

A scenic view of a mountain valley with a winding road and a river, overlaid with text. The background shows lush green mountains and a valley with a river and a winding road. The sky is hazy with some clouds. The text is centered and reads:

# INTEGRATING NATURE INTO DECISION-MAKING THROUGH H EXPERIMENTAL ECOSYSTEM ACCOUNTING

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Moore Center for Science  
Conservation International

FIRST MEETING OF THE GROUP OF MANGROVE EXPERTS (GEM)

The Regional Action Plan for the Conservation of Mangroves in the Southeast Pacific (PAR-Mangalares)

Panama City, Panama

July 25th 2017

**“Natural capital – our ecosystems, biodiversity, and natural resources – underpins economies, societies and individual well-being. The values of its myriad benefits are, however, often overlooked or poorly understood. They are rarely taken fully into account through economic signals in markets, or in day to day decisions by business and citizens, nor indeed reflected adequately in the accounts of society”**

*President Ellen Johnson Sirleaf*

President of Liberia



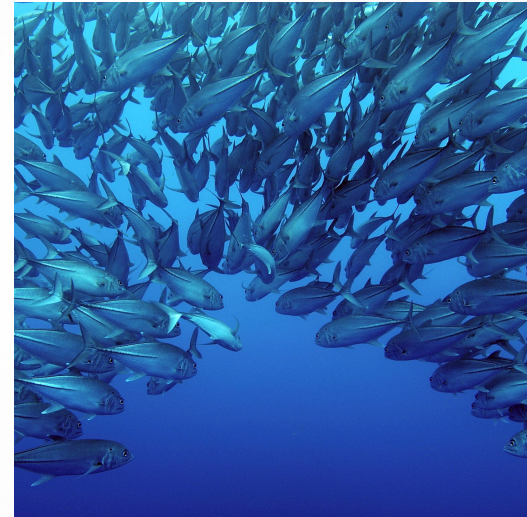
**POVERTY WILL ONLY BE MADE HISTORY WHEN  
NATURE ENTERS ECONOMIC CALCULATIONS IN  
THE SAME WAY AS DO BUILDINGS, MACHINES,  
ROADS AND, FOR EXAMPLE, SOFTWARE.**

DASGUPTA, 2005



# IGNORING NATURE JEOPARDIZES PROSPERITY

Economies and societies need nature to thrive.



Impacts and dependencies are ignored

As a result natural capital is being eroded at an alarming rate



A young woman with dark hair is shown in profile, looking intently at a cluster of coffee cherries on a branch. She is holding the branch with her right hand. The cherries are in various stages of ripeness, ranging from bright red to dark brown. The background is a soft-focus green, suggesting a coffee plantation. The overall mood is one of careful observation and connection to nature.

**CAPTURING AND INTEGRATING THE CONTRIBUTION OF NATURE INTO THE  
SYSTEMS THAT GOVERNMENTS AND BUSINESS USE TO  
MAKE DECISIONS**



# **NATURAL CAPITAL**

**The stock of renewable and nonrenewable natural resources (e.g., plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people**

Adapted from Atkinson and Pearce 1995; Jansson et al. 1994



# **NATURAL CAPITAL ACCOUNTING**

**A systematic process for tracking natural assets,  
the services provided by them and their  
relationship to the economy**

Adapted from World Bank, 2015





# THE SYSTEM OF ENVIRONMENTAL ECONOMIC ACCOUNTING (SEEA)

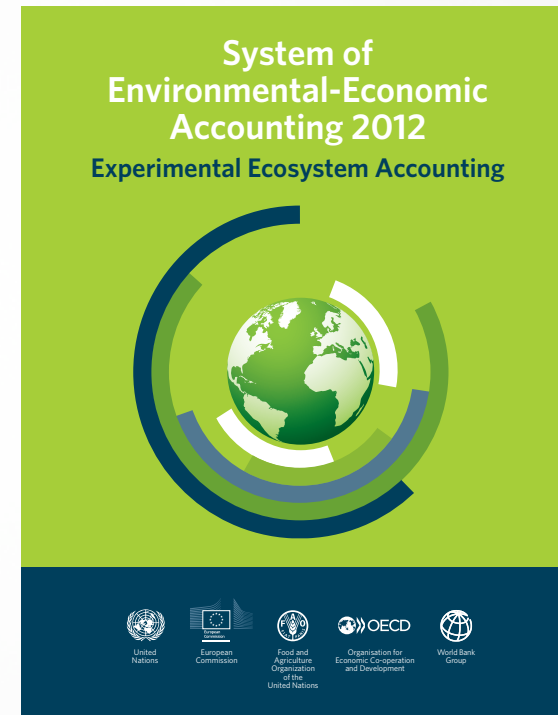
# SEEA CENTRAL FRAMEWORK

- Initial work in 1993 and 2003, adopted as international statistical standard in 2012
- Broad coverage of topics
  - Physical flow accounts
  - Environmental activity accounts
  - Natural resource accounting and land accounting
  - Land accounting
- Key focus change in stocks of individual environmental assets and flows between economy and the environment



# SEEA EXPERIMENTAL ECOSYSTEM ACCOUNTING (SEEA EEA)

- First release in 2013
- Focus: Ecosystem stocks/assets and ecosystem services
- Accounting principles applied to measurement in biophysical and monetary terms
- Intended to cover multiple ecosystem types and ecosystem services – ideally at national scale



# CENTRAL FRAMEWORK AND ECOSYSTEM ACCOUNTS

## System of National Accounts



### Central Framework

- Water
- Carbon
- Land
- Soil
- Timber

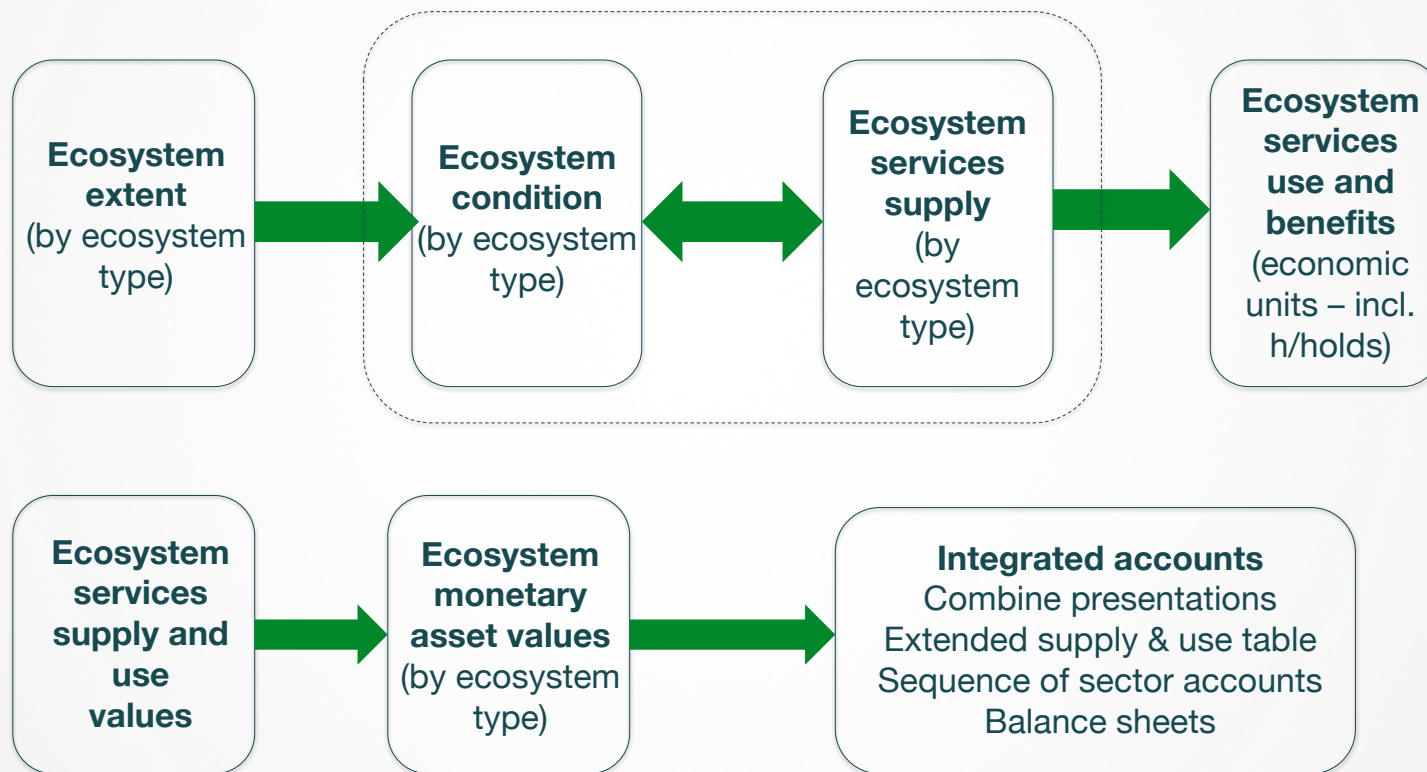
Aquatic, Biological, and Water Resources

### Ecosystem Accounting

- Extent
- Condition
- ES Supply and Use
- Thematic Accounts



# STEPS IN ECOSYSTEM ACCOUNTING



# EEA AND POLICY

## **Ecosystem accounting translates ecosystem services into the language of national official statistics**

- Structured information facilitates coordination across various governmental agencies
- Standard statistics allow repeatability and cross comparison
- Potential for improved transboundary cooperation in places like e.g., Amazon, Okavango, Mekong, ETPS

## **Ecosystem accounting enable better planning, management and monitoring of natural resources**

- A potentially important role for reporting Aichi Targets, SDGs, etc.
- Better design and resource allocation for environmental expenditure, incentive mechanisms

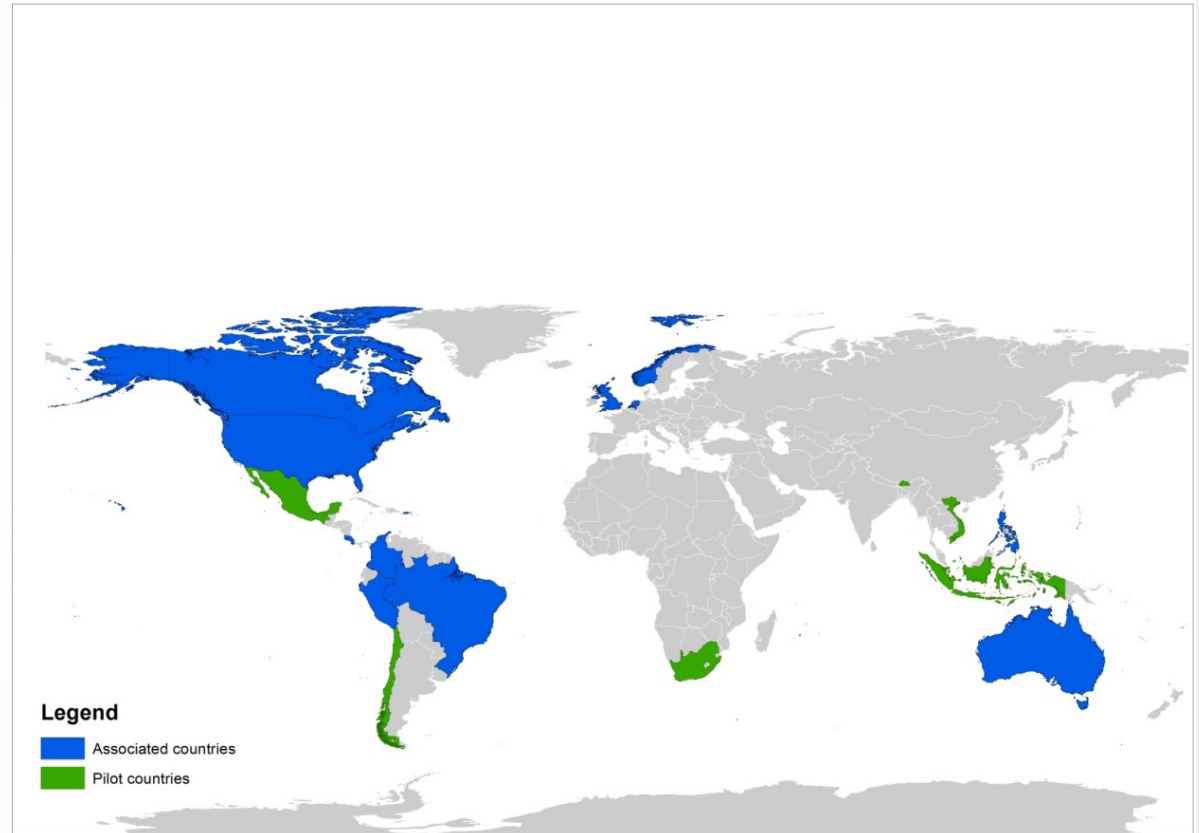


# SEEA-EA IMPLEMENTING COUNTRIES

Brazil, China, Mexico, India and South Africa

Communication and training materials (country and regional)

Technical development –  
Guidance for experimentation



# WORLD BANK WAVES EA IMPLEMENTING COUNTRIES



- Developed
- Planned
- Planned with/by partners





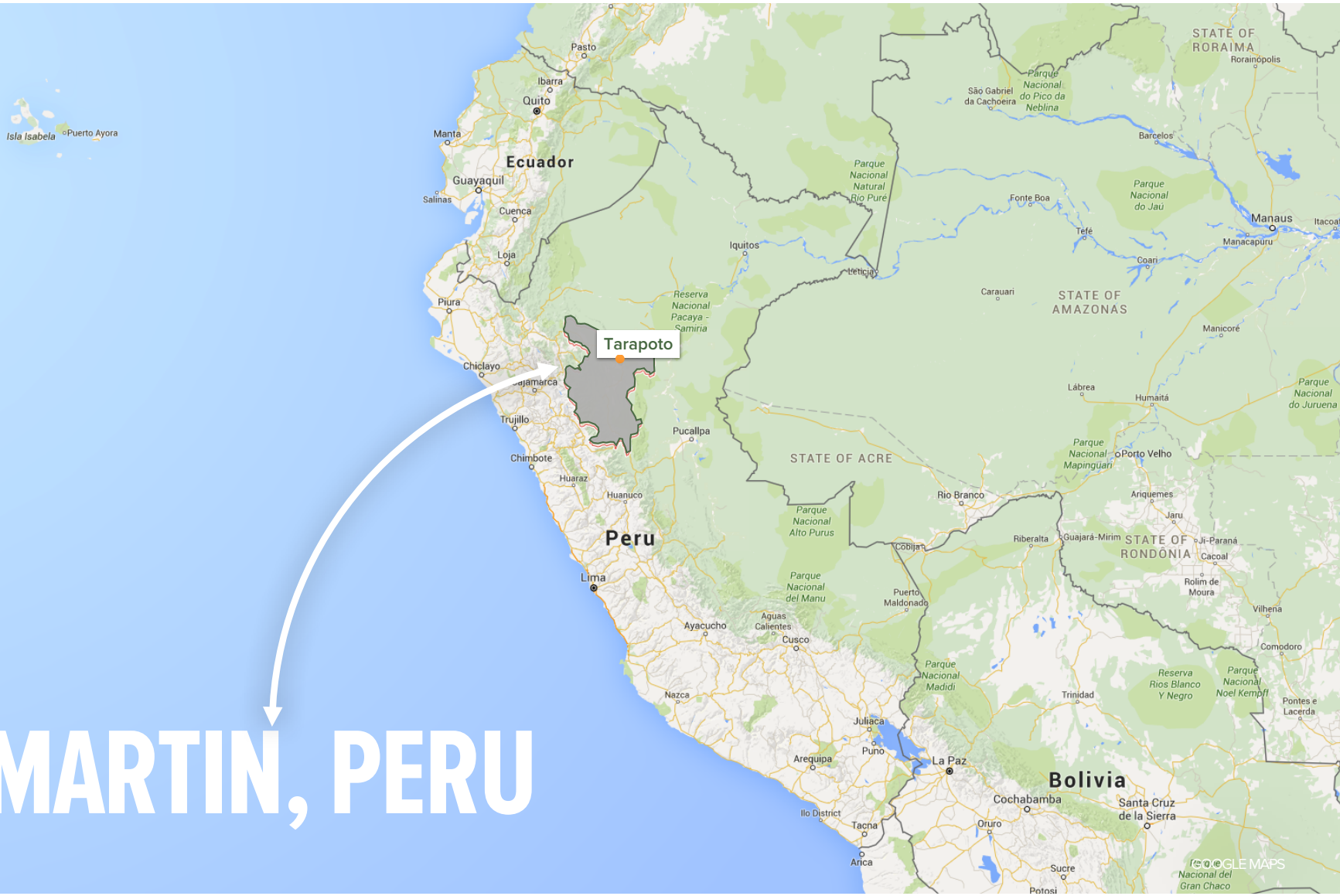
**CRITICAL  
CHALLENGES &  
OPPORTUNITIES**

**R&D: METHODS & APPROACHES  
DATA LIMITATIONS  
GOVERNMENT STRUCTURE &  
FRACTURED INFORMATION**

**IMPROVED INSTITUTIONAL  
ARRANGEMENTS  
PILOTING  
POST ACCOUNTING ANALYSIS**



# ECOSYSTEM VALUES AND ACCOUNTING (EVA)



# SAN MARTIN, PERU

# **ECOSYSTEM SERVICES**

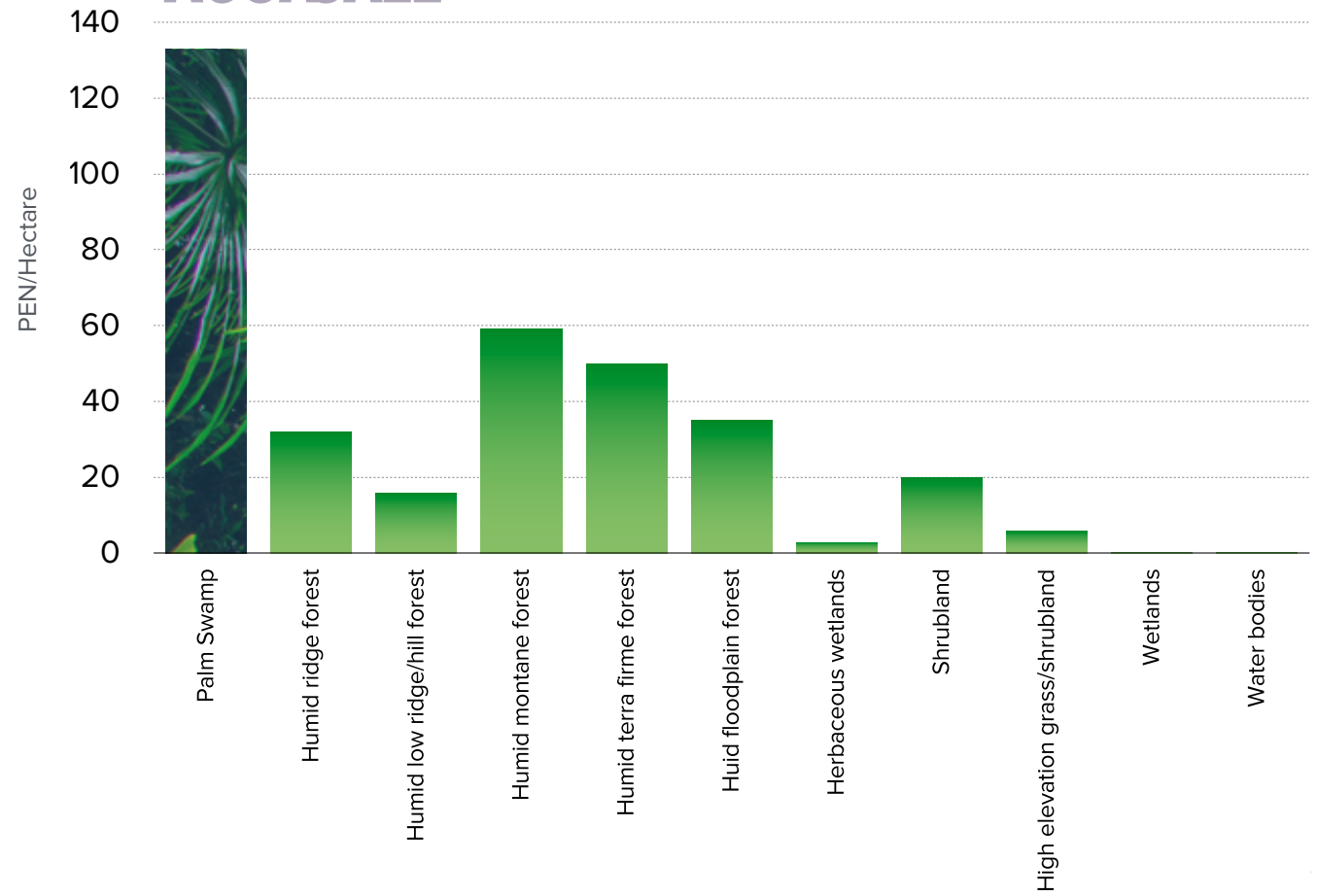
BIODIVERSITY  
CARBON STORAGE  
AVOIDED SEDIMENTATION  
ECOTOURISM  
**TIMBER**  
**BUSHMEAT**  
**FIREWOOD**  
**WATER PROVISION**



# HIGH VALUE ECOSYSTEMS

2011

## AGUAJALE



**CONTRIBUTION OF ECOSYSTEMS TO THE REGIONAL ECONOMY  
WAS ESTIMATED AS 191 MILLION PERUVIAN SOL  
(ABOUT US\$58 MILLION)**

**WHICH WOULD REPRESENT THE EIGHTH BIGGEST SECTOR IN SAN  
MARTÍN.**

**8TH OUT OF 32 SECTORS**





# POST ACCOUNTING

FROM ACCOUNTS TO APPLICATIONS

# RICE vs AGUAJALES





# ECOTOURISM

NATURAL CAPITAL



A photograph of a lush tropical forest with a rocky stream flowing through it. The water is white and frothy as it cascades over dark, moss-covered rocks. The surrounding vegetation is dense and vibrant green, featuring various ferns and mosses. The scene is captured from a slightly elevated perspective, looking down the length of the stream.

# ECOSYSTEM BENEFIT INDEX



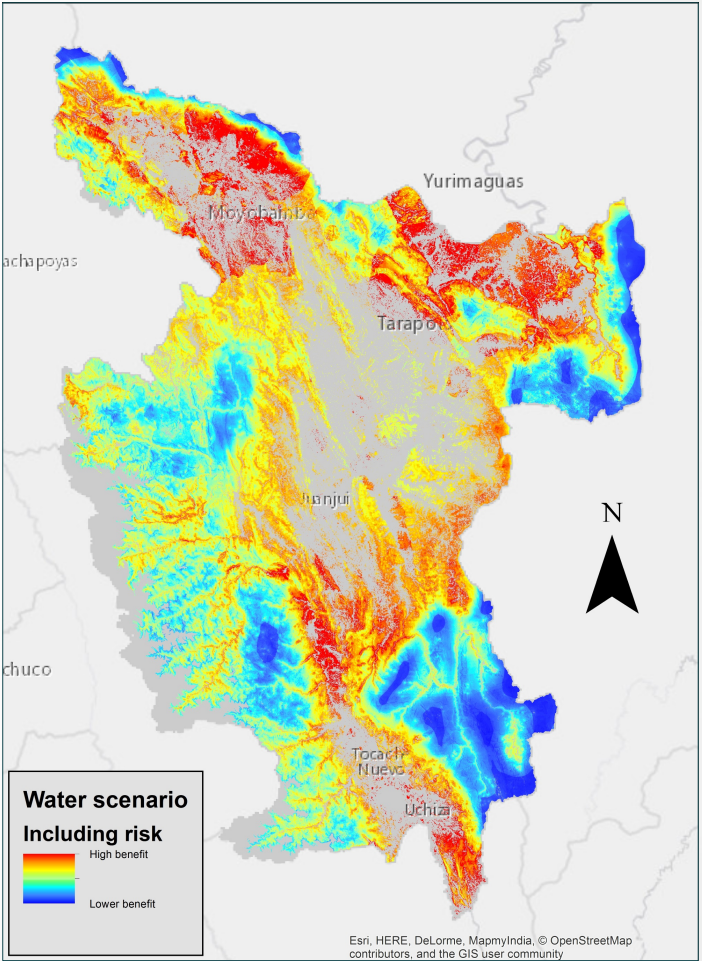
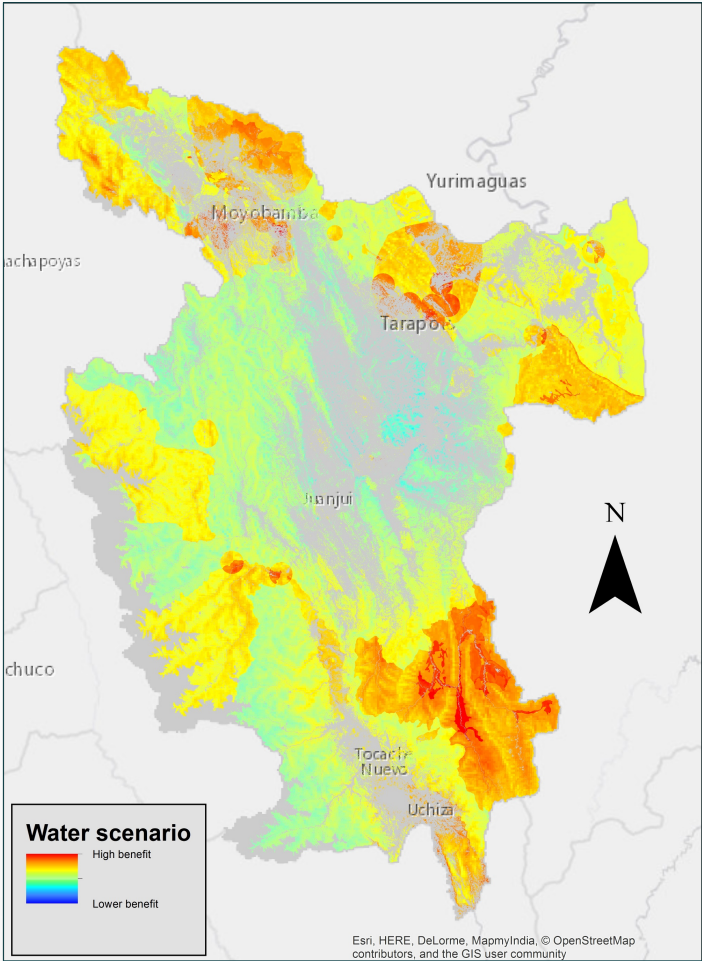
# ECOSYSTEM BENEFIT INDEX

SPATIAL  
PLANNING

PRIORITY  
SETTING

RESOURCE  
ALLOCATION

ASSESSING  
OFFSETTING  
AND IMPACT

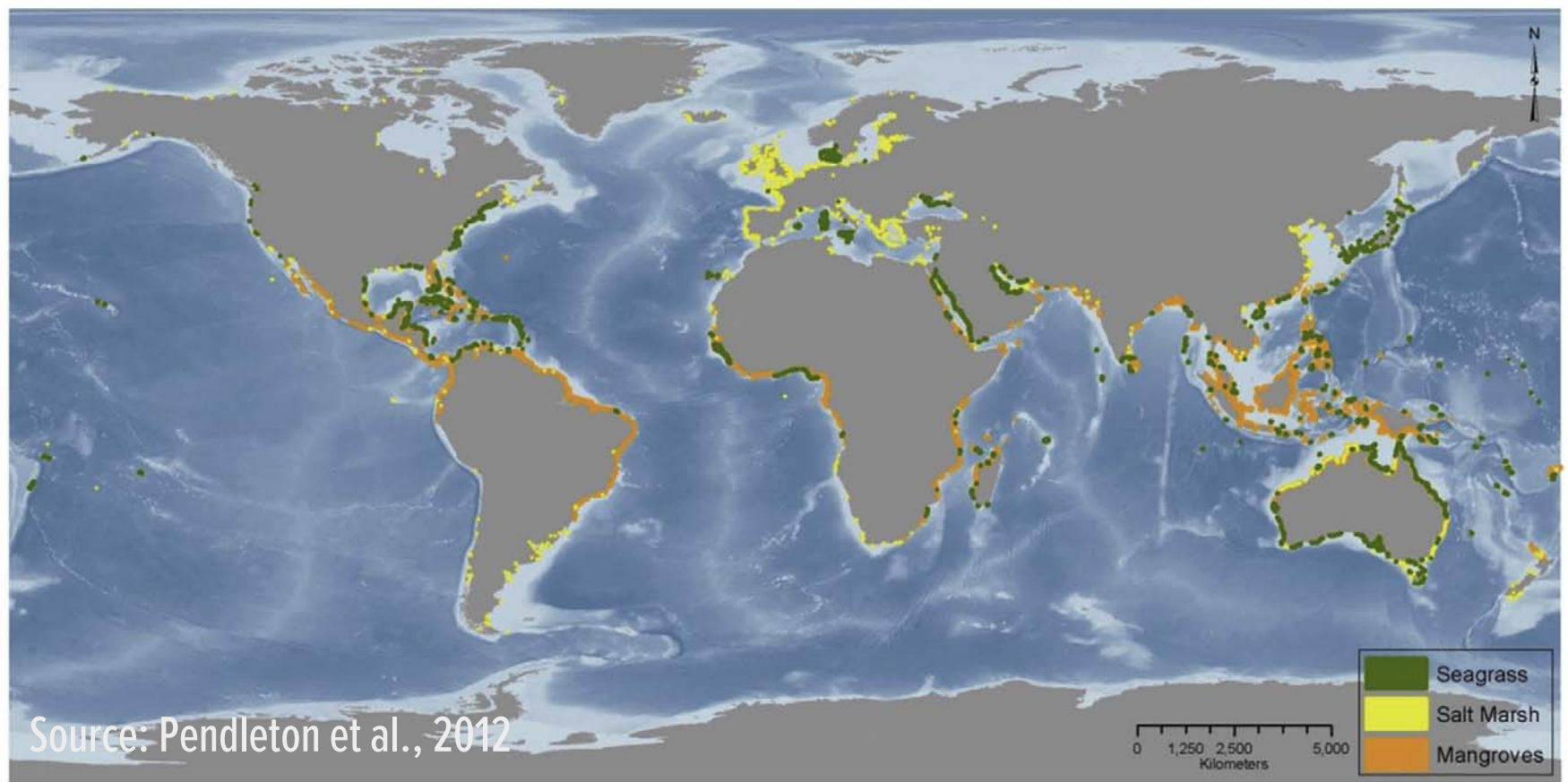




# ACCOUNTING FOR MANGROVES

© BURT JONES AND MAURINE SHIMLOCK

# MANGROVES: GLOBAL DISTRIBUTION





**BIODIVERSITY**

**FISHERIES**

**TIMBER AND PLANT PRODUCTS**

**COASTAL PROTECTION**

**TOURISM**

**CARBON STORAGE & SEQUESTRATION**



# PHILIPPINES: SOUTHERN PALAWAN

**DECLINE IN EXTENT OF  
MANGROVES (CONVERSION TO FISHPONDS) AND  
CORAL REEFS (SEDIMENT RUNOFF AND DESTRUCTIVE  
FISHING)**

The image is a vertical split-view photograph. The top half shows a dense mangrove forest with thick, reddish-brown prop roots extending from the water's surface. The bottom half shows an underwater view of a coral reef with various types of coral, including some that appear bleached or white. The text is overlaid on the image in white, bold, sans-serif font.


# **PHILIPPINES: SOUTHERN PALAWAN**

**MANAGEMENT AND USE OF RESOURCES  
SUPPORT DECISION MAKING  
CONFLICT RESOLUTION  
AND DEVELOPMENT PLANNING**



**EXTENT  
CONDITION  
ECOSYSTEM SERVICES &  
ITS BENEFICIAIRES  
ECONOMIC VALUES  
CONTRIBUTION TO ECONOMY**

**WHAT WILL WE LEARN FROM MANGROVE ACCOUNTS?**



**WHAT COULD BE  
SOME OF THE  
APPLICATIONS  
OF MANGROVE  
ACCOUNTS?**

**MONITORING  
REPORTING  
SPATIAL PLANNING  
PRIORITY SETTING  
INCENTIVE MECHANISMS  
RESOURCE MANAGEMENT  
ENVIRONMENTAL EXPENDITURE  
OFFSETTING AND IMPACT**

**“We need to take stock and attach value to our natural resources and ecosystems such that we may include their value in planning and decision making processes as well as in our national accounts and balance sheets”**

*President Ian Khama*

President of Botswana



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Geospatial software for monitoring and modeling the Earth system



GORDON AND BETTY  
**MOORE**  
FOUNDATION



A low-angle photograph of a dense, lush green forest. Sunlight filters through the thick canopy of trees, creating a bright, hazy atmosphere. The trees are tall and thin, with many smaller branches and leaves visible. The overall color palette is dominated by various shades of green, from vibrant lime to deep forest greens.

# THANK YOU

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