

# Ecosystems as Infrastructure:

## Life's fundamental building blocks

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# What is biodiversity?

Biodiversity is the amazing variety of life on earth



*Genes – species – ecosystems*



Purifying water and releasing it slowly



Pollinating trees kms away



Recycling of nutrients



Trapping carbon and moisture



Evolving and adapting to changing climate

# SA Biodiversity – 3<sup>rd</sup> highest on the globe – an amazing asset

## Joining ama dots !

Interconnected living things and natural systems provide a foundation for:-

*Economic growth (jobs)*

*Social development (service delivery)*

*Human well being (a better life)*

Biodiversity provides clean water, food, medicine, fibre. Biodiversity regulates & mitigates our climate; it protects us from natural disasters like floods, fires and coastal erosion.

Biodiversity gives us places to play and enjoy, and Biodiversity empowers us to cope with change.

**BIODIVERSITY IS THE ORIGINAL INFRASTRUCTURE**



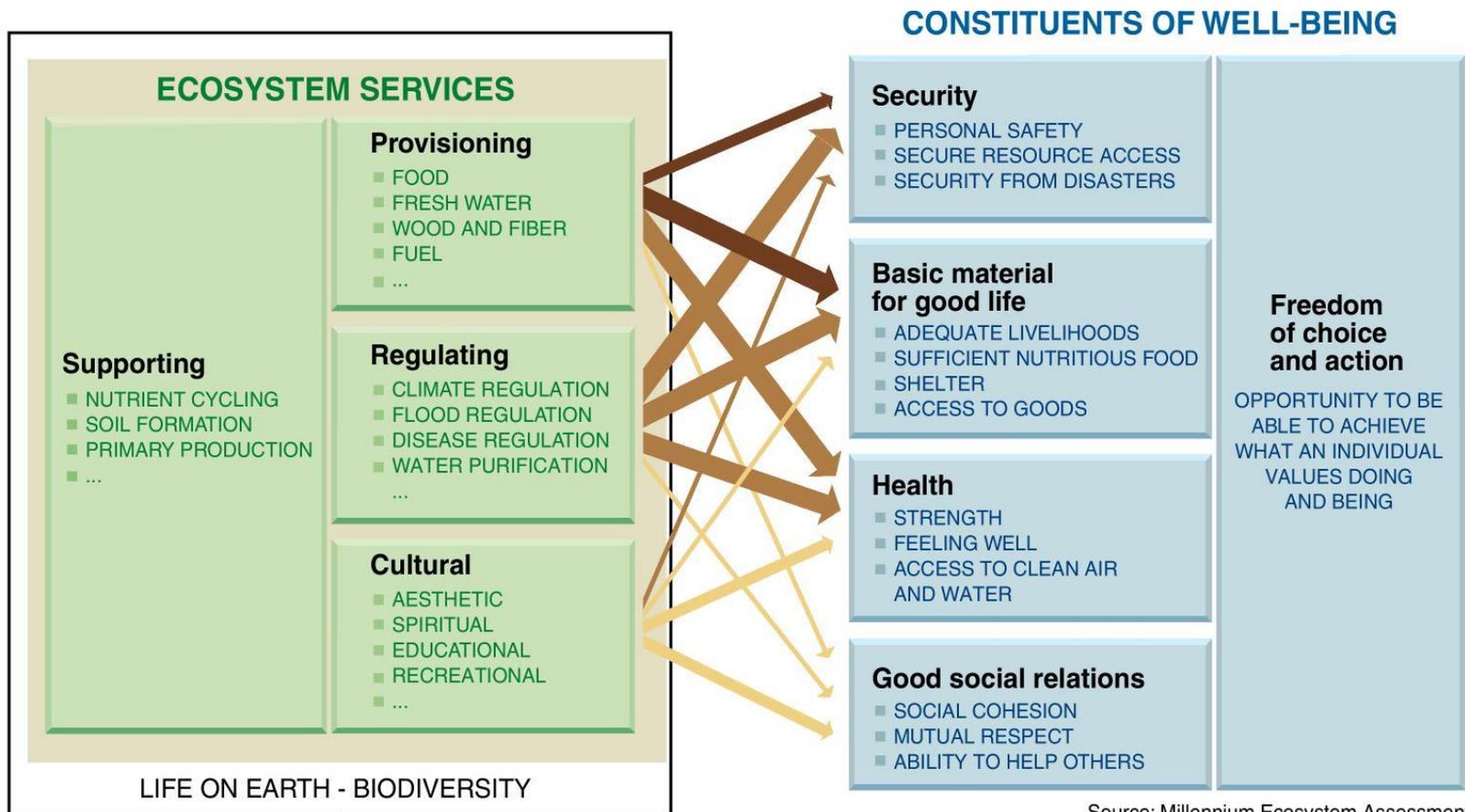
# Unleashing SA's Biodiversity infrastructure asset for human well-being – now & future (not narrow conservation)

## Biodiversity...

SUSTAINS	-----	Water, Craft, Energy	—————>	JOBS!
NOURISHES	-----	Agriculture, Agribusiness, Fisheries, Food industry, Hospitality	—————>	JOBS!
ENRICHES	-----	DTI, Flowers, Restoration, Carbon Trading	—————>	JOBS!
HEALS	-----	Medicine – Pharmaceuticals/traditional	—————>	JOBS!
INSPIRES	-----	Education, Art, Conservation, Research, Media	—————>	JOBS!
AMAZES	-----	Film, Tourism	—————>	JOBS!
TEACHES	-----	Science, Academia	—————>	JOBS!
PLEASURES	-----	Tourism, flowers, recreation	—————>	JOBS!
PROTECTS	-----	Municipalities, housing, coastal zone management	—————>	JOBS!
CONNECTS	-----	Heritage, Indigenous Knowledge	—————>	JOBS!
EMPOWERS	-----	Development, Economic Growth	—————>	JOBS!

... gives us freedom of choice. Biodiversity is everything we have!

# Why biodiversity matters: Species > Ecosystems > People



Source: Millennium Ecosystem Assessment

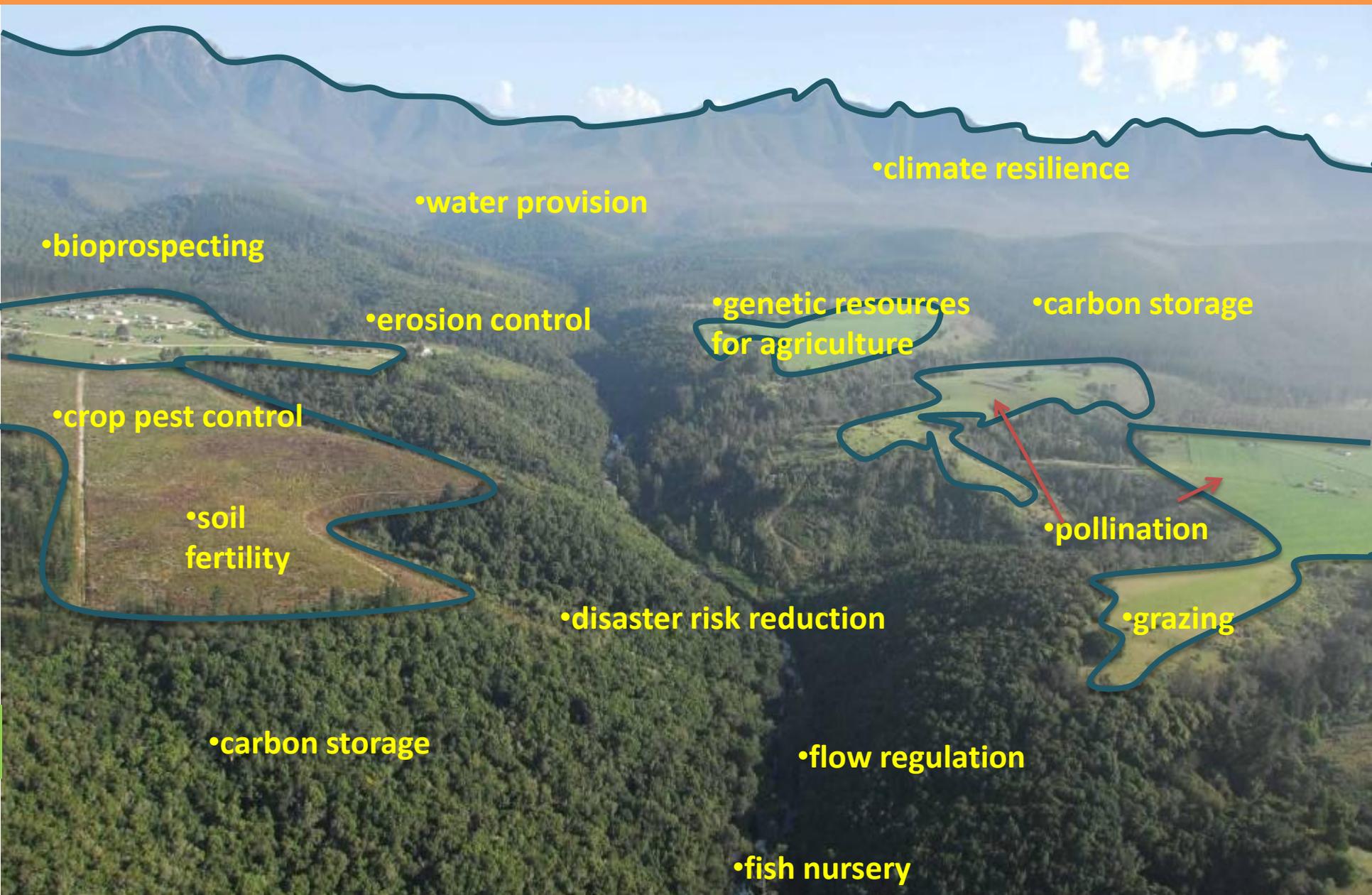
**ARROW'S COLOR**  
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

**ARROW'S WIDTH**  
Intensity of linkages between ecosystem services and human well-being

- Weak
- Medium
- Strong

# Ecosystem goods and services - a landscape view



# What is ecological infrastructure?

- **Infrastructure:** “Foundation on which growth of a community or state depends.”
- **Green infrastructure:** Any infrastructure that has reduced environmental impact or an environmental benefit.
- **Ecological infrastructure:** Strategically planned and managed networks of biodiversity, maintaining integrity of ecosystems and providing benefits to society; making it relevant in an African context

# Optimal development futures

- ‘Green’ typically refers to brown-green projects creating new things (finance, energy, infrastructure) – but ignoring green landscapes.
- We need to think about **landscapes** and in a way that maximizes long term productive capacity through holistic asset accounting (and impact accounting) and landscape planning;
- Optimal use of **ecological infrastructure** and **biodiversity assets** to support a range of productive, extractive, and non-extractive economic activities – a mosaic of players & factors

**Clever multi-level /factor thinking & planning – living with complexity – exclusivity not possible**

**Real Futures**

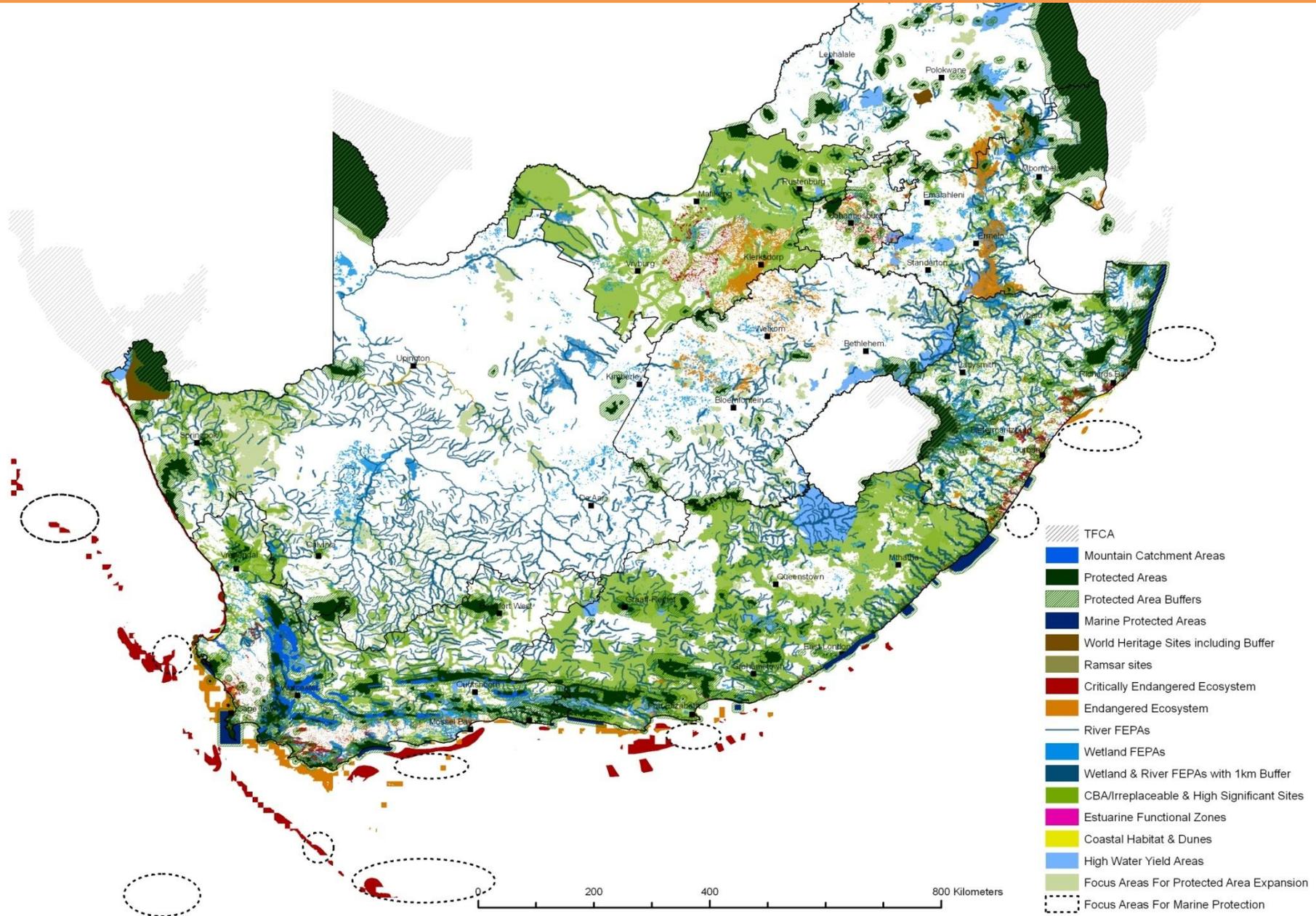
# What makes this different

- Optimal development future requires:
  - Strategic leadership, strong ‘enabled’ governance & ‘true’ integrated planning
  - Holistic asset (and impact) accounting & mapping
    - Take into account all ‘mozaic’ users and impact
    - Recognizing the contribution biodiversity makes
  - Breaking down silos:
    - Not sector by sector,
    - Working across the whole landscape
  - Long term view – to optimize economic benefits, maximise efficiency
    - Not project by project, site by site, funding cycle to cycle

# Interfacing 'traditional' engineered infrastructure, green infrastructure and ecological infrastructure

- Plan for these infrastructures in tandem
  - Not one or the other
  - To achieve more optimal development outcomes
  - To enable society to adapt to climate change
- Biodiversity and ecosystems provide foundation for resilience and climate proofing
  - untapped opportunity for society to cope with climate change

# SA's Ecological Infrastructure and Biodiversity Assets



# Examples of Ecological Infrastructure contributions and costs









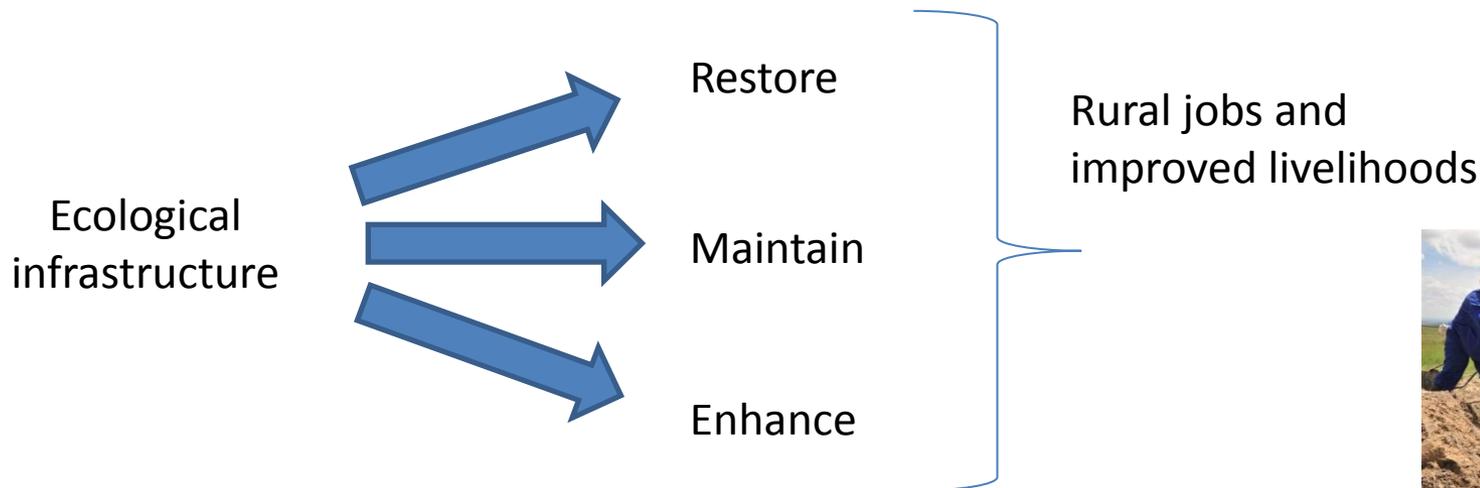


# The Mount Fletcher Dam



# Ecological infrastructure: Not just about services from nature

- BETTER RETURN ON STATE INVESTMENT
- Job creation – through proper management of ecological infrastructure
  - Labour intensive maintenance
- Disaster risk management and climate change



# Challenges and opportunities

- Improve integrated development planning
  - Entrenching 'LED/Rural development focused on maintaining ecological infrastructure at local level.
- Secure recognition of ecological infrastructure improvement and maintenance,
  - Need to move away from project-based NRM models.
- Human capital development foundational to unlocking the biodiversity component of the green economy
  - HCD strategy for conservation sector
  - Jobs Fund

# Concluding Remarks

- Holistic planning in the beginning saves you down the line.
- Ecological infrastructure should inform integrated development planning processes.
- Our financial system needs to shift. Global view - MEA and Numbers crunched in The Economics of Ecosystems & Biodiversity (TEEB) UNEP 2010
- Ecological infrastructure and Biodiversity – SA's amazing natural asset will power the green economy.
- **Come to the Grassland Green Economy Dialogue to hear more!**

# Thank you.



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