

Ecological infrastructure: what it means and why we're using this concept

Biodiversity Planning Forum

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Overview

- Background
- What do we mean by ecological infrastructure?
- Why use the term ecological infrastructure?
- FAQs
- Why do we want to map ecological infrastructure?

Background

- BPF 2012: Session on “mapping EI for ecosystem services”
- Lots of debate!! Not much clear direction
- Since then:
 - ProEcoServ work
 - National dialogue on EI at Grasslands Partners Forum
 - Draft framework for investing in EI
 - Many hours of discussion

Factsheet on ecological infrastructure – developed for national EI dialogue in November 2012



Ecological infrastructure provides cost effective, long term solutions to service delivery



ECOLOGICAL INFRASTRUCTURE NATURE DELIVERING SERVICES

WHAT IS ECOLOGICAL INFRASTRUCTURE?

Ecological infrastructure refers to **functioning ecosystems that deliver valuable services to people**, such as fresh water, climate regulation, soil formation and disaster risk reduction. It is the nature-based equivalent of built or hard infrastructure, and is just as important for providing services and underpinning socio-economic development.

Ecological infrastructure includes, for instance, healthy mountain catchments, rivers, wetlands, coastal dunes, and nodes and corridors of natural habitat, which together form a network of interconnected structural elements in the landscape.

ECOLOGICAL INFRASTRUCTURE IS A PUBLIC GOOD

South Africa has **abundant ecological infrastructure**, providing opportunities to **support development** and unlock economic potential. Because ecological infrastructure is **largely free**, its value is seldom captured in market transactions and **we tend to under-invest in it**.

Like other public goods (such as education, health or street lights), investing in ecological infrastructure has positive spill-over effects. And as with other public goods, the **public sector has a central role to play** in ensuring optimal investment in ecological infrastructure.

Biodiversity is the variety of species and ecosystems and the interactions between them. It is South Africa's extraordinary diversity of life that provides a foundation for economic growth (jobs), social development (service delivery), and human well-being (a better life).

What do we mean by ecological infrastructure?

- Functioning ecosystems* that deliver valuable services to people
 - e.g. mountain catchments, rivers, wetlands, coastal dunes, spawning grounds, nodes and corridors of natural habitat
 - Network of interconnected structural elements in the landscape and seascape
- The nature-based equivalent of build or hard infrastructure

Why use the term ecological infrastructure?

- Ecosystem services – seems to have limited traction with some key audiences
- Services flow from something – an underlying stock of assets
- Often tricky to map a service – much easier to map the underlying asset (think of roads, ports, schools)
- Like built infrastructure, EI is crucial for providing services and underpinning socio-economic development

Why use the term ecological infrastructure?

- Draws attention to similarities with built infrastructure
 - Needs to be managed, maintained and in some cases restored
 - Public sector has a central role to play
- Allows us to highlight the differences between EI and built infrastructure
 - We get EI for free – don't have to build it, tend to under-invest in it

Underpins economic development

Delivers services to people

Creates jobs

Supports rural development

well-recognised



Physical infrastructure

(e.g. roads, ports, powerlines, ICT)



- Construction
- Maintenance

In some cases

Social infrastructure*

(e.g. schools, hospitals)



- Construction
- Maintenance

In some cases

Ecological infrastructure underpins physical and social infrastructure

Ecological infrastructure

(e.g. catchments, wetlands, coastal dunes)



- Restoration
- Maintenance

In many cases

* In the sense used in the SIPs



under-recognised

Manage, maintain & restore ecological infrastructure

Produce and deliver services

Create jobs, especially in rural areas

Augment, enhance and protect built infrastructure

(e.g. restoring degraded catchments prevents siltation and prolongs life of dams; kelp beds and coastal dunes protect human settlements from impacts of storm surges)

Contribute to water security

(e.g. by assuring the quality and quantity of water supplies)

Contribute to food security

(e.g. through ensuring productive rangelands, preventing erosion and contributing to soil health)

Strengthen adaptation to climate change

(e.g. intact ecosystems are better able to help humans cope with the impacts of climate change – ecosystem-based adaptation)

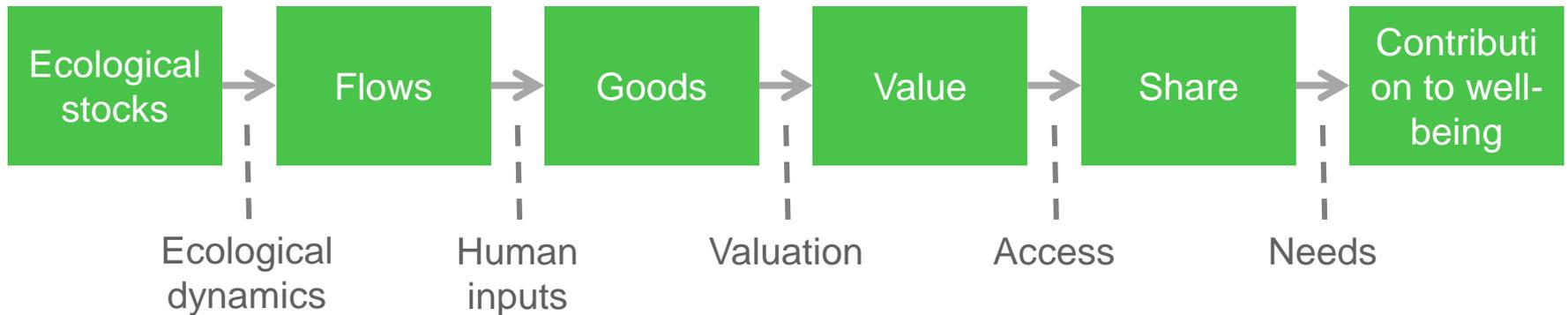
FAQs

- **What's the difference between EI and green infrastructure?**
 - “Green infrastructure” used VERY broadly
 - E.g. roof gardens; bridge/dam for which EIA was done
- **What's the difference between EI and ES?**
 - EI is the underlying asset (stock)
 - ES flow from EI
 - Not all ES flow from EI (e.g. ES from highly modified ecosystems)
- **What's the difference between EI and biodiversity?**
 - Not all biodiversity is EI
 - “Biodiversity assets and EI”

Ecosystem services chains

2 versions from recent SAPECS colloquium:

Kate Brown (Exeter University)



Maike Hamman, PhD student (CSIR, Stockholm Resilience Centre)



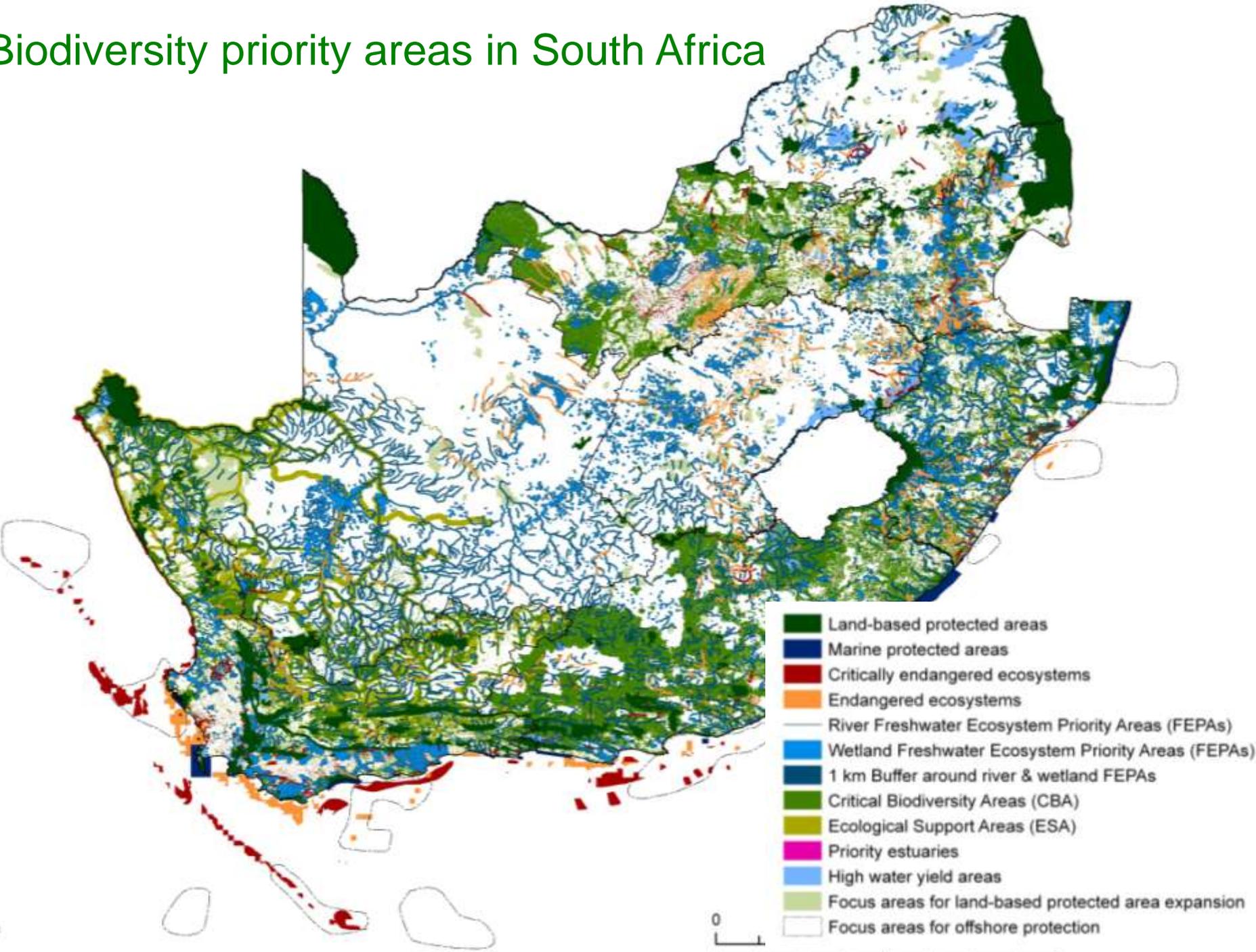
So what?

- Investing in EI is a low-cost high-return development strategy – multiple social, economic and env gains
- We need to
 - **Scale up** investments in managing, restoring and maintaining EI, with a focus on high-value EI assets
 - **Plan and manage EI networks proactively and strategically** – don't leave their configuration and persistence to chance

This means we need to map EI

- NB: We recognise that this is not JUST about maps
- It's 10% maps, 90% other stuff...
- ...but the map is an essential starting point!

Biodiversity priority areas in South Africa



3-way action plan



Reduce loss /
maintain in good condition

Protect

Restore

- Land use planning
- Environmental authorisations
- Classification of water resources

- PA expansion strategy
- Biodiversity stewardship
- Management effectiveness in PAs

- Working for's
- Pilots to show value of ecol infrastructure

How will EI maps relate to existing maps of biodiversity priority areas?

- Biodiversity priority areas include Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs)
- Definition of ESAs in Guideline for Bioregional Plans:
 - Areas that play an important role in supporting the ecological functioning of CBAs **and/or in delivering ecosystem services**
- Still lots to figure out, including:
 - how to map EI
 - extent of overlap with CBAs and ESAs
 - how to present – maps products & accompanying guidelines