon dioxide emissions from peatland drainage, fires and exploitation are estimated to currently be equivalent to 10% of the global fossil fuel emissions
- Mire degradation affects millions of people around the world.
- Drainage and fires peat swamp forests jeopardize the health and livelihoods of millions of people in several countries in the world.

**Maputaland,
KZN**

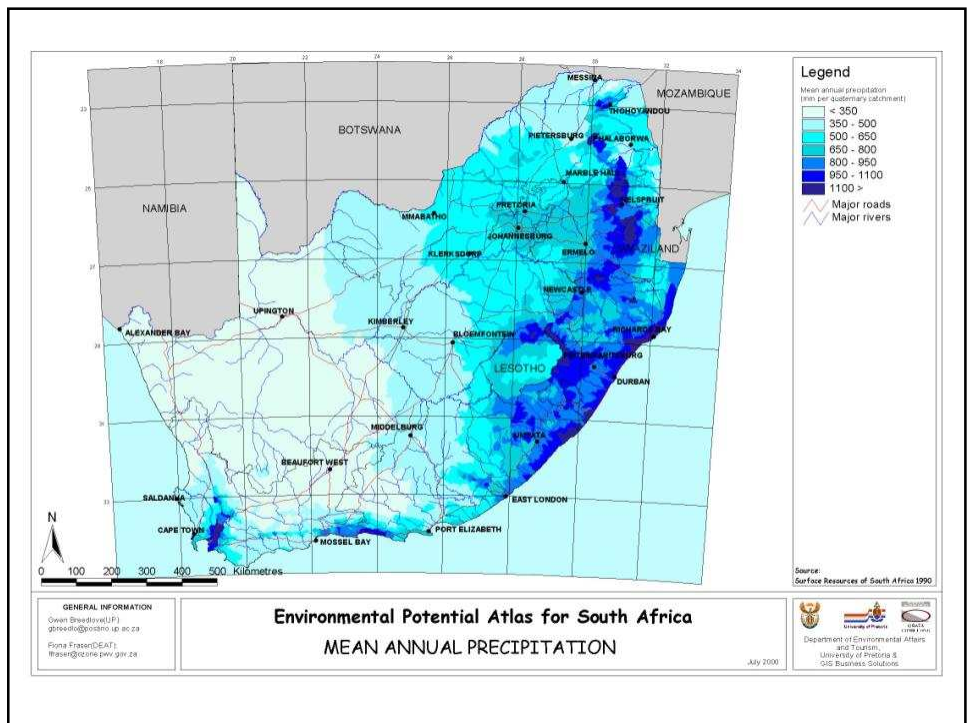
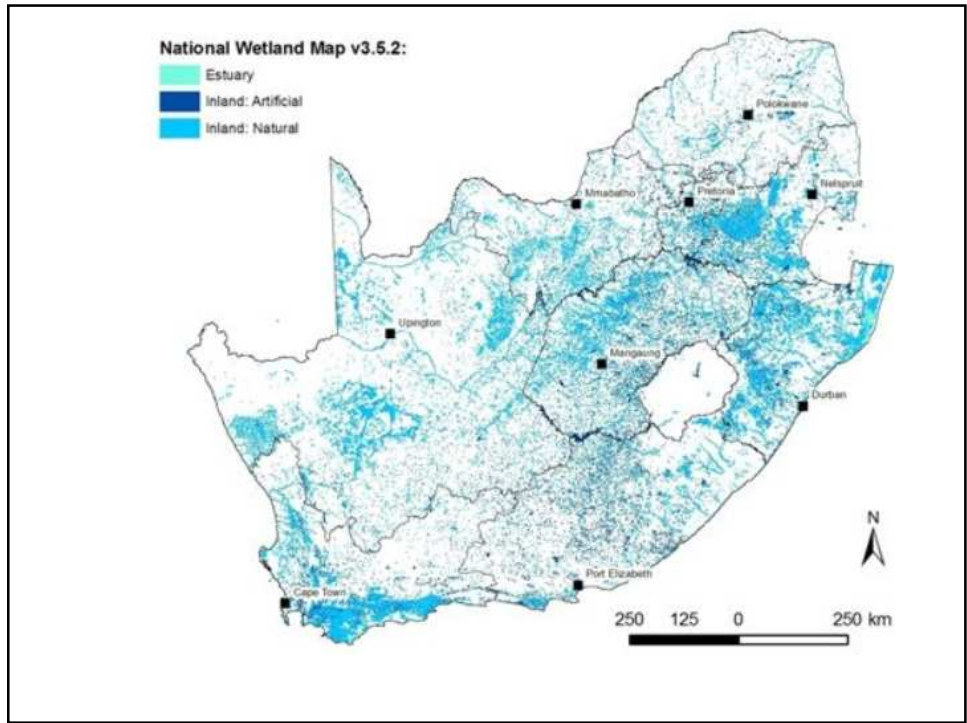


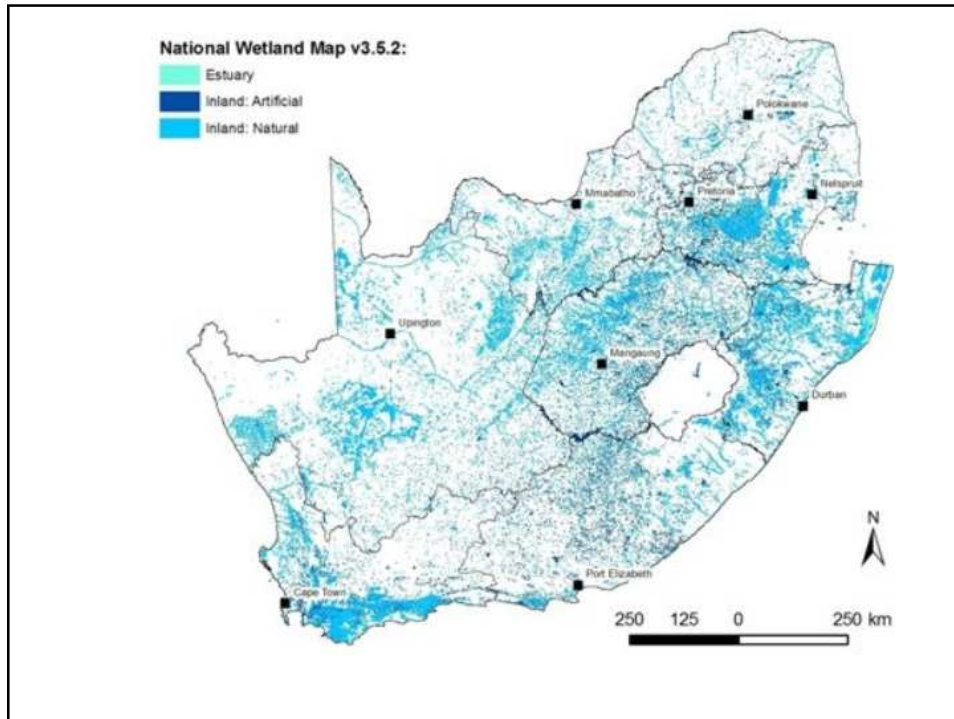


**Maputaland,
KZN**



Wetland distribution
South Africa's wetter systems, eg peatlands, occur mostly in the well watered eastern and southern part of South Africa





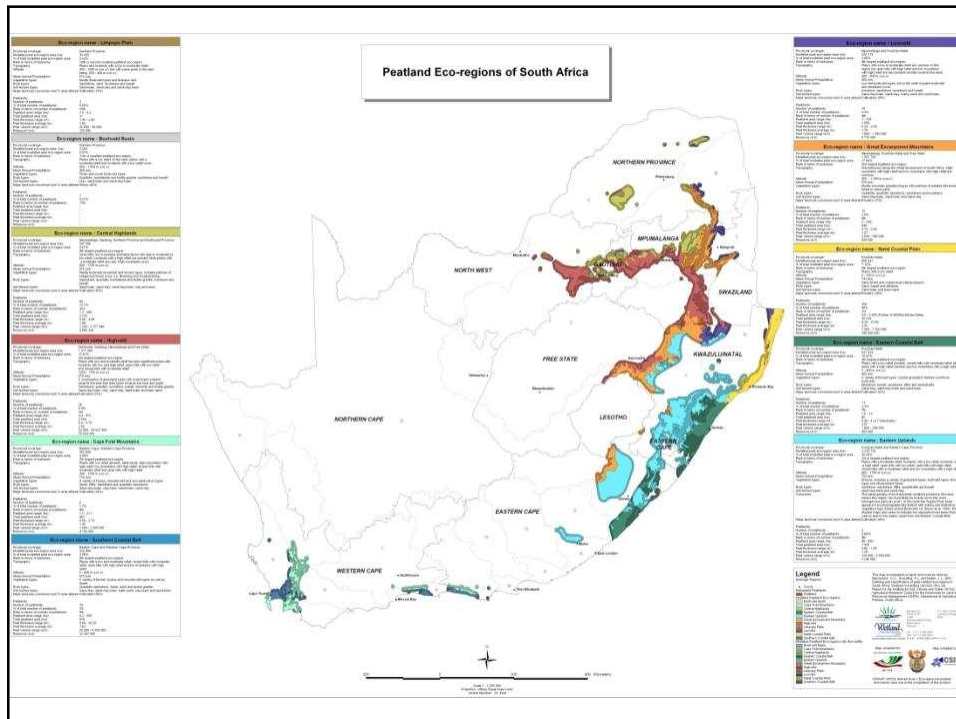
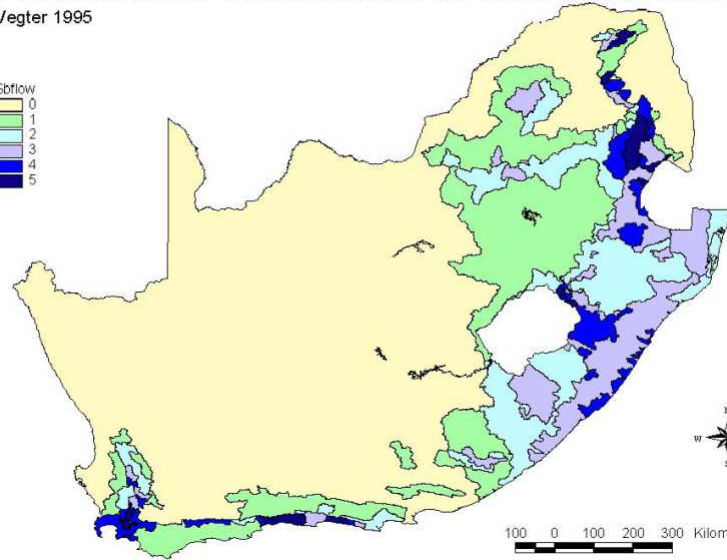
Role of Groundwater

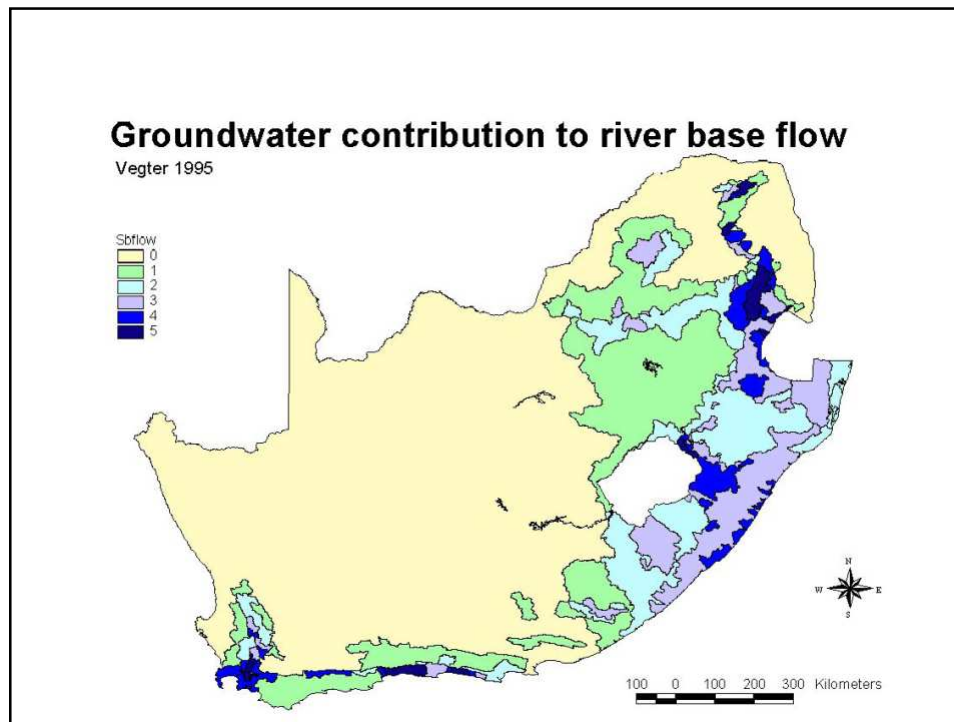
- However, most of our wetter systems are groundwater dependent ecosystems.
- The correlation between the map depicting groundwater contribution to river base flow and the peat eco-region map illustrates this clearly.

16 08 2004 1107

Groundwater contribution to river base flow

Vegter 1995





Climate change scenario in southern Africa

- Sub-continental warming is predicted to be greatest in the northern regions.
- Temperature increases in the range of between 1°C and 3°C can be expected by the mid 21st century, with the highest rises in the most arid regions.
- a broad reduction of rainfall in the range 5% to 10% can be expected in the summer rainfall region.

DEAT

Climate change scenario in southern Africa

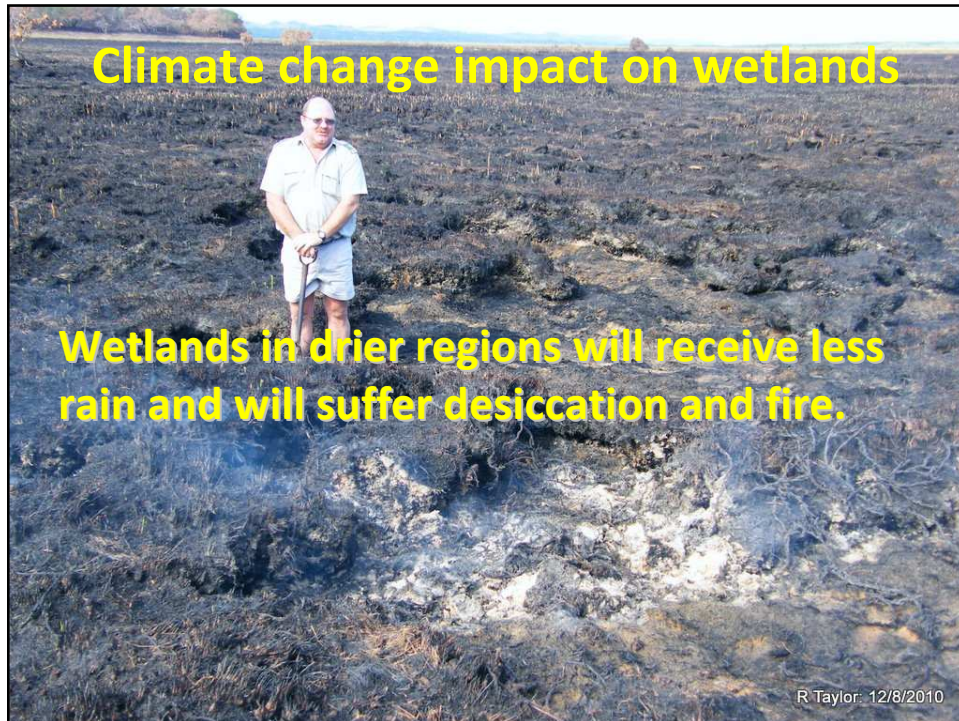
- This will be accompanied by an increasing incidence of both droughts and floods,
- with prolonged dry spells being followed by intense storms.
- A marginal increase in early winter rainfall is predicted for the winter rainfall region.
- Significant effects on various sectors of society (including health) and the economy (increase in poverty and decrease in food security) will occur.

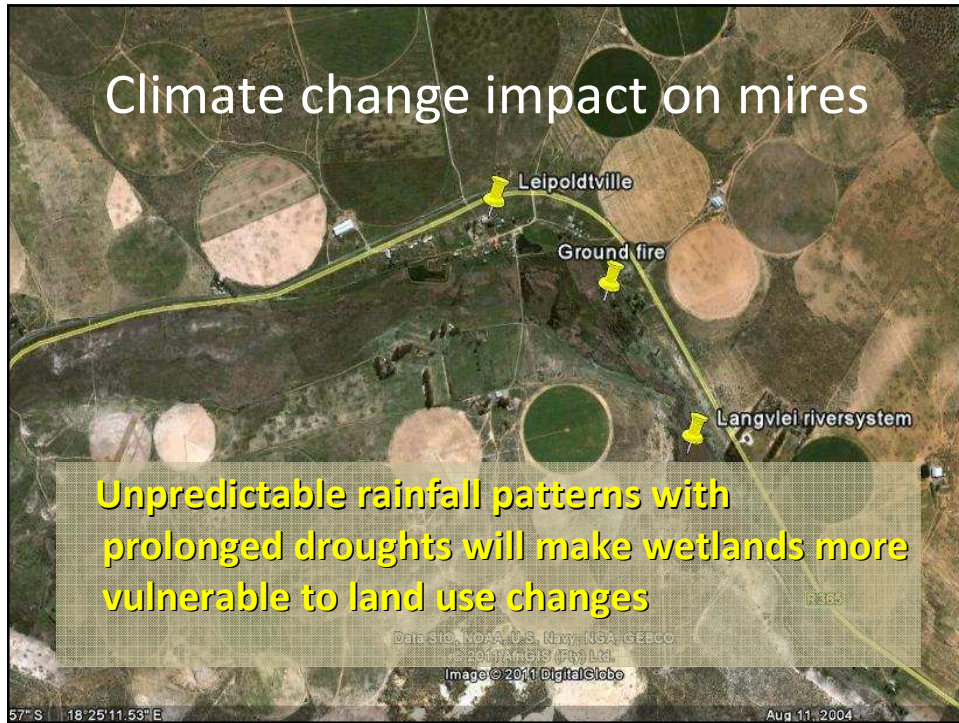
DEAT

Climate change scenario in southern Africa

In Summary:

- drier north and west ,
- marginal wetter south (winter rainfall) and
- wetter east
- **HOWEVER:** Rainfall patterns will be more erratic with intense storms.







Developmental threats

- The combined effect of development pressure with climate change spell disaster for certain wetland types,
- especially those depended on primary aquifers such as karst (in the drier west: Molopo) and unconsolidated sands (West Coast, Maputaland)



Developmental threats


- The primary threats will be related to water abstraction for agriculture and domestic consumption, as well as
- The expansion of timber plantations and woodlots.
- Uncontrolled subsistence cultivation and grazing practices will further exacerbate mire degradation.



Can we soften the impact?

We need to because:

- Conservation, restoration and wise use of wetlands are essential and very cost-effective measures for:
 - long-term climate change mitigation and adaptation as well as
 - biodiversity conservation.



Can we soften the impact?

Get practical – take action:

- **Apply and enforce all relevant legislation and conservation practices in development.**
- **Earmark wetlands for relevant conservation measures (eg. rehabilitation) where applicable.**



In South Africa

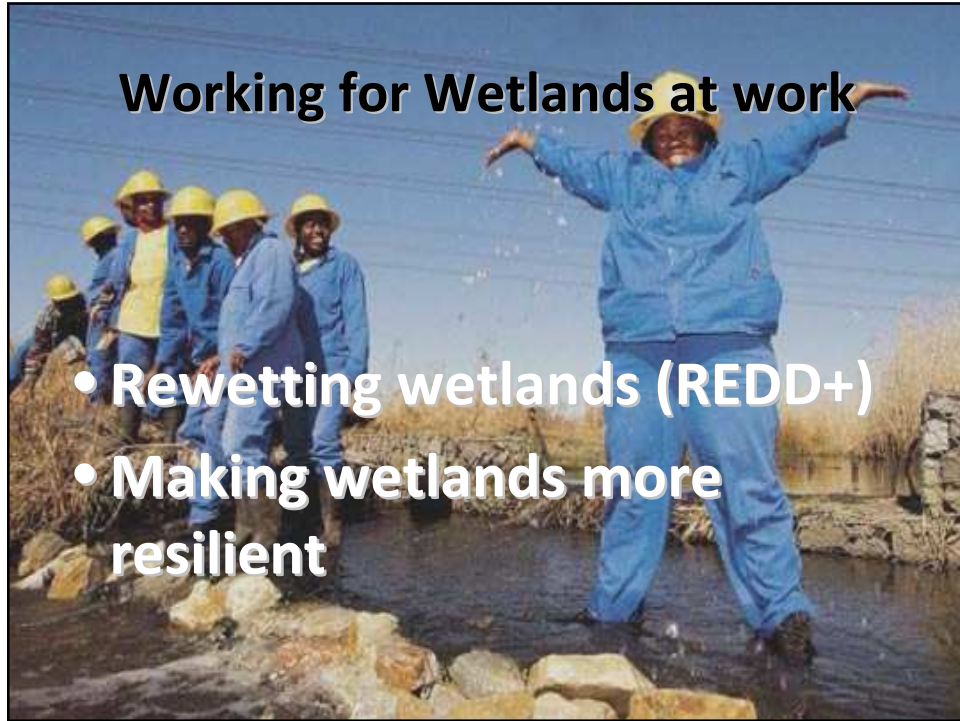
- Lost 50 % of wetlands in general
- 25 % of our peatlands with a
- 300,000 tons of carbon dioxide being released in 2008 alone
- a further 194 million tons of CO₂ in peatlands
- And more than 2200 million tons of CO₂ stored in other wetland types could still be released if the remaining healthy wetlands in South Africa were to be degraded.



In Summary:

The Impacts of Global Climatic Change

- Shifting rainfall patterns will have an influence on wetland distribution
- Wetlands marginalized at present will come under further pressure
- Areas affected – Drier regions:
 - Southern Cape
 - Northern and western regions
- Programmes such as Working for Water and Working for Wetlands are making a difference



Working for Wetlands at work

- Rewetting wetlands (REDD+)
- Making wetlands more resilient



Working for Wetlands at work

40% of all current and previous rehabilitation projects undertaken by the Working for Wetlands Programme have targeted peatlands or their catchments.

**Bodibe –
Karst
peatland
NW province**







**Golden Gate
National Park**



Molopo



Palmiet wetlands





Degraded
wetlands
degrade
livelihoods



Kosi bay, KZN

CARING FOR OUR WETLANDS

an answer to climate change

Questions/comments

