

Disclaimer: The views expressed in this document are those of the author, and do not necessarily reflect the views and policies of the Asian Development Bank (ADB), its Board of Directors, or the governments they represent. ADB does not guarantee the accuracy of the data included in this document, and accept no responsibility for any consequence of their use. By making any designation or reference to a particular territory or geographical area, or by using the term “country” in this document, ADB does not intend to make any judgments as to the legal or other status of any territory or area.

## MEASURING AND MONITORING THE IMPACTS OF ECO-COMPENSATION AND PAYMENT FOR ECOSYSTEM SERVICE PROGRAMMES (PES)

Han Meng



## **PES / Eco-compensation planning**

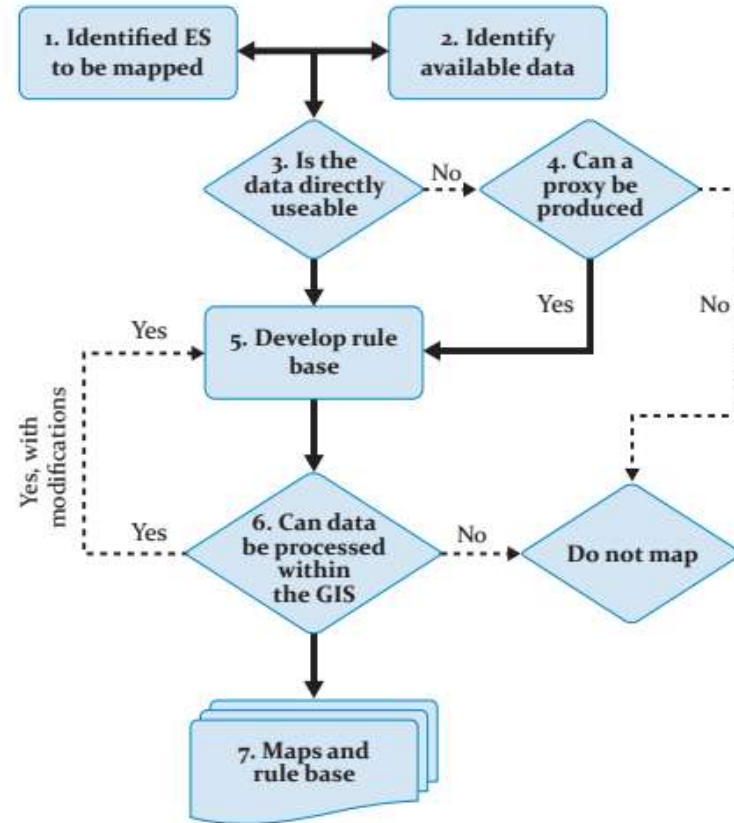
Ecosystem service mapping to maximise benefits



## APPROACHES TO MAPPING ECOSYSTEM SERVICES



MacArthur  
Foundation



### Practical choices to make before mapping:

- **Purpose**
- **Spatial scale**
- **Resolution of analytical units**
- **Temporal scale**

### Input data:

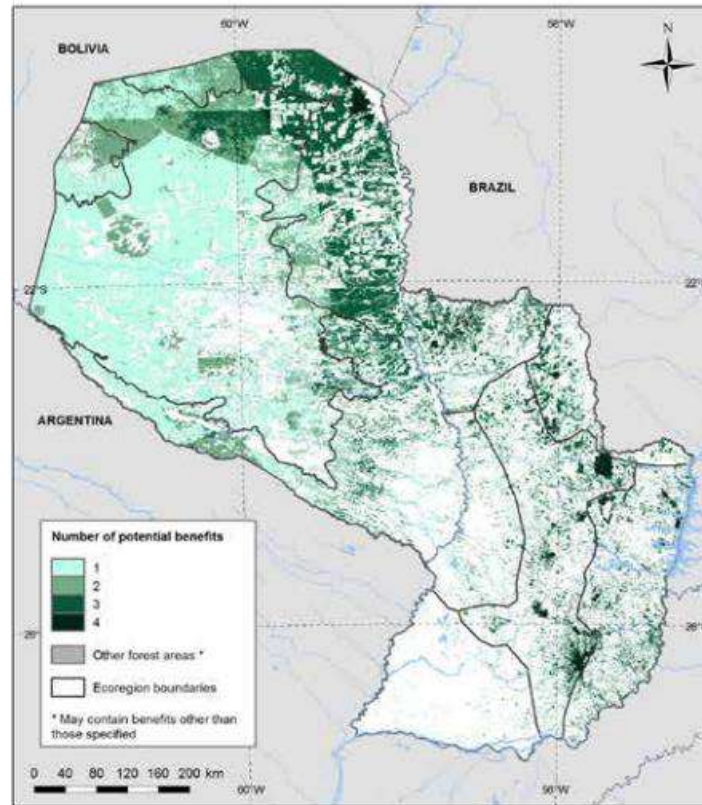
- **National statistics**
- **Field assessments**
- **Remote sensing**
- **Indicators and proxies**
- **Modelling**

## Introductory guidance: Mapping Ecosystem Services

[https://www.unep-wcmc.org/system/comfy/cms/files/files/000/000/801/original/Ecosystems\\_Services\\_Mapping\\_2016\\_WEB.pdf](https://www.unep-wcmc.org/system/comfy/cms/files/files/000/000/801/original/Ecosystems_Services_Mapping_2016_WEB.pdf)

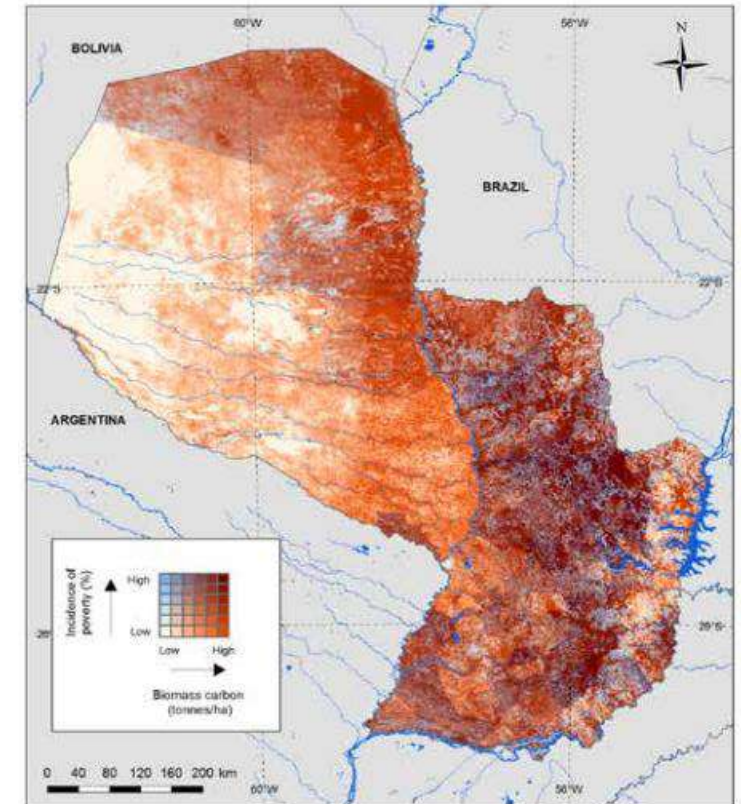


**Map 13a: Multiple benefits: carbon, biodiversity and soil erosion control**  
Drawing on the maps of biomass carbon (Map 7a), potential richness of threatened forest species (Map 9), Important Bird and Biodiversity Areas (Map 10) and the importance of forest for limiting soil erosion (Map 12), it is possible to identify forest areas of importance for more than one benefit.



**Map 16a: Incidence of poverty in relation to biomass carbon**

REDD+ actions in areas of high poverty should be designed with particular care and attention to the needs of the poor, and the potential for both benefits and risks to local livelihoods. Dark brown on the map indicates areas high in carbon and high in poverty; blue shows areas low in carbon but high in poverty; and orange reflects areas high in carbon but low in poverty.



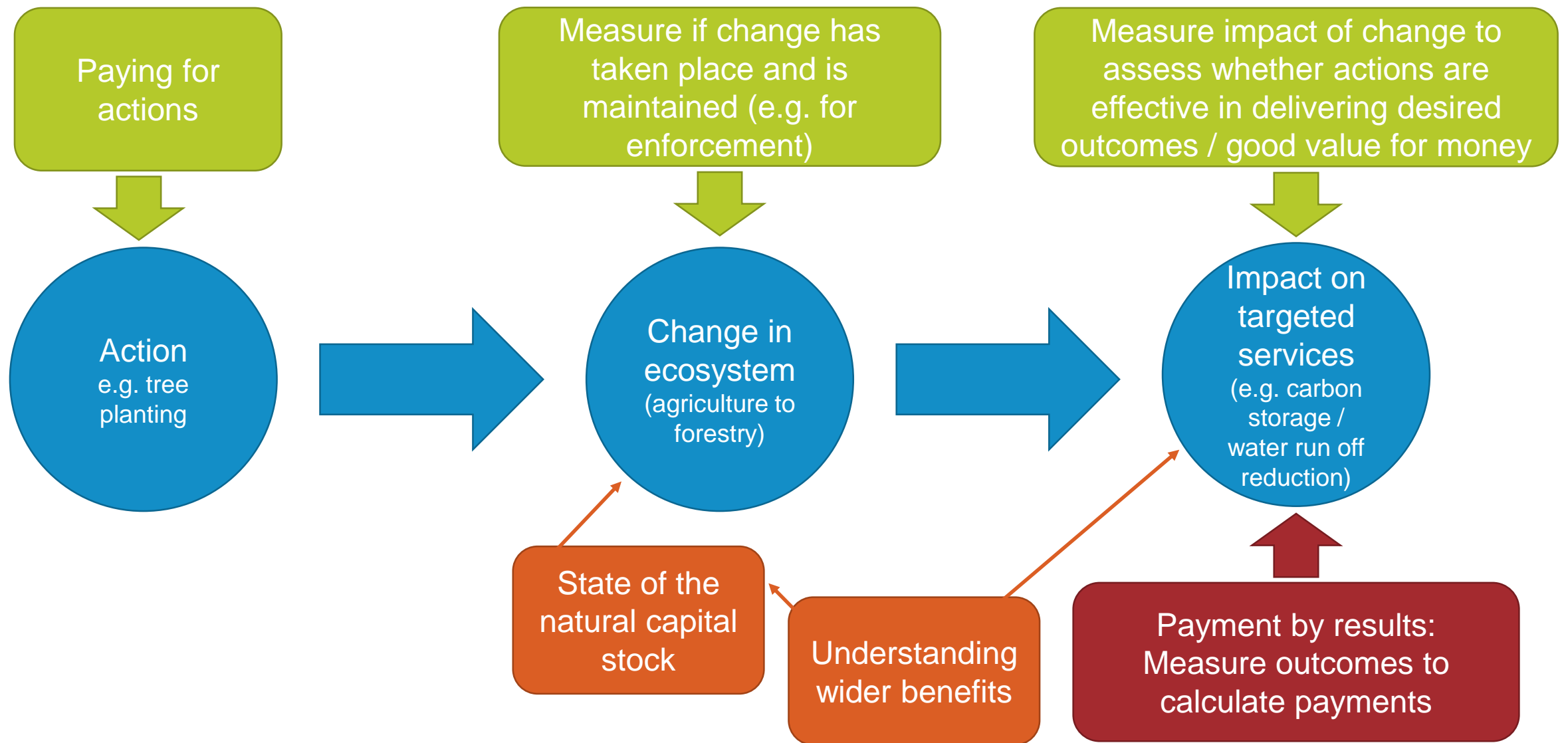
## Example: Examining the benefits of avoided deforestation in Paraguay

[https://www.unep-wcmc.org/system/dataset\\_file\\_fields/files/000/000/301/original/Paraguay\\_brochure\\_ENG\\_150121.pdf?1423823959](https://www.unep-wcmc.org/system/dataset_file_fields/files/000/000/301/original/Paraguay_brochure_ENG_150121.pdf?1423823959)



# **MONITORING THE IMPACTS OF PES / ECO-COMPENSATION**

What to measure and how



## Monitoring in payments for ecosystem service / eco-compensation scheme









# THE SUSTAINABILITY OF PES / ECO-COMPENSATION

Securing impacts in the long term





## The Benefits of Natural World Heritage

Identifying and assessing ecosystem services and benefits provided by the world's most iconic natural places



**Alongside recreational, tourism and spiritual benefits Natural World Heritage sites also deliver significant additional benefits, for example:**

- **66% of sites important for water quantity and/or quality;**
- **52% for carbon sequestration;**
- **48% for soil stabilization; and**
- **45% for flood prevention.**

**Recognising these wider benefits (beyond the core aim of the policy) is likely to be important going forward as pressures on land-use and natural resources increase.**

## Wider benefits of investing in ecosystems

<https://portals.iucn.org/library/efiles/documents/2014-045.pdf>

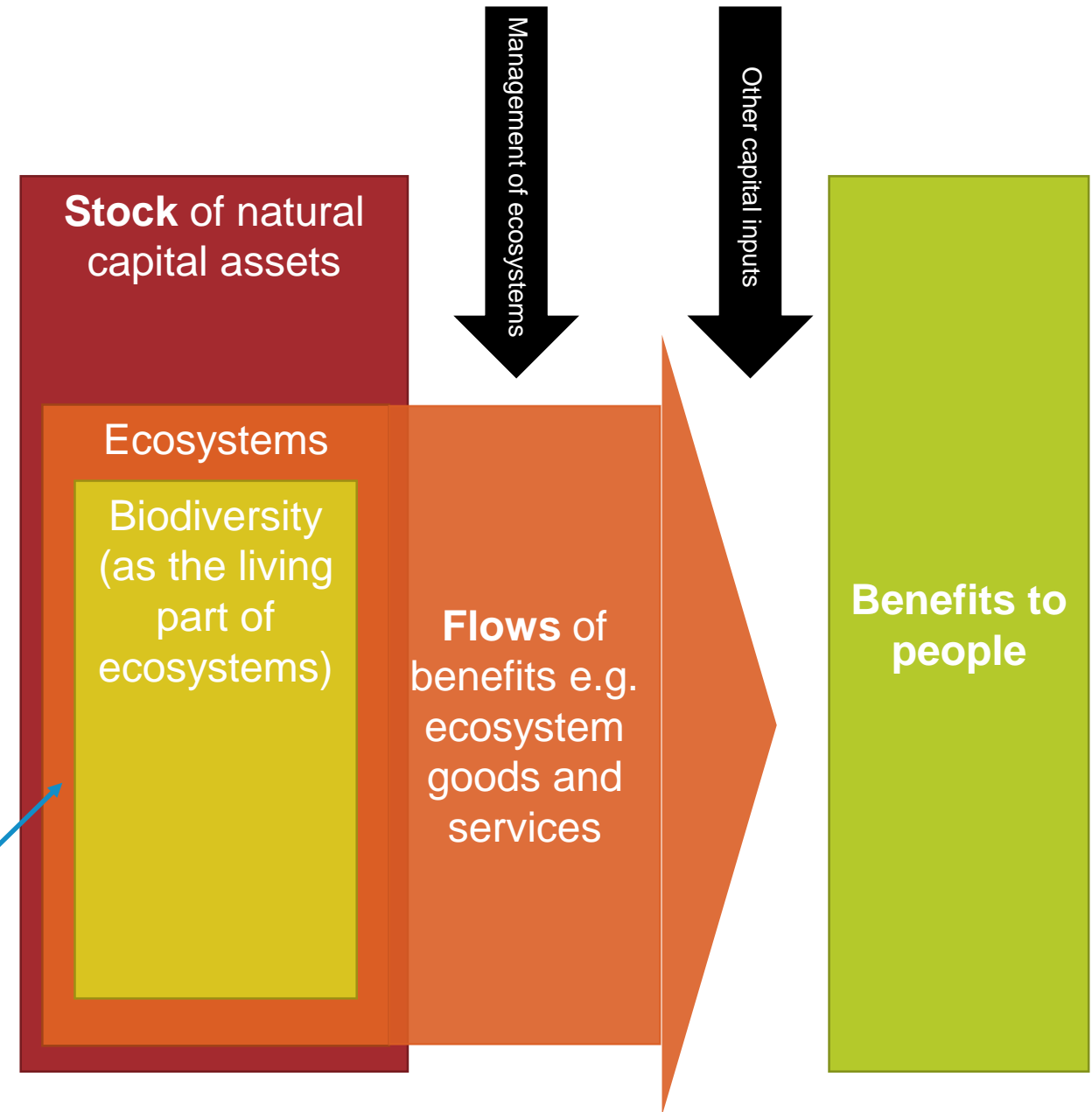


# The relevance of natural capital

## Natural Capital includes:

- **Species**
- **Ecological communities**
- **Soils**
- **Freshwaters**
- **Land**
- **Minerals**
- **Atmosphere**
- **Subsoil assets**
- **Oceans**
- **Natural processes & functions**

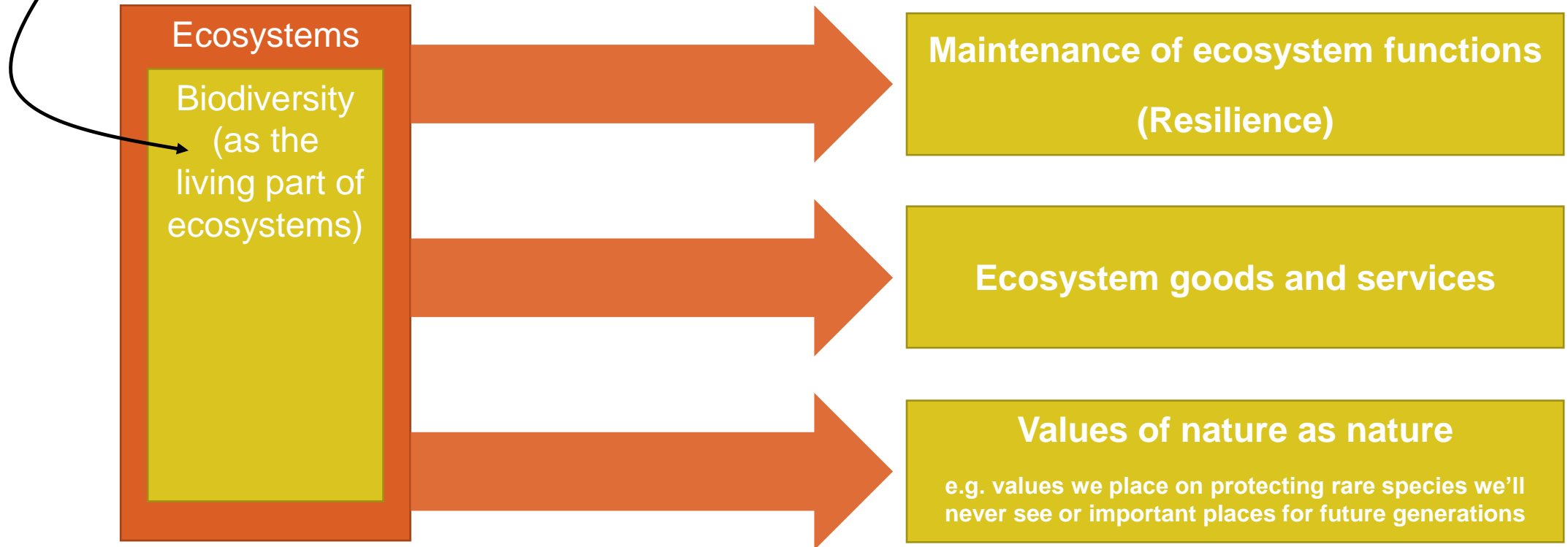
Maintaining the condition of the natural capital stock is essential to the long term flow of the benefits that are the focus of PES / Eco-compensation





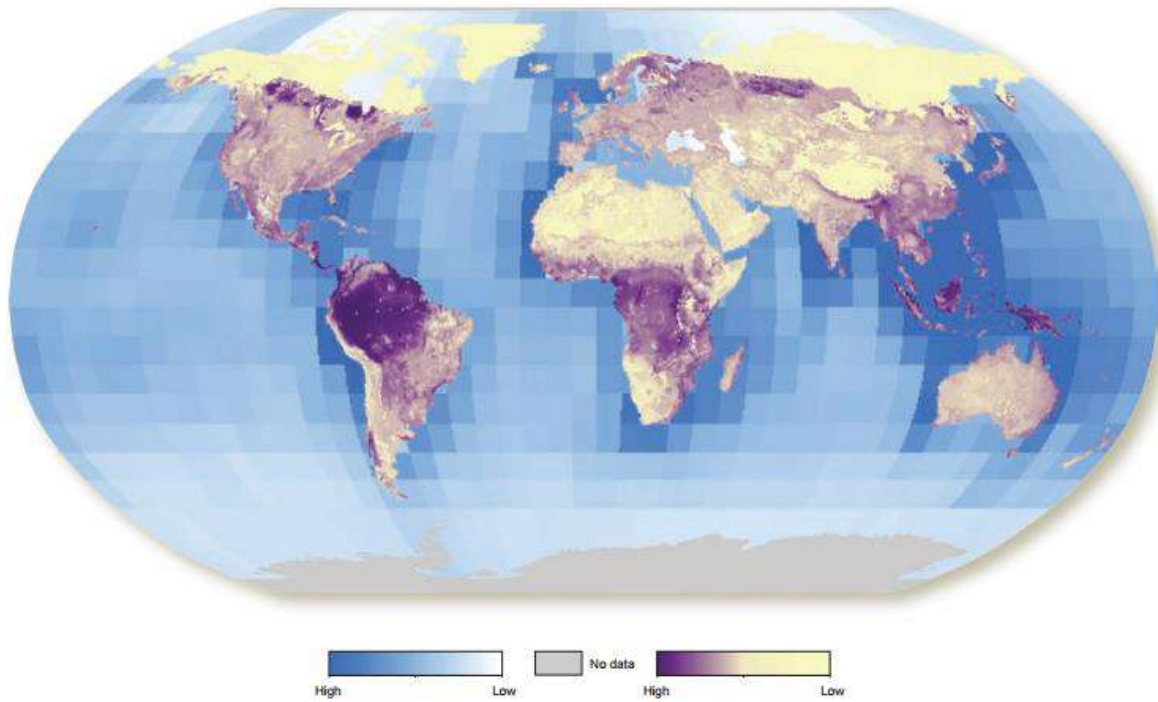
The stock of species and ecological communities...

... plays an important role in generating a wide range of benefits that are valued by people.



**Biodiversity is a crucial element of natural capital in this context, especially with respect to the wider benefits of payments**





## Towards a global map of Natural Capital

[https://www.unep-wcmc.org/system/dataset\\_file\\_fields/files/000/000/232/original/NCR-LR\\_Mixed.pdf?1406906252](https://www.unep-wcmc.org/system/dataset_file_fields/files/000/000/232/original/NCR-LR_Mixed.pdf?1406906252)

## Natural capital: Assets and Risks

Identify key assets and the trends in their status helps understand whether the benefits we draw from them are likely to at risk in the long term. This may not be observable from looking at the flows of benefits alone.

	Mountains, moors and heaths			Enclosed farmland			Semi-natural grassland			Woodlands			Freshwaters			Urban			Coastal margins			Marine		
	Qun	Qul	Sp.	Qun	Qul	Sp.	Qun	Qul	Sp.	Qun	Qul	Sp.	Qun	Qul	Sp.	Qun	Qul	Sp.	Qun	Qul	Sp.	Qun	Qul	Sp.
Food																								
Fibre																								
Energy																								
Clean water																								
Clean air																								
Recreation																								
Aesthetics																								
Hazard protection																								
Wildlife																								
Equable climate																								

		Status		
		Above, at or just below target	Below target	Substantially below target (>50%)
Trend	Positive or not discernible	A	B	B
	Negative	B	B	C
	Strongly negative	C	C	C

**G.Mace et al (2015)**

<http://onlinelibrary.wiley.com/doi/10.1111/1365-2664.12431/full>



# Conclusions and recommendations

**Understanding and mapping a wider range of ecosystem service benefits can help choose where to invest in protecting ecosystems**

**Monitoring the results is important to understand if payment have been effective in delivering the outcomes desired.**

**Assessing the wider benefits of investments can help understand who benefits and how, and provide wider support for the policy intervention.**

**Monitoring the status of the stock on which the benefits rely is also crucial to ensure the ecosystem is being maintained in a condition which means it will be able to continue to provide the benefits we are seeking in the longer term.**





# THANK YOU

[Han.Meng@consultants.unep-wcmc.org](mailto:Han.Meng@consultants.unep-wcmc.org)