CHIEF DIRECTORATE NATURAL RESOURCE MANAGEMENT PROGRAMMES:

Wetland Programmes

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Wetland restoration: maximizing the return of investments in ecological infrastructure management

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Environmental Programmes

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Working for Wetlands

EXPANDED PUBLIC WORKS PROGRAMME

The role of wetlands: a moment to *recap*……

It is well documented that wetlands are:

- One of the 5 live support ecosystems of planet earth
- It provides various goods and services free of charge to society including amongst other:

- **Direct Values**
  - Livestock Grazing
  - Fibre
    - For Construction
    - For Handcraft
  - Fisheries & Hunting
  - Cultivation
  - Water Supply
  - Aesthetics
- **Indirect Values**
  - Flood Reduction, Streamflow Regulation
  - Groundwater Recharge, Discharge
  - Water Purification and Chemical Cycling
  - Erosion Control
  - Biodiversity

However, wetlands are also the most threatened ecosystem on earth.

The role of wetlands: some questions we need to ask

- Is wetland conservation an investment in ecological infrastructure that is contributing to Biodiversity Economy?
- Does wetland restoration enhance ecosystem resilience which ensure benefits to society?

International Perspective: Wetland loss

- Wetlands cover 4 – 6 % of earth's land surface.
- Host more then 10 % of fresh water and 30% of terrestrial carbon .
- the Millennium Ecosystem Assessment (2005) reported that more than **50 %** of the area of certain wetland types had been lost during the 20th century.
- Junk et al. (2013), the amount of loss of wetlands around the world varies between **30 and 90 %,** depending on the region.
- Review of Davidson (2014)found that the extent of inland wetlands declined **69-75 %** during the 20th century.
- SA: 20 - 58% lost: 48% of remainder threatened

African Perspective:

- Wetlands link us together:
  - From Ethiopia to southern Africa
  - Whitewing flufftail: only 250 pairs
  - Occurs only in the wetlands of Ethiopia and (to??) southern Africa

Therefore……
The purpose of *Working for Wetlands*

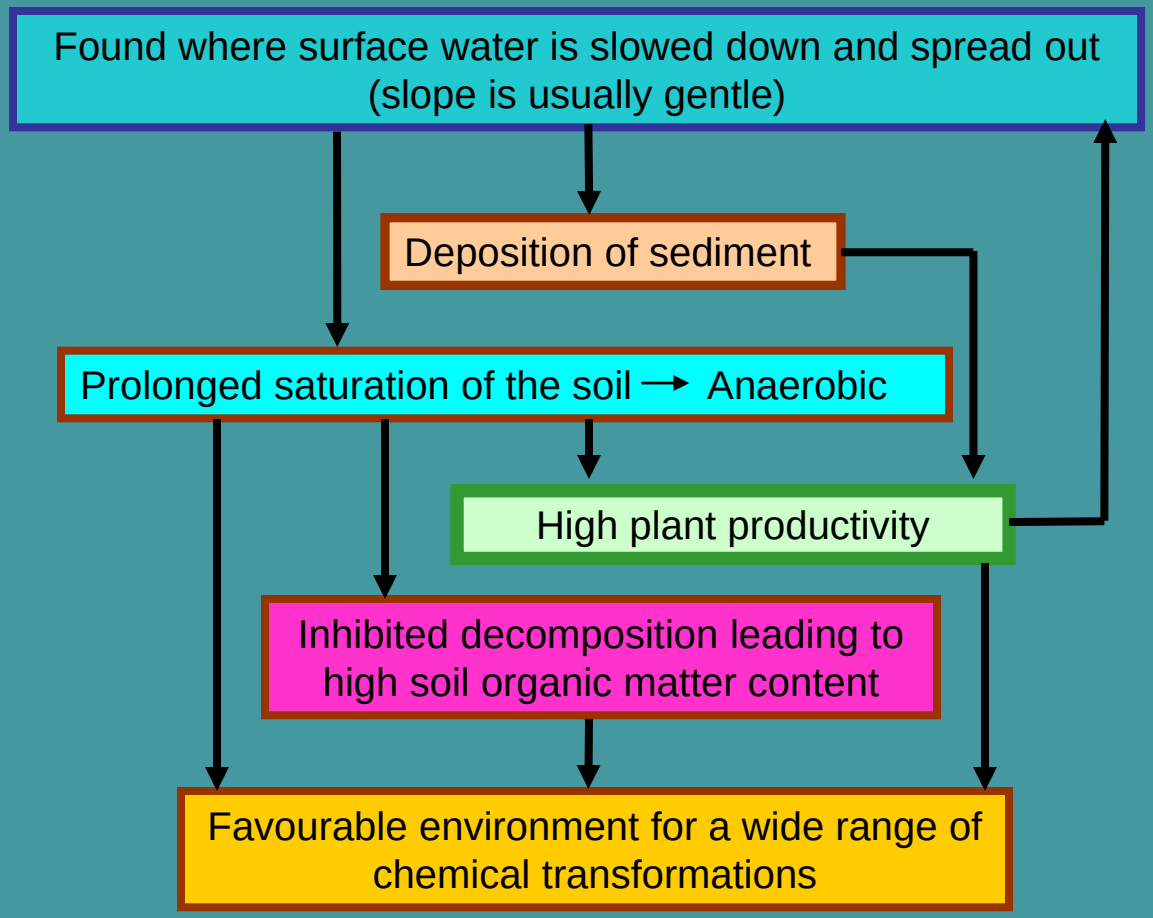
- In the past was to champion the protection, rehabilitation and sustainable use of South Africa's wetlands through co-operative governance and partnerships
- Main drive in the past 17 years was wetland restoration

- Question: How do we ensure we maximise the return of investments (U$100 mil) in ecological infrastructure management of wetlands?

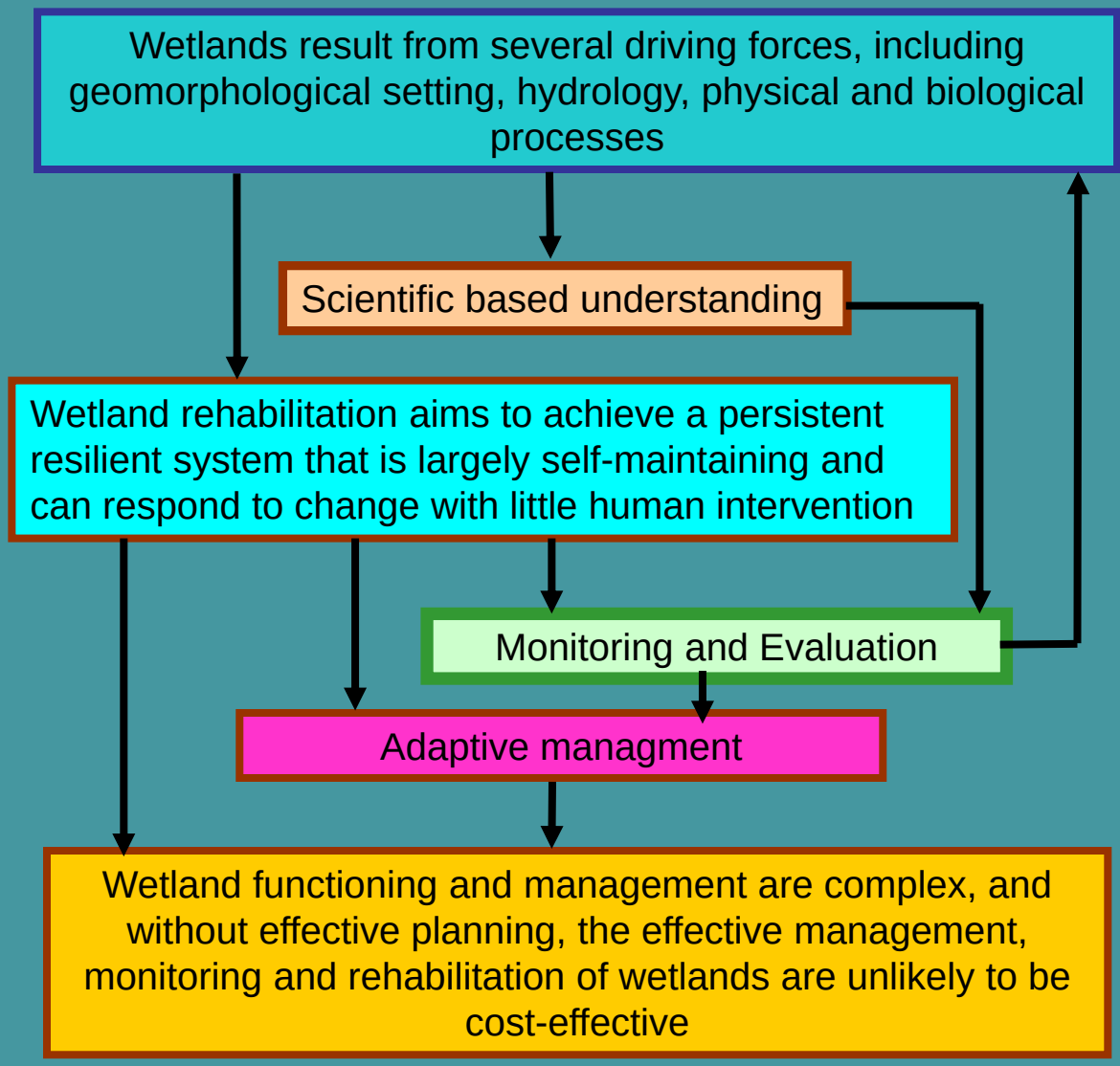
- **KEY COMPONENT: Planning back-up by research and science:**

Understand what you work with…..

How wetlands function in a “nutshell” (Kotze *et al.*, 2005)



How wetland restoration should happen in a nutshell



Therefore…

the WfWet way:

Working for Wetlands Planning requirements:

Wetlands depend on catchments

- Prioritise catchments
- Prioritise wetlands for rehabilitation per catchment with provincial wetland forums
- Identify and quantify impacts per wetland
- Compile wetland assessment and rehabilitation plan
- In parallel: Socio-economic aspects

Planning

Phase 1

START

Level 1 Assessment

1. Project Finalisation and QC Level Shareholders Engagement
2. Aerial Survey of QCs (if required)
3. Desktop Mapping of Wetlands
4. Level 1 Assessment of ID'd Wetlands
5. Selection of Priority Wetlands for detailed Assessment
6. Landowner Engagement in Prioritised Wetlands → WW0, WW1 & WW2 (Consent forms required)

Phase 1 Reports

1. Draft Phase 1 – Planning Reports
2. Review of Phase 1 – Reports
3. Finalisation of Phase 1 – Planning reports

WfWetlands Signoff 1

Phase 2

Level 2 Assessment: Site Visits

1. Maintenance Inventory in Assessed Wetlands
2. ID of Rehab Interventions
3. Establishment of M&E Baseline Data
4. Collection of additional Basic Assessment Data
5. Sign-off of Agreed Interventions

WfWetlands Signoff 2

7. Wetlands Assessment Report
8. Design of Rehab Interventions, Including Quantities & Costings

Phase 2 Reports

(Advert, I&AP letter in terms of NEMA)

1. Draft Phase 2 – Draft Basic Assessment Reports
2. Finalisation of Basic Assessment Reports
3. Submit to DEA for approval
4. Delivery of Draft Rehab Plans
5. WW3 consent form required
6. Review of Rehab Plans

WfWetlands Signoff 3

7. Finalisation of Draft Rehab Plans
8. Completion of Public Participation Process (I&AP & Comments Report)
9. Delivery of Final Rehab Plans

Phase 3

Implementation Support

1. WW4 consent form required
2. Setting Out Site Visits
3. Rehab Plan Queries
4. Identification of Training Needs
5. Completion Site Visit and Sign-off
6. WW5 consent form required

Monitoring & Evaluation
Feedback into
- Planning and
- Maintenance

Suite of Landowner Consent Forms required by the Provincial Coordinators:

WW0 = Standard Operating Procedure
WW1 = Wetland Survey and Consent
WW2 = Terms and Conditions for rehabilitation
WW3 = Wetland Rehabilitation Activity Consent
WW4 = Property Inspection
WW5 = Notification of Completion of Rehabilitation

Catchment prioritization

- **Outcomes-based prioritization framework**

Biodiversity maintenance:

What opportunity exists to contribute towards biodiversity conservation objectives.

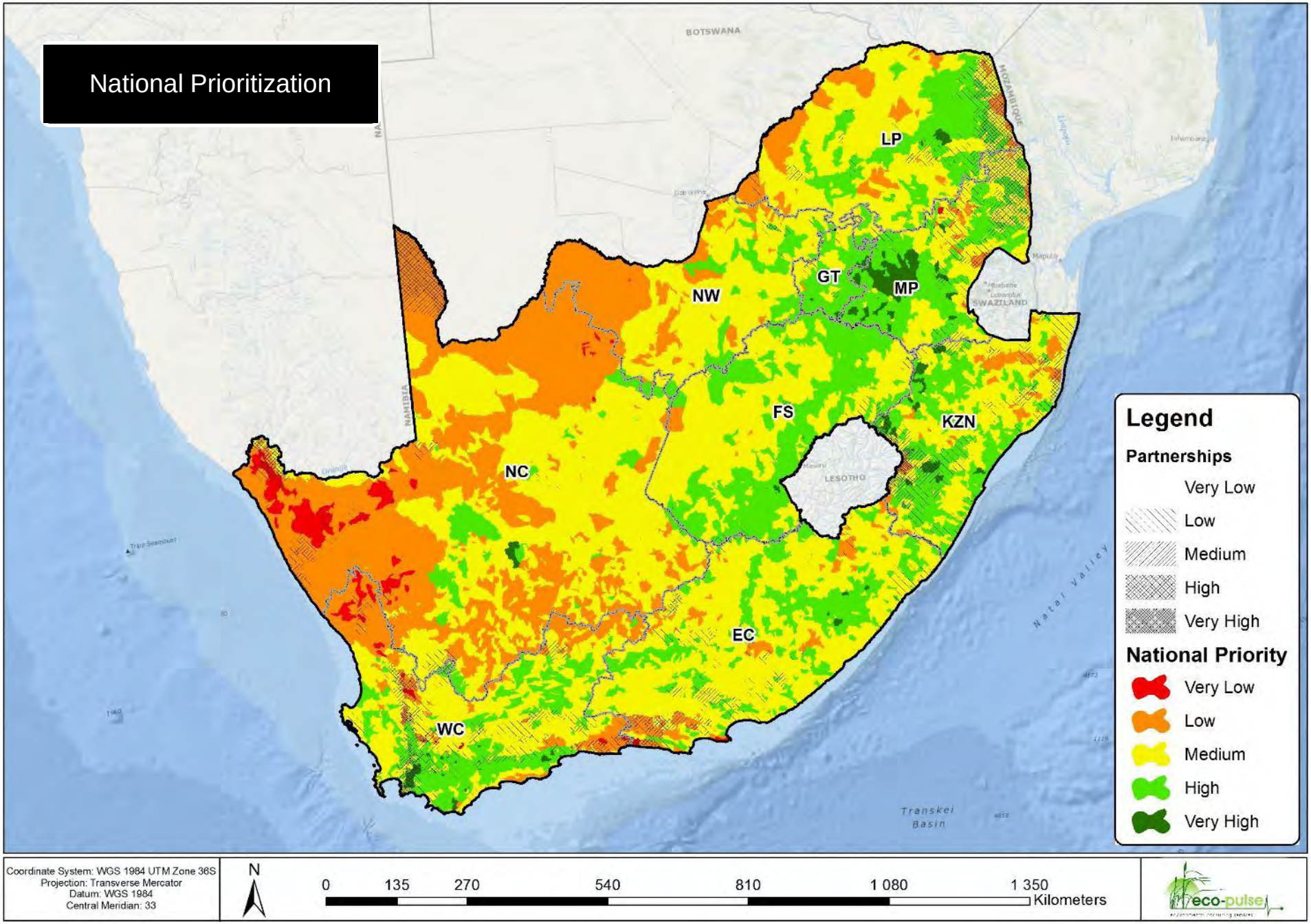
Functional enhancement:

What opportunity exists to contribute towards the enhancement of wetland functioning.

Catchment priority:

Catchments that provide the greatest opportunity from either a biodiversity maintenance or functional enhancement perspective.

National Prioritization



Coordinate System: WGS 1984 UTM Zone 36S
Projection: Transverse Mercator
Datum: WGS 1984
Central Meridian: 33

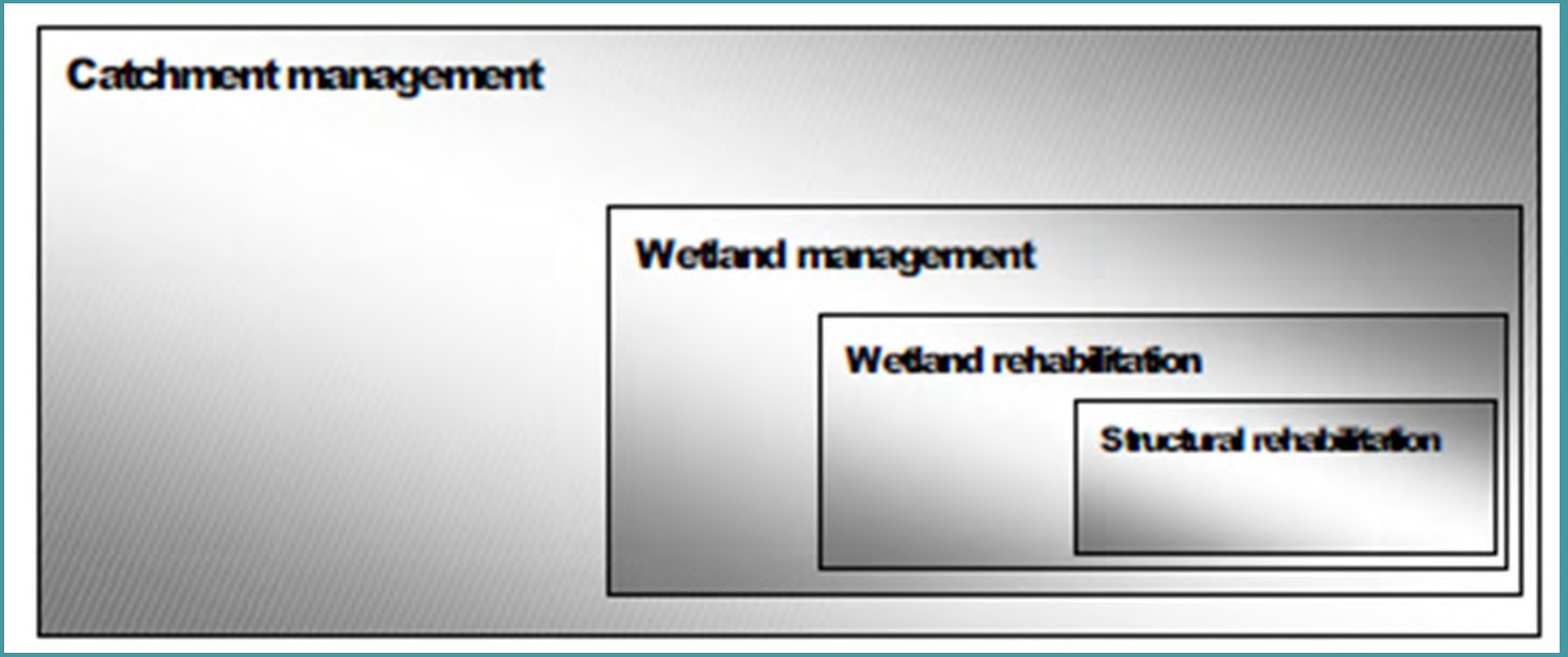
N

0 135 270 540 810 1 080 1 350 Kilometers

eco-pulse

Practical principles

- What is happening in the catchment?
- What is happening in the rest of the wetland?
- What might happen in future?



Practical examples

1. Deactivate erosion: Kromme Wetland:

Soft option chutes

Photo's: Japie Buckle

From Space: Kromme 2003 vs 2016


Image © 2017 DigitalGlobe
76 m
Google earth


Image © 2017 CNES / Airbus
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Google earth

Practical examples

2. Deactivate erosion and rewetting: Palmiet Wetland – Hard options: Concrete gabion weir

From Space: Duivenhoks Palmiet Wetland 2009 vs 2016


Image © 2017 DigitalGlobe
57 m
Google earth


Image © 2017 CNES / Airbus
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Google earth

Practical examples

3. Erosion control, rewetting, flood mitigation, baseflow maintenance: Memel Wetland Ramsar site – Hard options: Concrete weir

From Space: Memel Ramsar Wetland in 2011(9 years later)

Practical examples

4. Erosion control, rewetting, flood mitigation, baseflow maintenance: Zoar Wetland – Soft options: Earth Structures

From Space: Zoar Wetland in 2011 (11 years later)

Experience in the past 5 years has revealed some problems with implementation, resulting in the failure of restoration measures:

- Failing structures
- Use of inferior materials
- Wrong application of materials and measures
- Lack of capacity to build according to design
- BUT: IS THE DESIGN BASED ON WHAT WE HAVE PLANNED?

Thanks for the opportunity
Merci pour cette opportunité

Working for Wetlands