

# National Freshwater Ecosystem Priority Areas Project (NFEPA)

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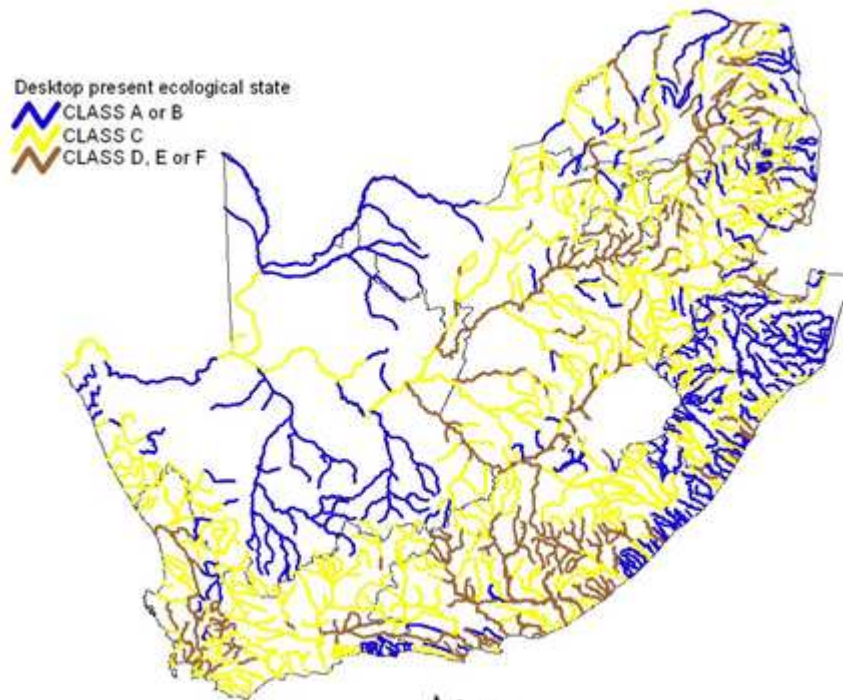
**water affairs**

Department:  
Water Affairs  
REPUBLIC OF SOUTH AFRICA

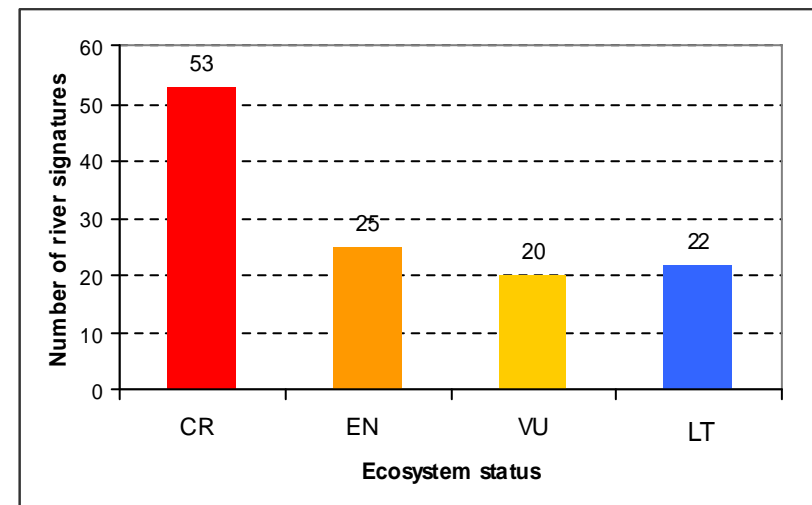
**environmental affairs**

Department:  
Environmental Affairs  
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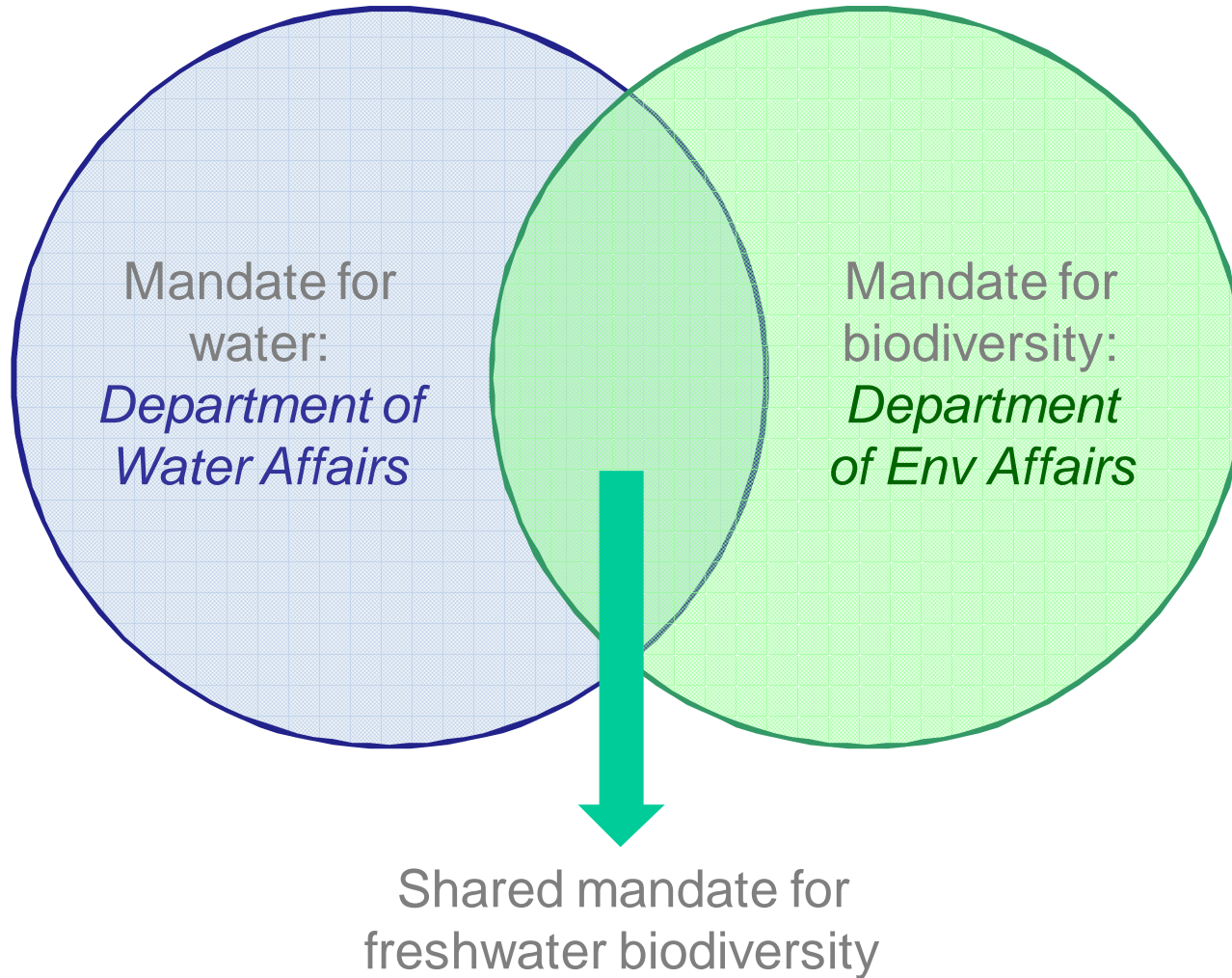
# Freshwater ecosystems are in a shocking state



- Present ecological status 1999
  - Only 30% intact (Class A or B)
- River Health Programme
  - Ongoing deterioration over a 12 year period
- National Spatial Biodiversity Assessment 2004
  - 84% threatened, 50% critically



# The shared mandate for freshwater biodiversity



NFEPA identifies freshwater ecosystem priority areas – the biodiversity sector's input into DWA-led water resource planning and management

# NFEPA aims

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1. To identify **N**ational **F**reshwater **E**cosystem **P**riority **A**reas
2. To develop an institutional basis to enable effective implementation
  - National component – aligning conservation & water sector policy mechanisms
  - Sub-national component – building capacity to use products at local levels





# Co-production of knowledge

Collective experience of almost 1000 years!





# NFEPA project outputs

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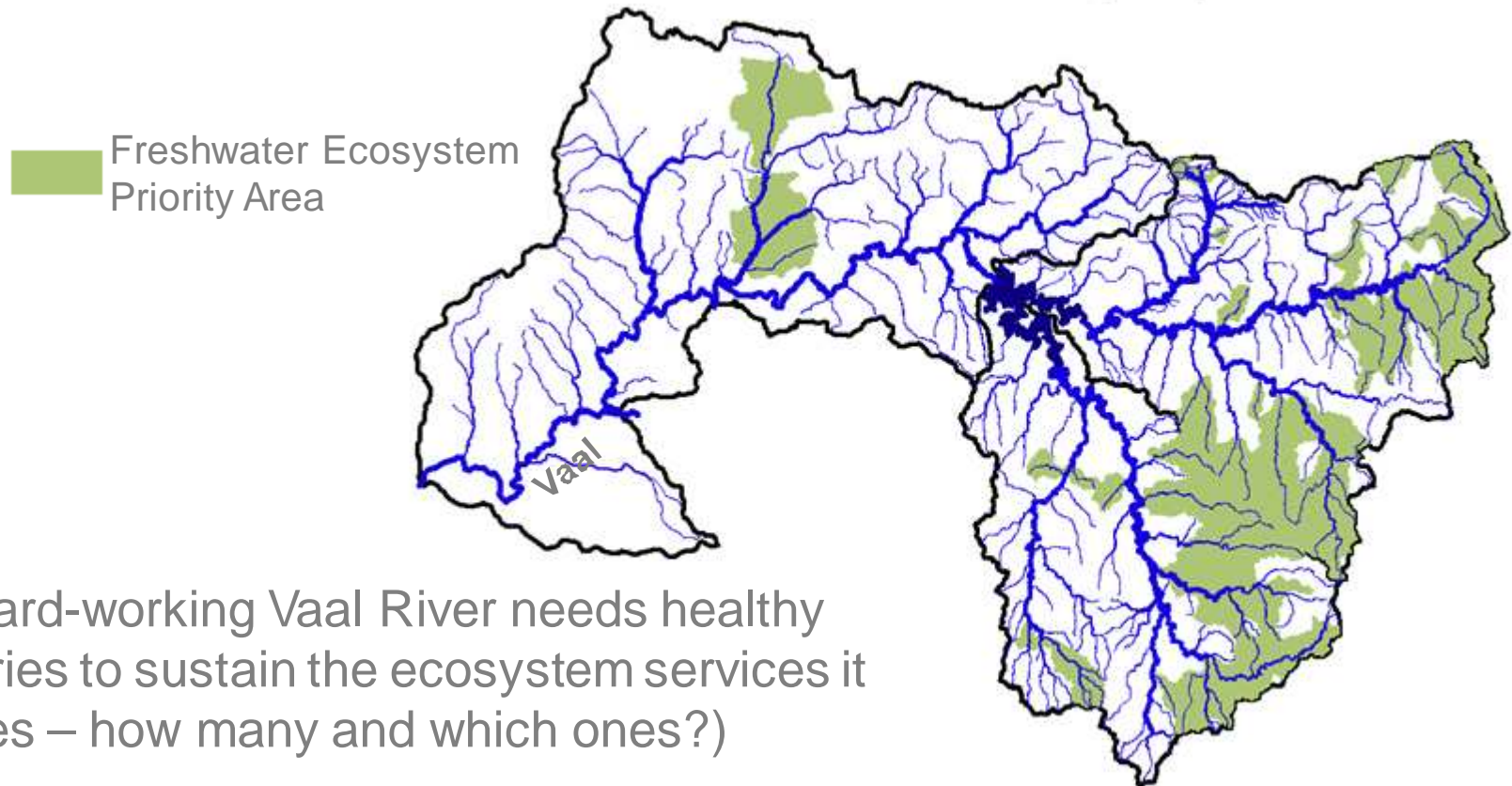
1. ***Atlas and NFEPA DVD:*** packages map products and data
2. ***Implementation manual:*** how to use FEPA maps in existing planning and decision-making processes, along with freshwater ecosystem management guidelines
3. ***Technical report:*** documents science and stakeholder engagement process
4. ***GIS data and associated metadata:*** in shapefile format

# WATER POLICY CONTEXT

## (National Water Act)

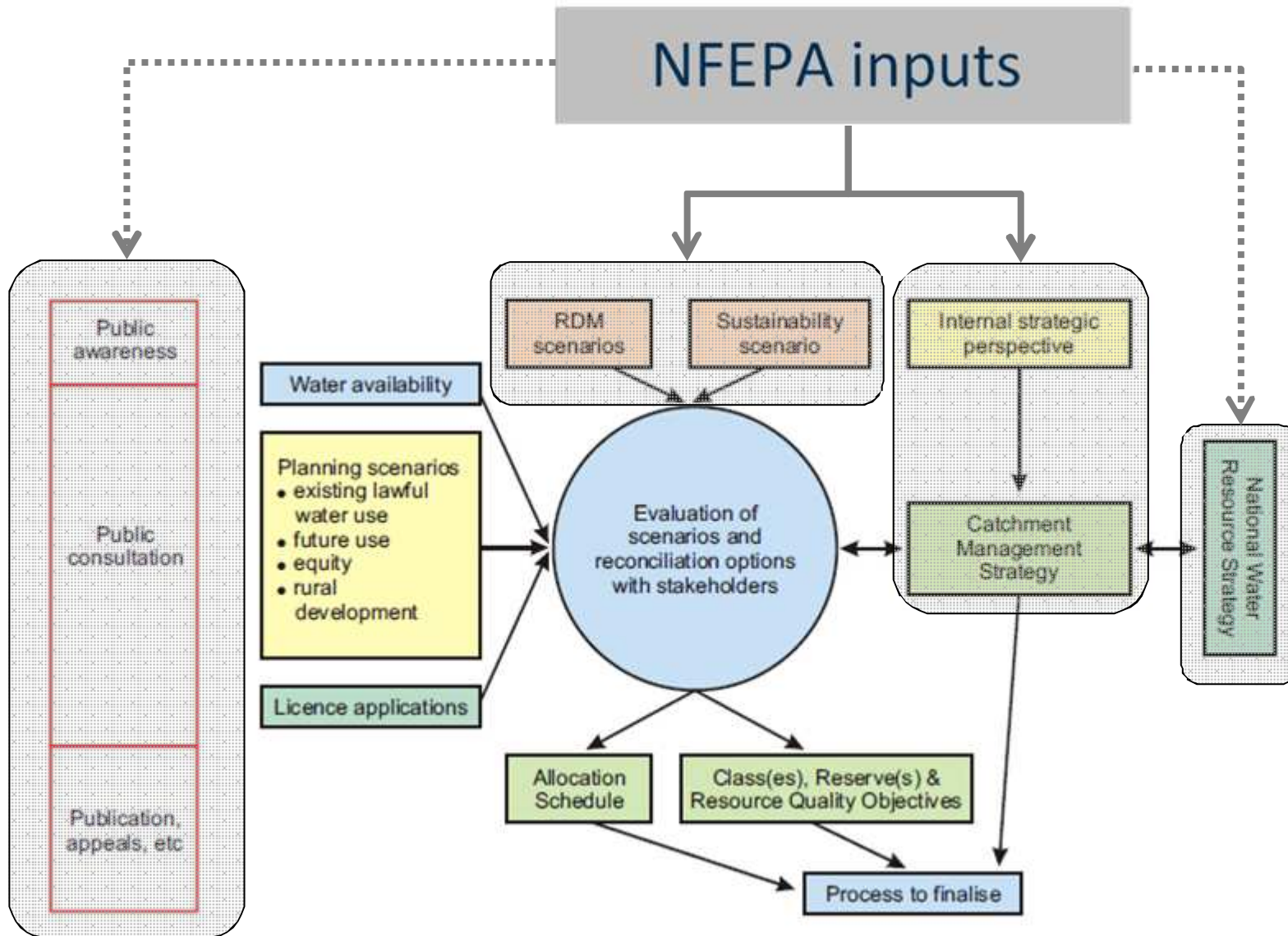
# NFEPA provides biodiversity sector input on:

- **How many** rivers, wetlands and estuaries should be designated for high protection?
- **Which** are best suited for conservation purposes?



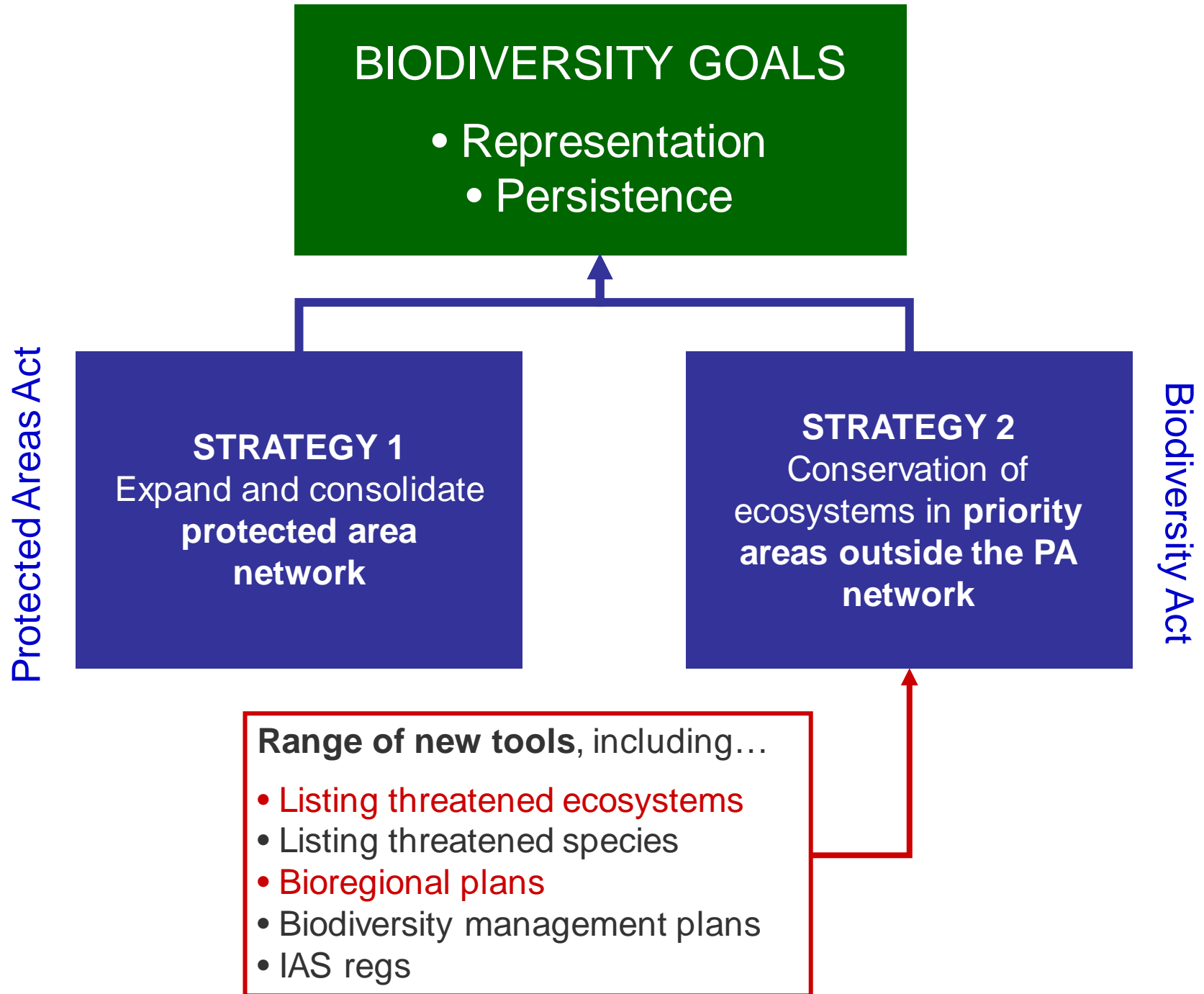


# Integrated Water Resources Management in SA (National Water Act)

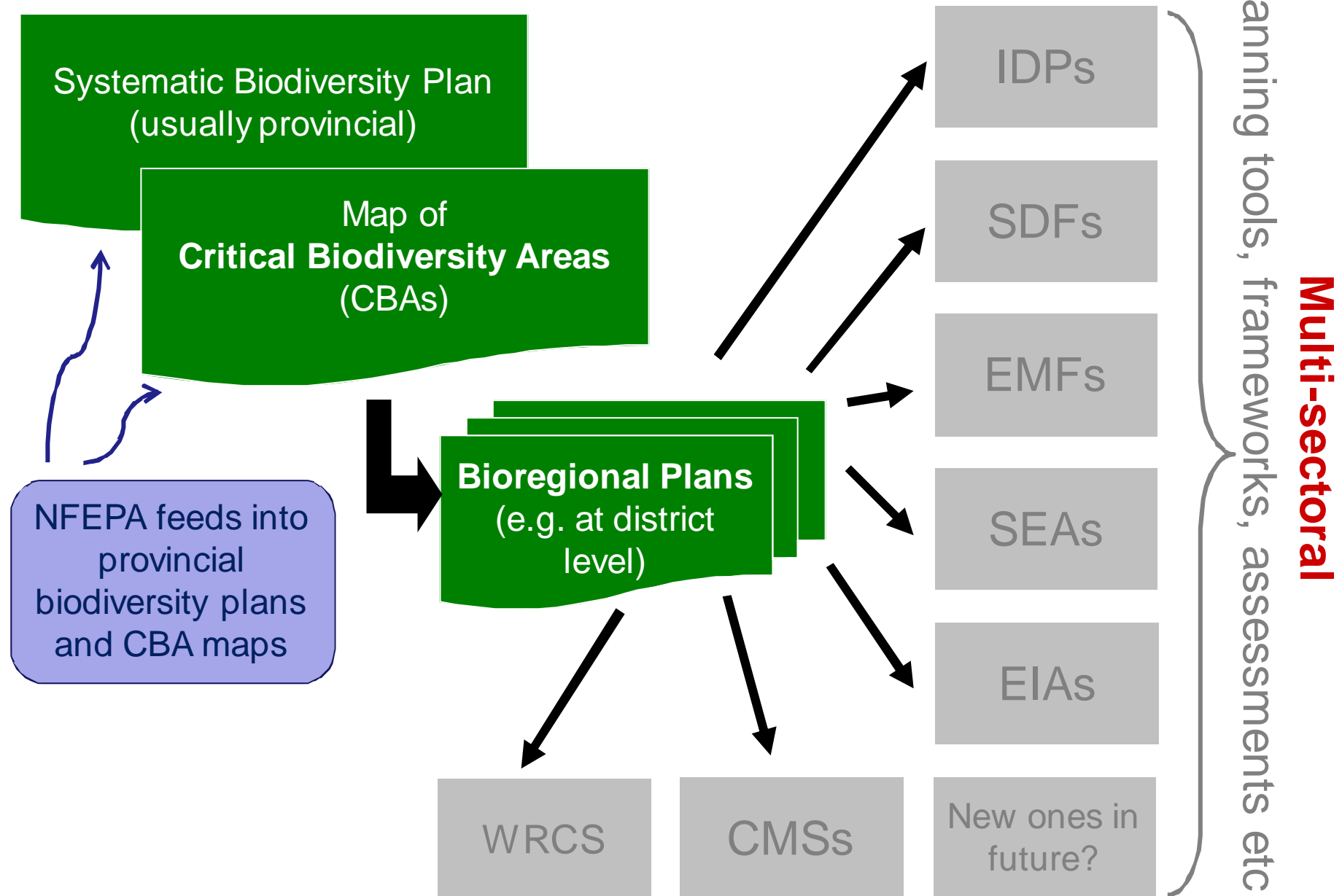


# BIODIVERSITY POLICY CONTEXT

(Protected Areas Act  
& Biodiversity Act)



# Bioregional plans



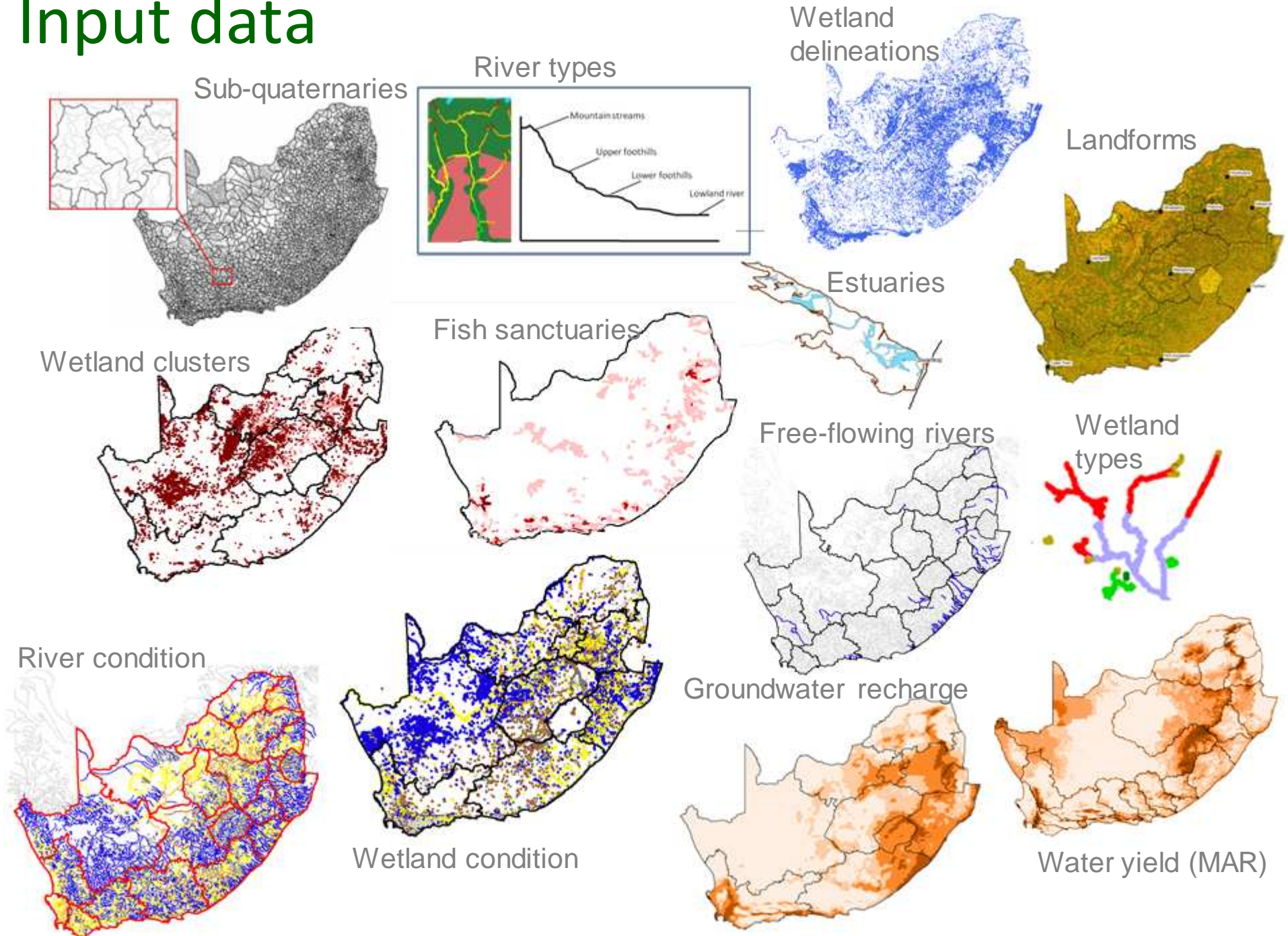
**CRITERIA FOR IDENTIFYING  
FRESHWATER ECOSYSTEM  
PRIORITY AREAS**

# Criteria

- Represent river, wetland and estuary ecosystem types
- Represent free-flowing rivers
- Maintain water supply areas
  - High water yield areas
  - High groundwater recharge areas
- Represent threatened fish
- Represent NB migration routes
  - Fish corridors
  - Wetland clusters
- Represent estuary species
- Identify connected systems



# Input data



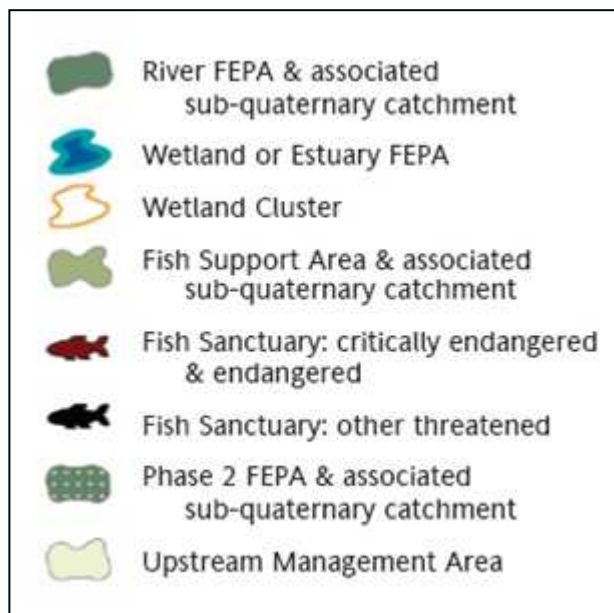
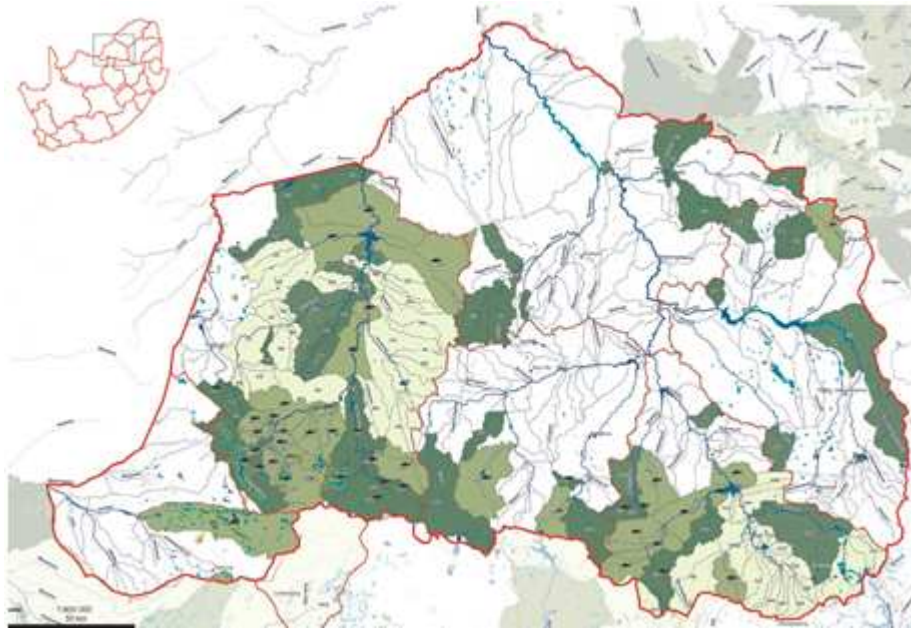
# NFEPA map products

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- WMA level
  1. FEPA map (Freshwater Ecosystem Priority Areas)
- National level
  2. Density of FEPAs by Water Management Area
  3. Density of FEPAs by sub-WMA
  4. Free-flowing rivers
  5. Fish sanctuary areas
  6. Water supply areas



# MAP 1: FEPA map (one for each WMA)



- Incorporating a conservation vision into Catchment Management Strategies

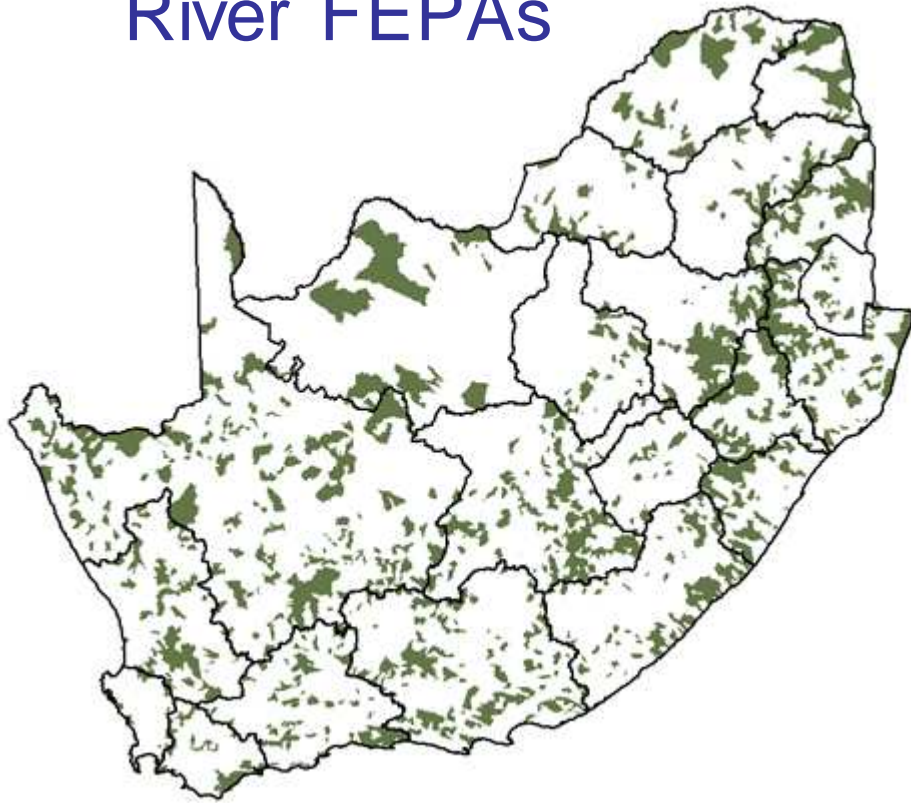
- Biodiversity sector input into scenario planning in water resource classification

- Planning by national & provincial conservation agencies

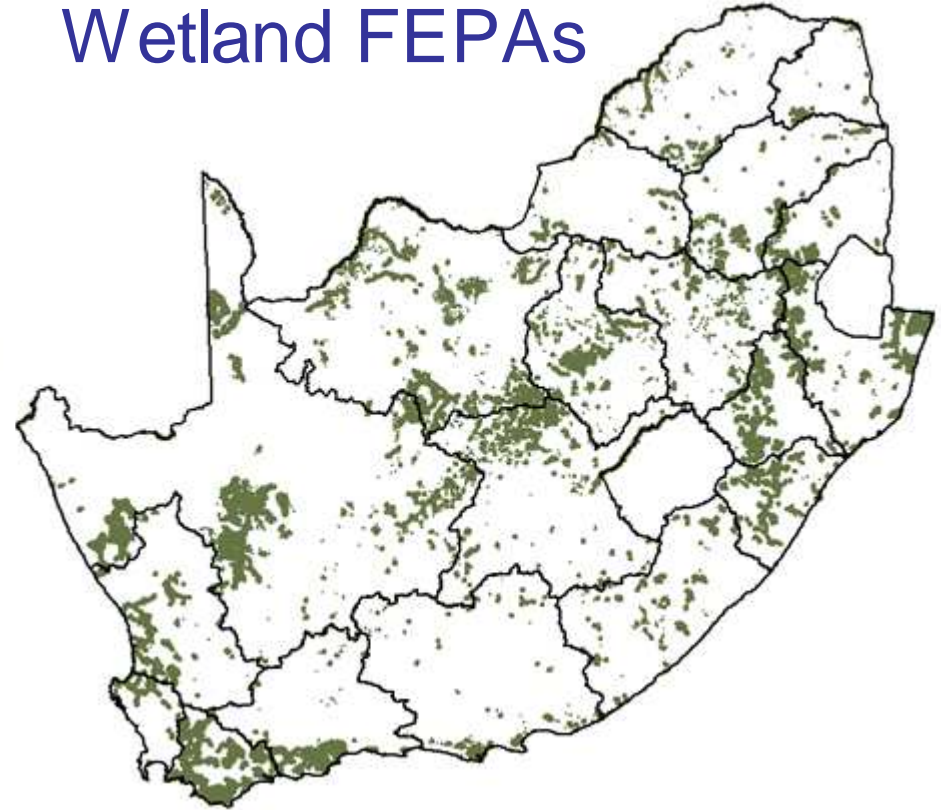
# Biodiversity planning outputs underpinning map products

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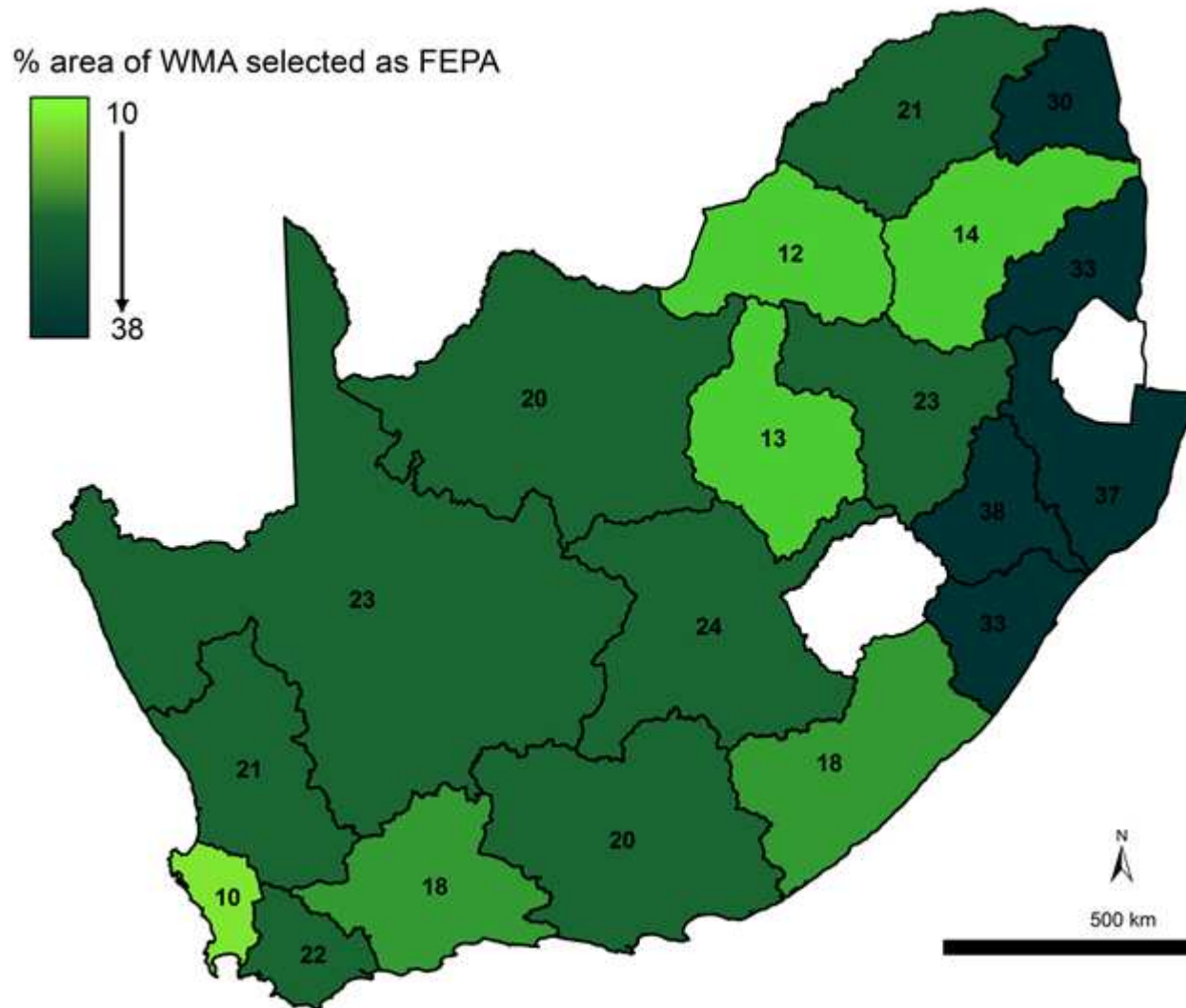
River FEPAs



Wetland FEPAs

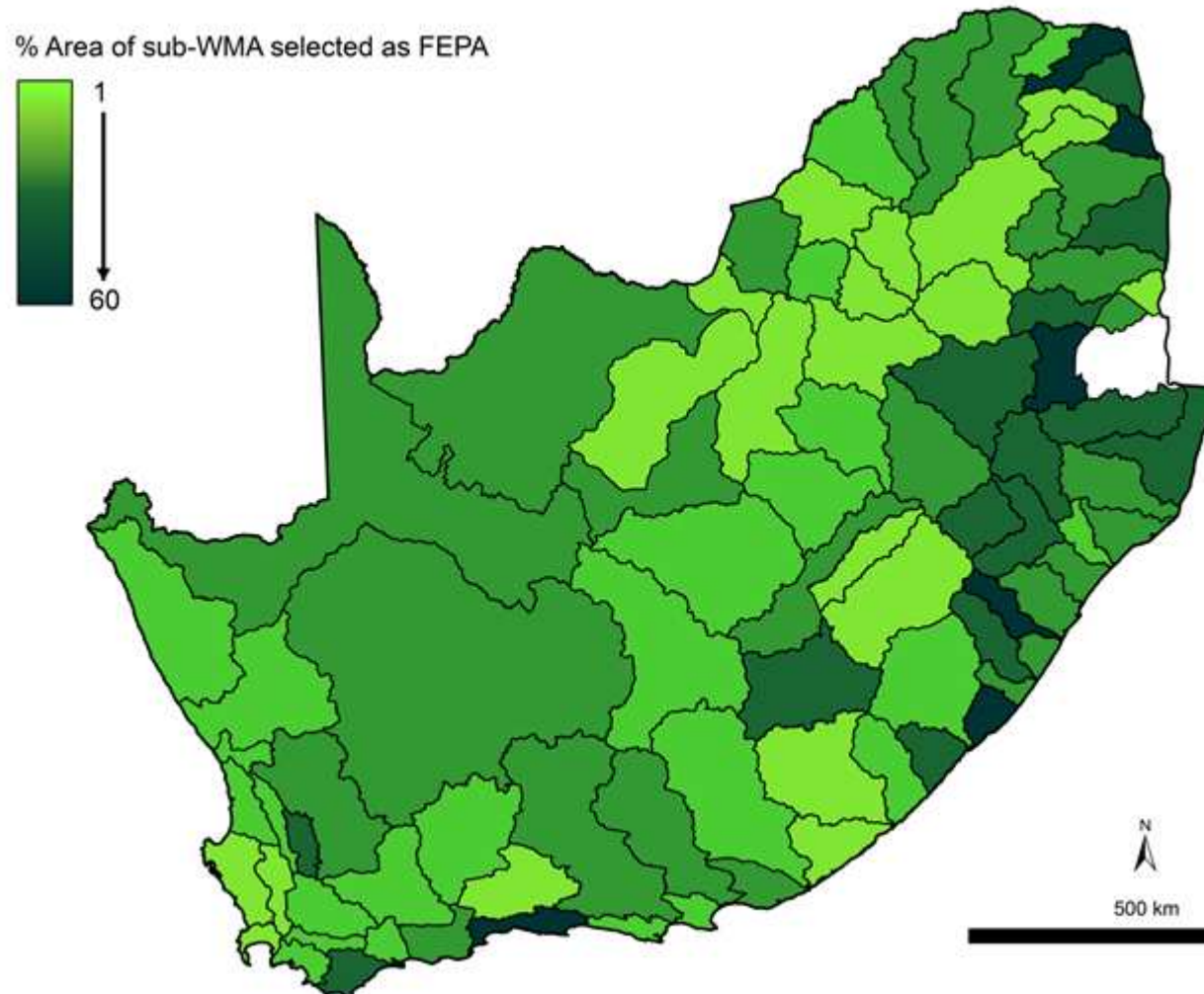


# MAP 2: Density of FEPAs per WMA



- Biodiversity responsibility not equal across country
- What mechanisms support implementation of biodiversity goals

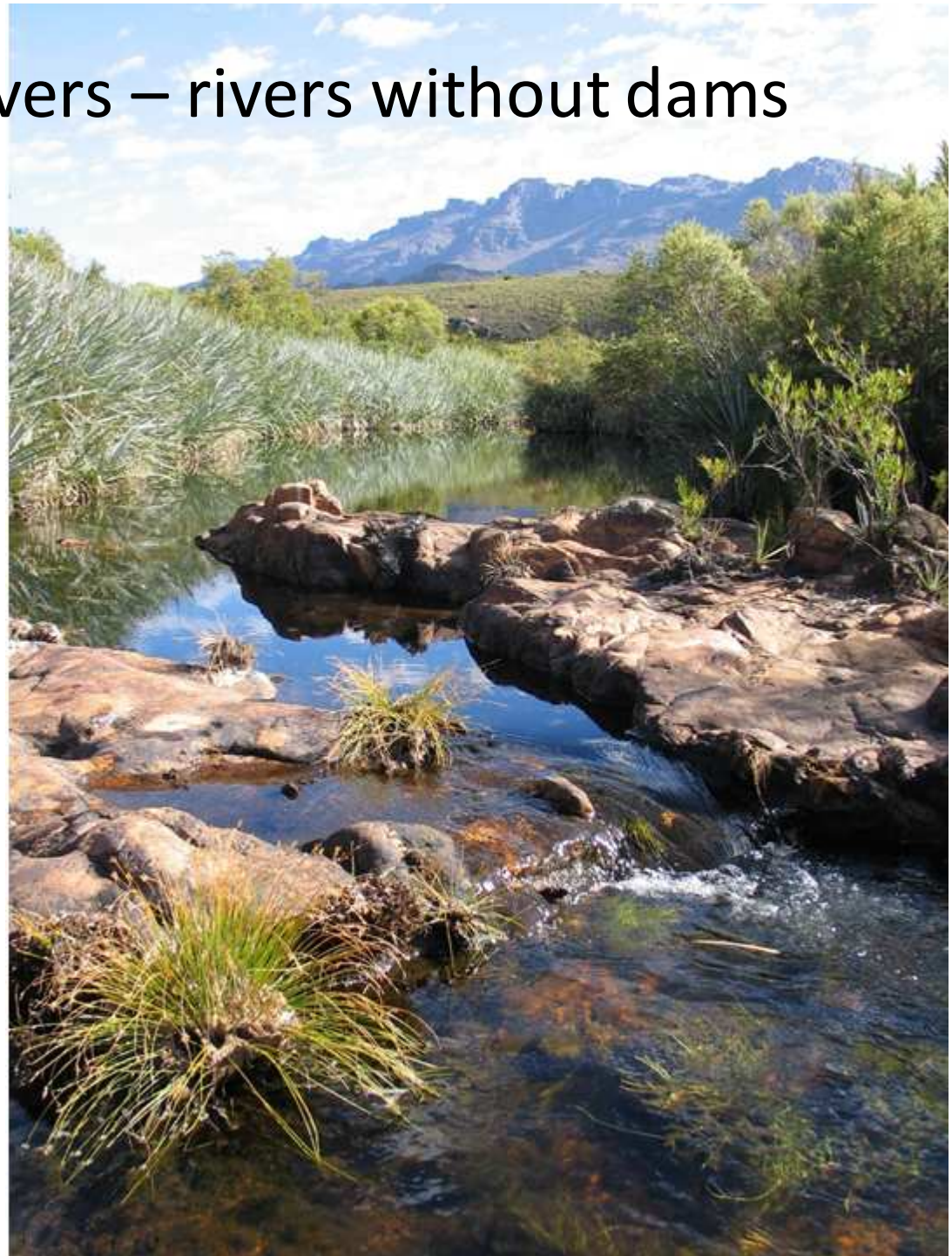
# MAP 3: Density of FEPAs per sub-WMA



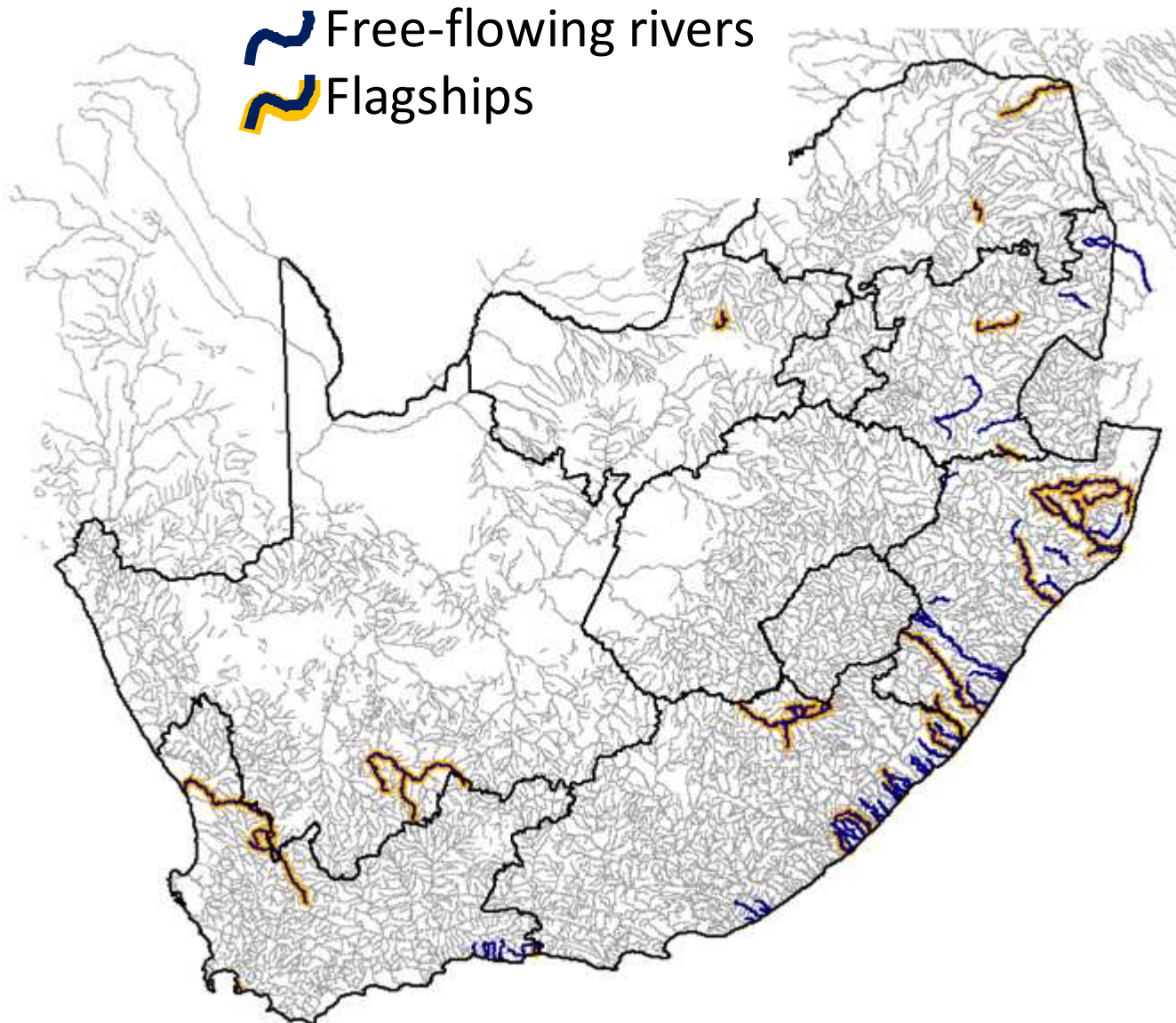
- Biodiversity responsibility not equal within a WMA
- What mechanisms support implementation of biodiversity goals in the WMA

## MAP 4: Free-flowing rivers – rivers without dams

- Only 63 free-flowing rivers left in SA
- Water flowing out to sea is not “wasted”
  - e.g. important for healthy estuaries – fish nurseries



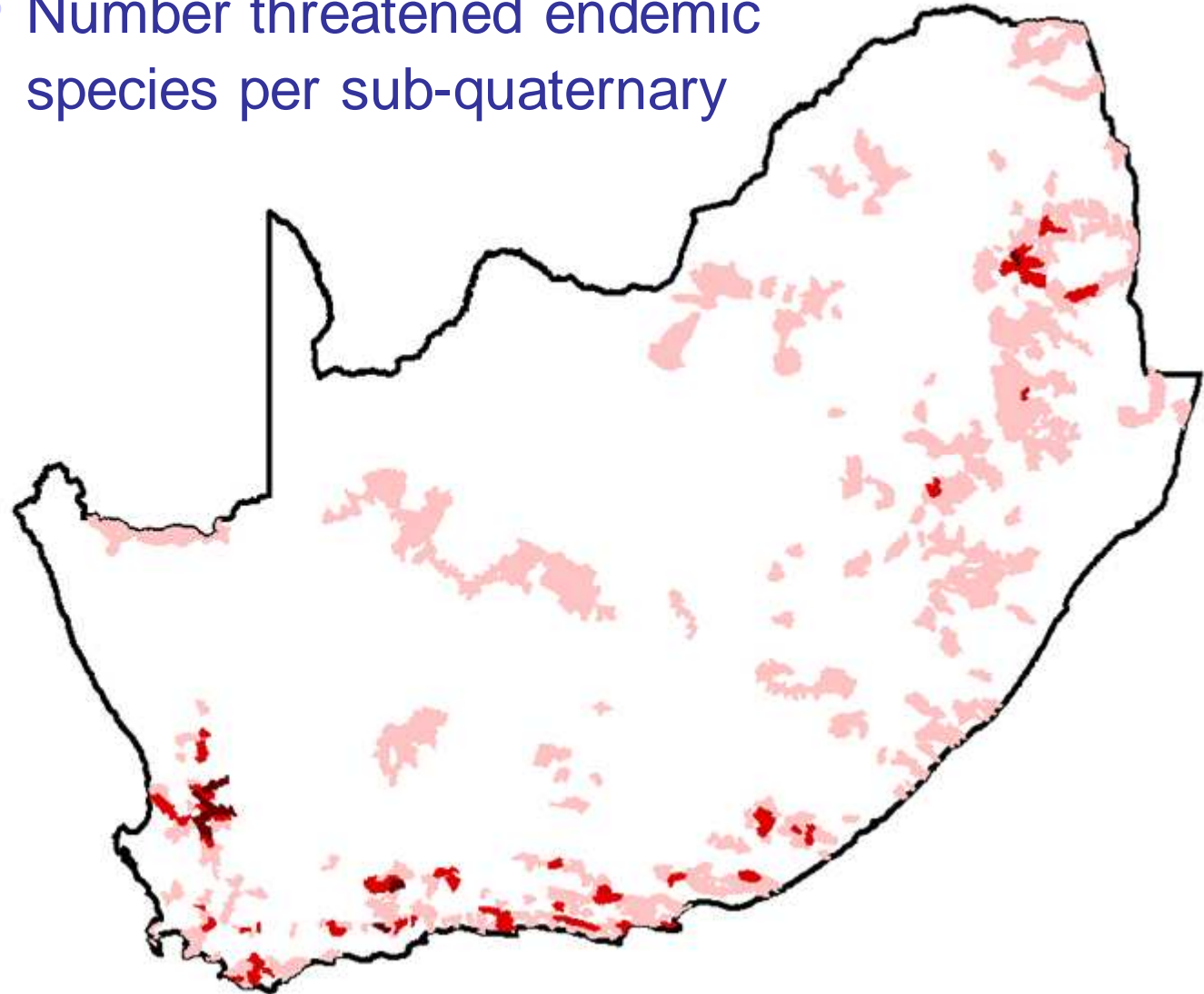
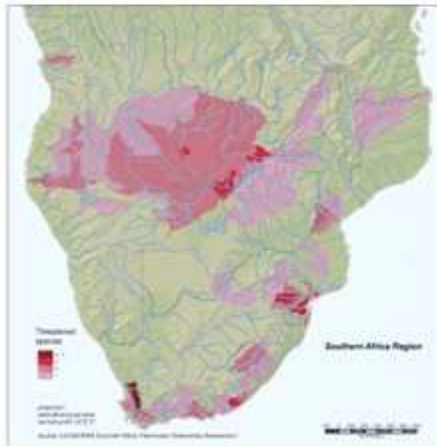
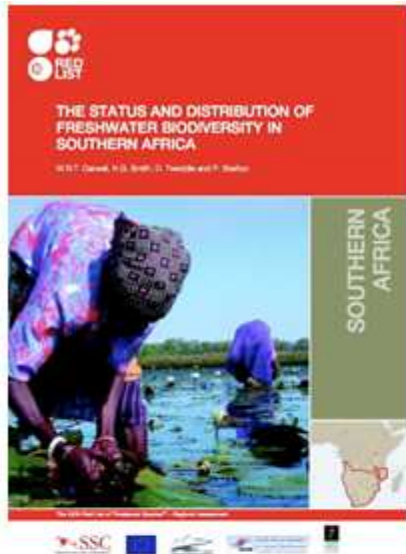
# MAP 4: Free-flowing rivers – rivers without dams



- 63 rivers
  - of which 24  $\geq$  100 km
  - Acknowledge need for some development
- ↓
- 20 FLAGSHIPS

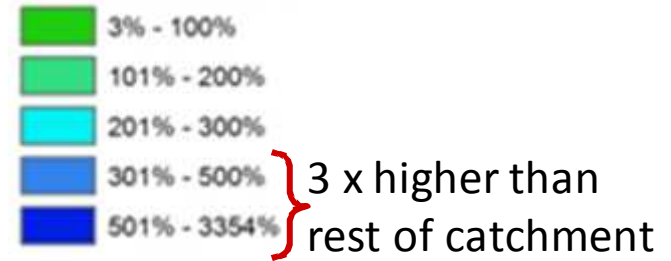
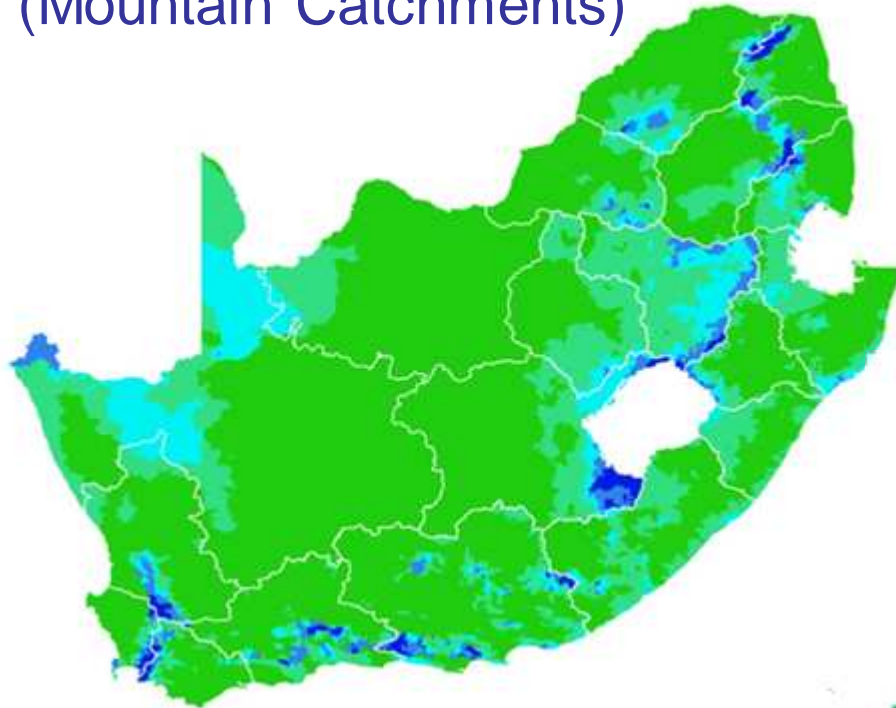
# MAP 5: Fish Sanctuary Areas

- Number threatened endemic species per sub-quaternary

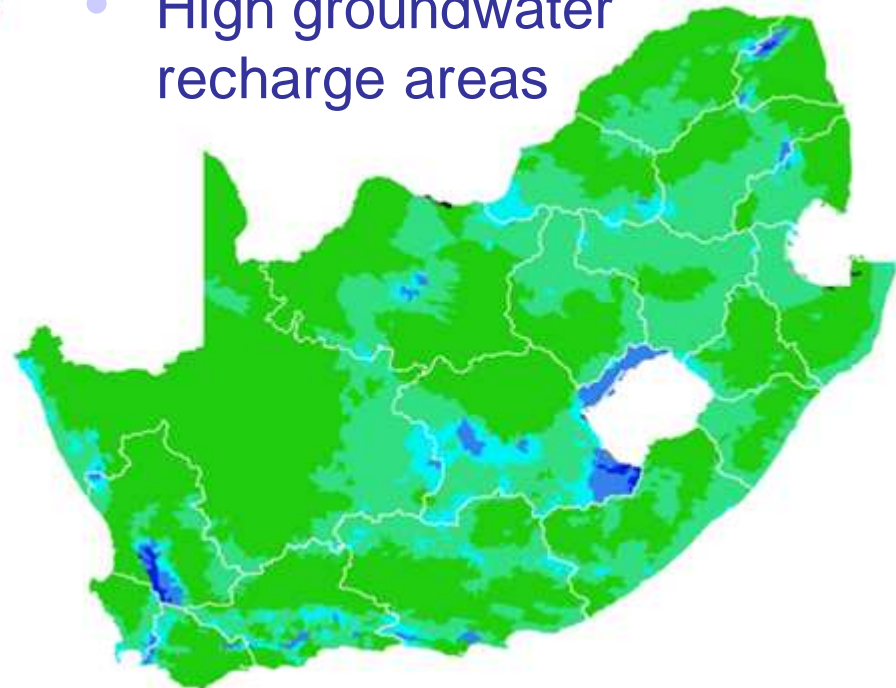


# MAP 6: Water Supply Areas

- High water yield areas (Mountain Catchments)



- High groundwater recharge areas





# Key findings

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- Tributaries are in a better condition than main rivers
- Freshwater and estuarine ecosystems are highly threatened
- Freshwater Ecosystem Priority Areas comprise only 22% of river length
- There are only 62 large free-flowing rivers, representing only 4% of our river length
- Only 18 % of our water supply areas are formally protected
- By protecting only 15% of our river length we protect all our fish on the brink of extinction

# Key messages

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- Freshwater Ecosystem Priority Areas are a valuable national asset
- Freshwater inputs are critical to estuarine and marine environments
- Free-flowing rivers are part of our natural heritage
- Healthy tributaries and wetlands support the sustainability of hard-working rivers
- Healthy buffers of natural vegetation mitigate the impact of land-based activities
- Groundwater sustains river flows particularly in dry seasons
- Mountain catchment areas play a critical role in securing our water supplies
- Healthy freshwater ecosystems support resilience and adaptation to climate change

# Key recommendations

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- Employ aquatic ecologists in provinces, Catchment Management Agencies and municipalities
- Set up mechanisms to support uptake of FEPA maps, especially by provincial conservation authorities and Catchment Management Agencies.
- Use FEPA maps in assessing EIA applications, in water resource development processes, and in applications for mining and prospecting
- Pilot formal mechanisms for the management and protection of FEPAs
- Revive the Mountain Catchment Areas Act,
- Review general authorisations of the National Water Act in relation to their impact on FEPAs.
- Strengthen and expand the scope of the River Health Programme to include wetlands and actively target FEPAs as new monitoring sites.
- Strengthen collaboration of DWA and DEA around managing and conserving freshwater ecosystems.