



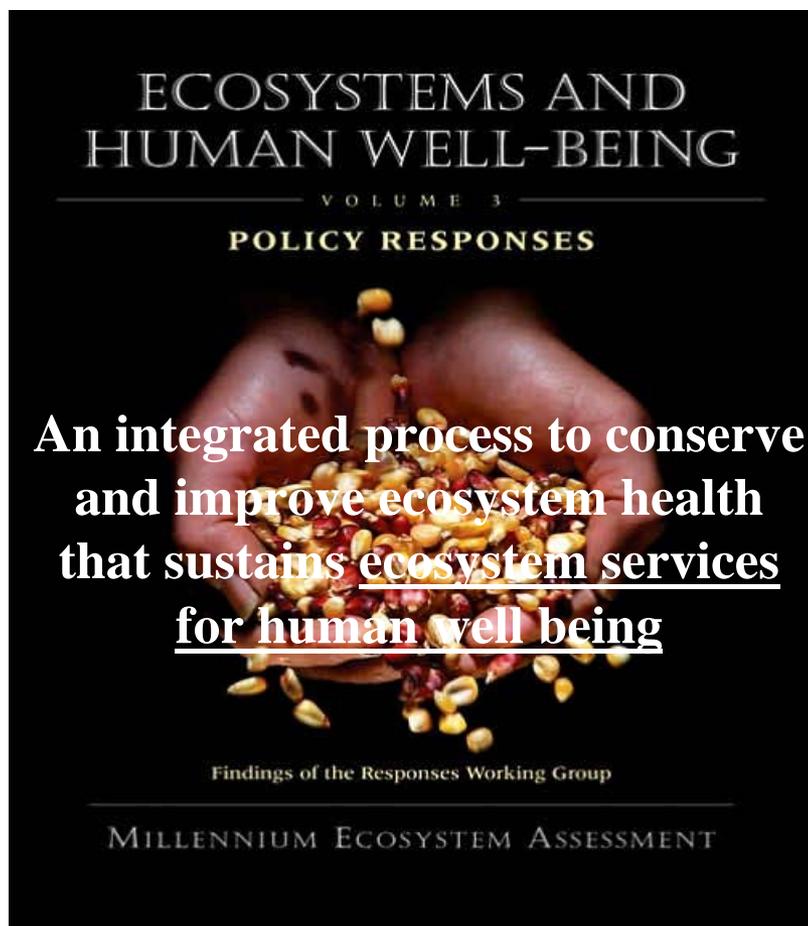
*International Seminar on 'Towards linking ecosystems and ecosystem services to economic and human activities', 27-29, 2012, NY*

# **International Policy Demand on Ecosystems Management and Assessment**

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# Ecosystem Management

## Ecosystem Management



## The Future We Want: Rio+20 Declaration





# Emerging Context



CONVENTION

on

BIOLOGICAL

DIVERSITY

TEXT AND ANNEXES



TEEB - The Economics of Ecosystems and Biodiversity

The Economics of  
Ecosystems and Biodiversity  
Ecological and Economic  
Foundations



Edited by  
Pushpam Kumar



MILLENNIUM ECOSYSTEM ASSESSMENT

The Economics of  
Climate Change

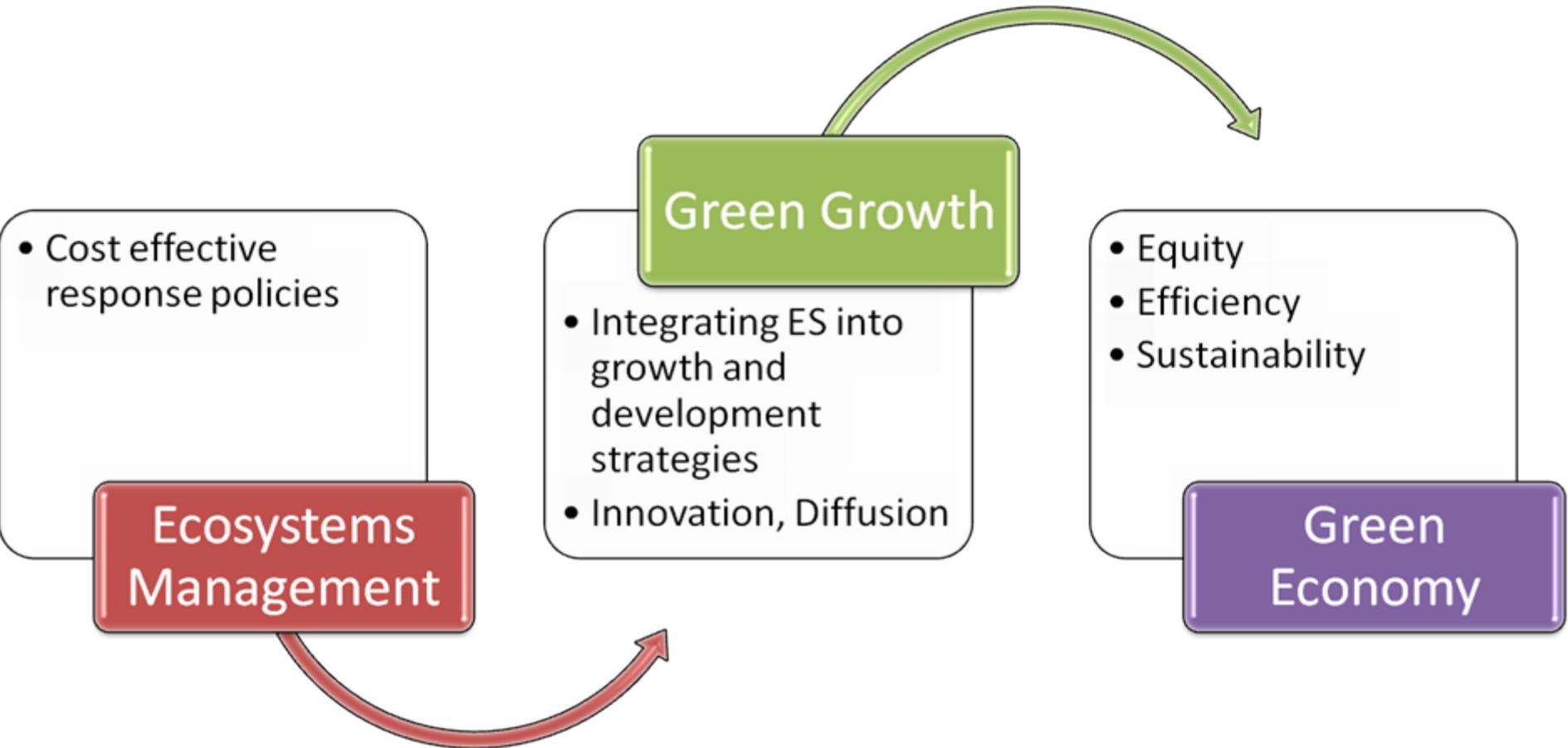
The Stern Review



NICHOLAS STERN

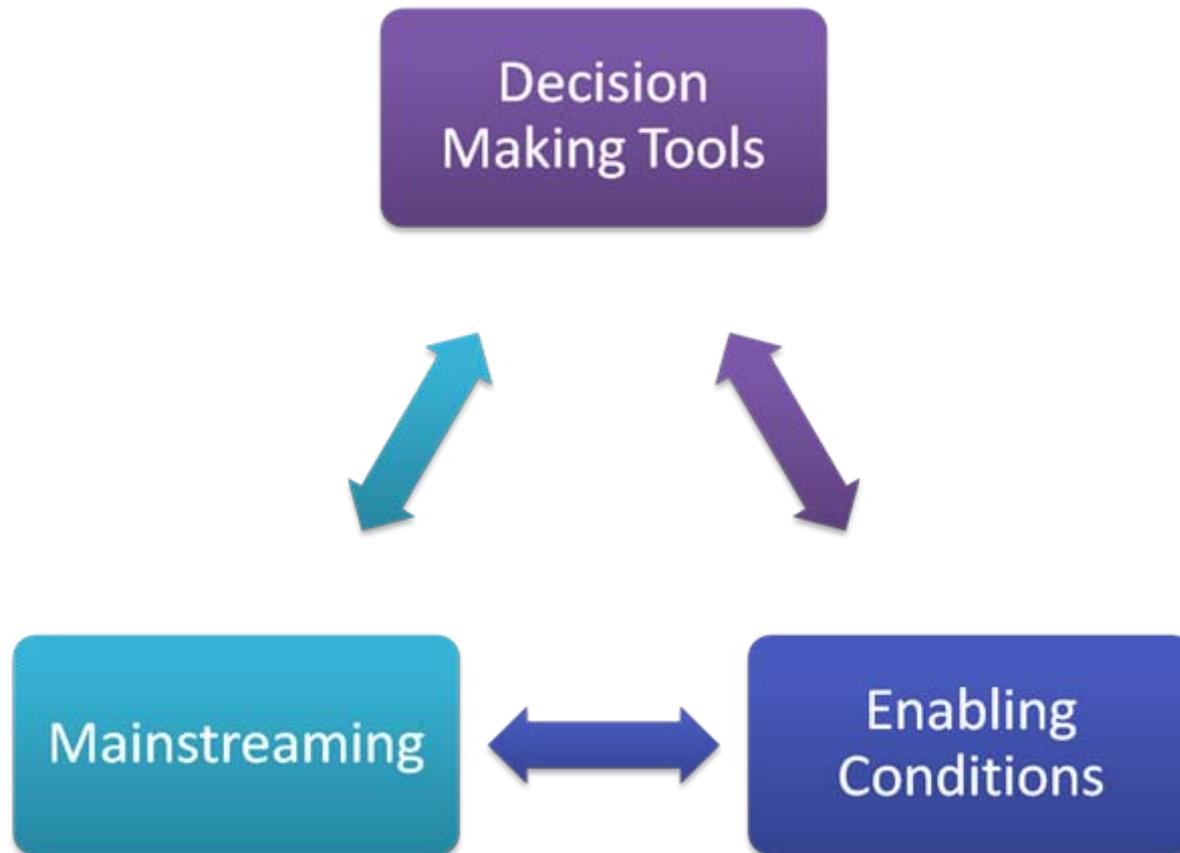
CAMBRIDGE

# Overarching framework



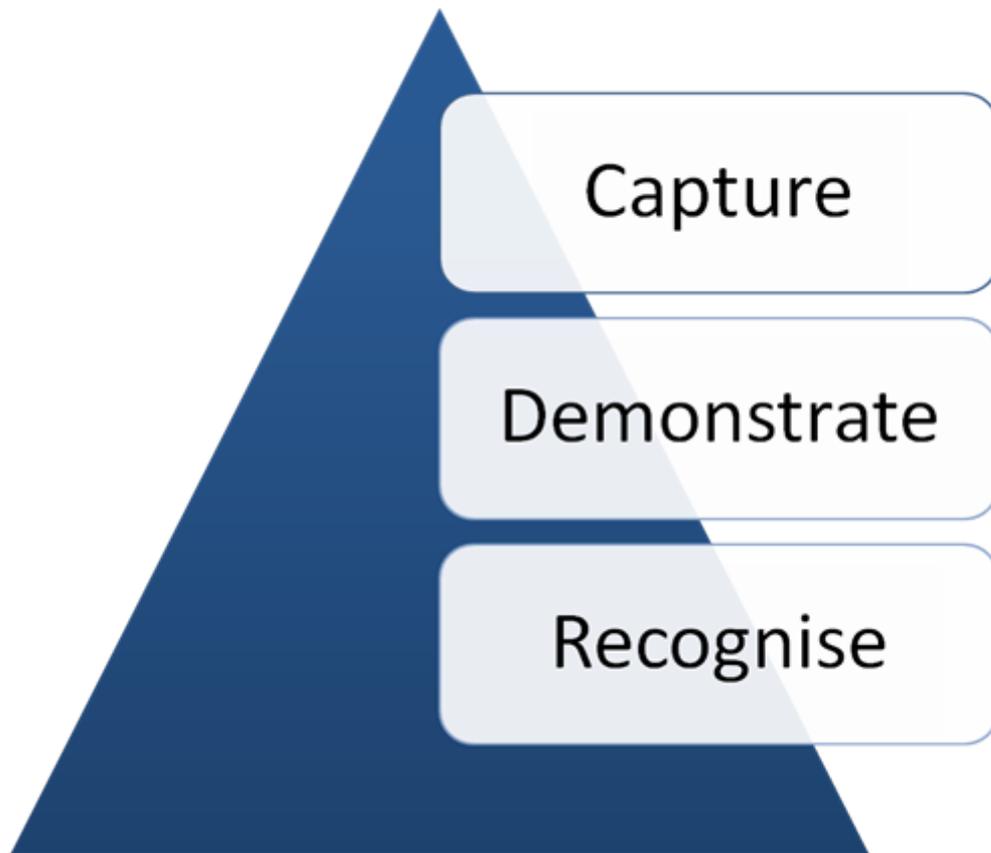


# Elements of Effective Ecosystems Management

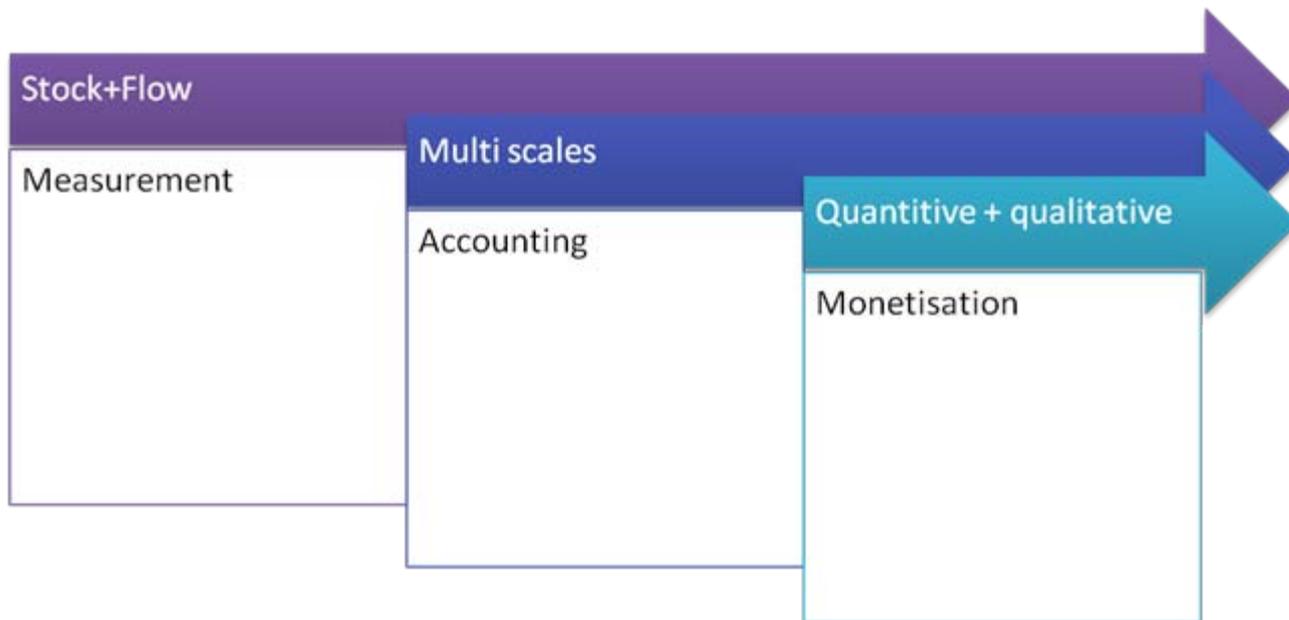




# Showcase missing elements of decision making

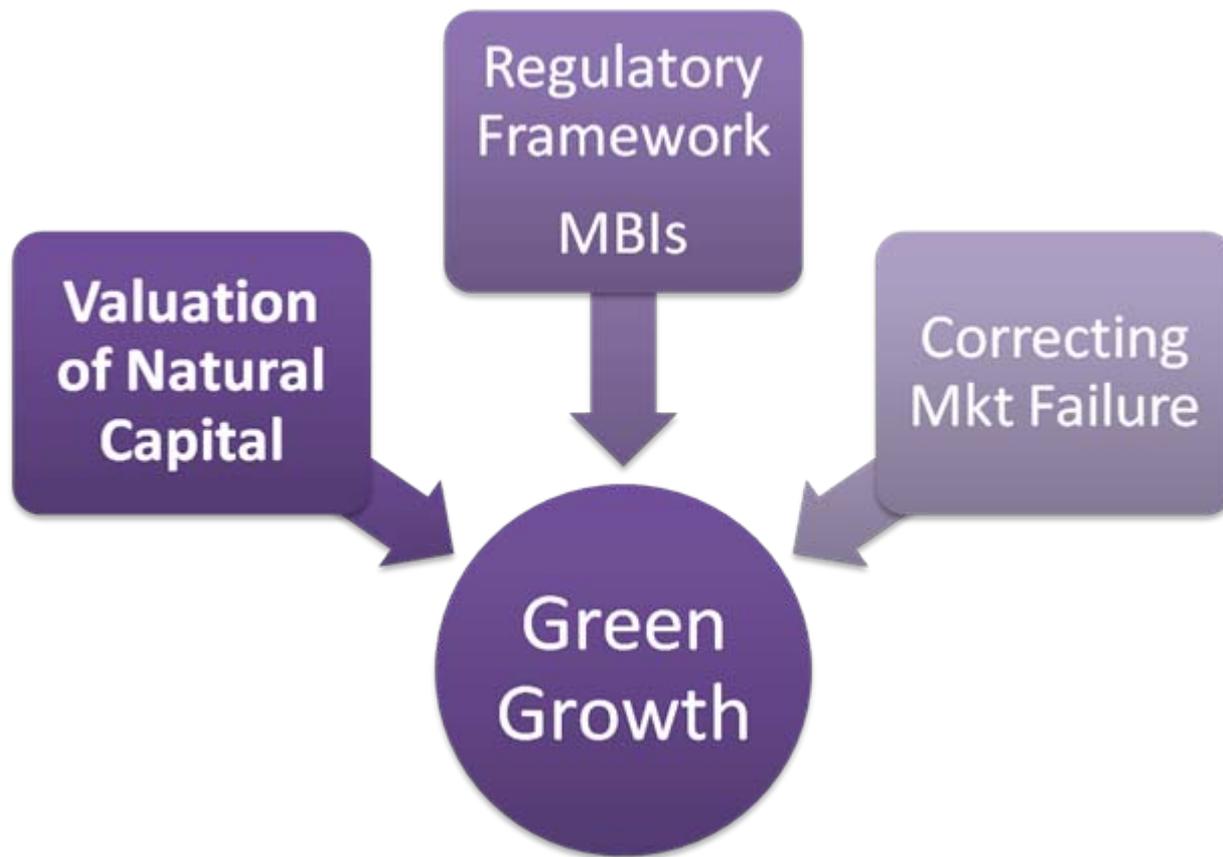


# Tools and Methodologies





# Green Growth and Green Economy





# Ecosystem Accounting

Mainstream ecosystem services into their development planning through ecosystem accounting

- Project on Ecosystem Services ([Proecoserv](http://www.proecoserv.org))
  - [www.proecoserv.org](http://www.proecoserv.org)
- Eco taxation in forestry sector and accounting of ES in Senegal
- Economic valuation of ecosystem services for estimating 'GDP of the Poor' (Southern Sudan) [www.esv-valuation.org](http://www.esv-valuation.org)
- Implementation of ecosystem accounting: Inclusive Wealth Report (with IHDP)
- Establishing the linkages of macroeconomic policies and ecosystem services with the help of scientific evidence in selected countries (Valuation of ecosystem assets in Morocco and Kazakhstan)



# Fragmented Indicators to Inclusive Wealth Index

- **GDP was created to have an overall information about the economy**
  - i. Earlier to GDP, governments had made decisions on economy using fragmented and limited information about the existing situation of the economy.
  - ii. Great depression and the Second World War made explicitly clear that overall information about the economy was needed.
  - iii. In 40's GDP was created by Keynes (an integrated birds-eye view of the economy)
- **GDP has evolved based on the needs**
  - i. Accelerating inflation in 60's and 70's: adjusted GDP
  - ii. Mainstream policy of trade in 80's: integration of international trade
  - iii. Request for more inclusive development goals in 90's: creation of HDI
- **A need of indicator responsive to natural capital**
  - i. Indicator should show / reflect the feedback loop between ecosystem services and economy,



# Other attempts

<b>Indicators</b>	<b>Main Characteristics</b>
Ecological Footprint, Biocapacity and Ecological Debt	based on areas of productive land (global hectares per person)
Environmental Sustainability Index and the Environmental Performance Index	Wide list of variables and indicators for more data-driven environmental analysis
Index of Sustainable Economic Welfare (ISEW) and Genuine Progress Indicator	The Gross Domestic Product is corrected
Human Development Index	The human development index can be modified



# Recent Demand

- Beyond GDP Conference, Brussels 2007
- Potsdam 2007 G8+5 initiative & TEEB 2008, 2010
- Stiglitz/ Sen/ Fitoussi report on the measurement of economic performance, Paris 2009
- Simplified Ecosystem Capital Accounts fast track project in Europe (2009-2012)
- SEEA revision for 2012/13: includes now a special volume on ecosystem accounts and valuation
- WAVES (UNEP-WB)



# Still...

**GDP remains the economic indicator that makes newsreaders sound happy when it rises by half a percent and funereal when it falls, (BBC 13<sup>th</sup> June, 2012)**



# Inclusive Wealth Report 2012

Measuring progress toward sustainability

SUMMARY FOR  
DECISION-MAKERS



## Key Questions

- The Inclusive Wealth Index**
- How we calculate inclusive wealth**
  - Capital assets**
- How have countries performed over the last two decades from an inclusive wealth perspective?**
  - How do different capital forms contribute to per-capita wealth creation?**
    - The IWI breakdown for each country**
    - A comparison of IWI, GDP, and HDI**
  - What is the role of natural capital in inclusive wealth?**
  - Which components explain changes in natural capital?**



# **Inclusive Wealth Report 2012**

## **Objectives:**

- Providing quantitative information and analysis that present a long-term perspective on human well-being
- Providing an indicator of societal progress within the context of sustainable development
- Providing a different angle to decision-makers for interpreting economic progress
- Using wealth accounting for assessing socio-economic planning



**Countries:**

Australia, Brazil, Canada, Chile, China, Colombia, Ecuador, France, Germany, India, Japan, Kenya, Nigeria, Norway, the Russian Federation, Saudi Arabia, South Africa, USA, United Kingdom and Venezuela

**Time span covered under the report:**

1990-2008

**Published by:**

Cambridge University Press, London

Electronic version of the report is available at:

[www.unep.org/pdf/IWR\\_2012.pdf](http://www.unep.org/pdf/IWR_2012.pdf)



IWR 2012, wealth is assessed as the value of **manufactured, human, and natural capital stocks.**

### **Natural capital:**

- *Agricultural land* (quantity of crops produced, price of crops produced, rental rate, harvested area in crops, discount rate, permanent crops land area, permanent pasture land area)
- *Forest resources* (forest stocks, forest stock commercially available, wood production, value of wood production, rental rate, forest area, value of NTFB, percentage of forest area used for extraction of NTFB, discount rate)
- *Fisheries* (fishery stocks, value of capture fishery, quantity of capture fishery, rental rate)
- *Fossil fuels* (reserves, production, prices, rental rate)
- *Metals and minerals* (reserves, production, prices, rental rate)

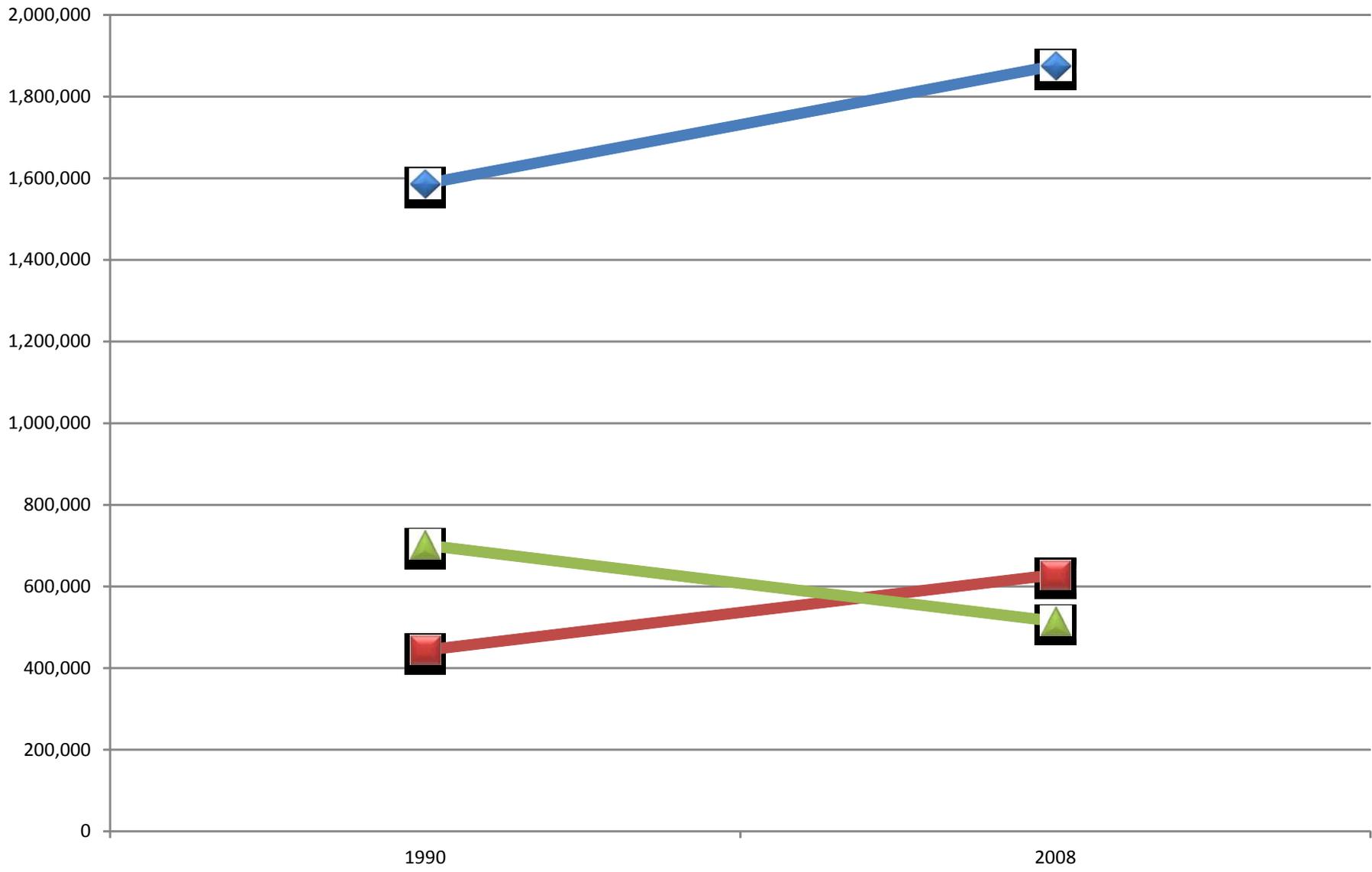
**Human capital:** (Population by age and gender, mortality probability by age and gender, discount rate, employment, educational attainment, employment compensation, Labour force by age and gender)

### **Manufactured capital**

**Adjustments:** (carbon damages, oil capital gains, total factor productivity)

# Changes In Capital Forms

Human Capital   Produced Capital   Natural Capital (5)+(8)+(11)+(12)+(16)





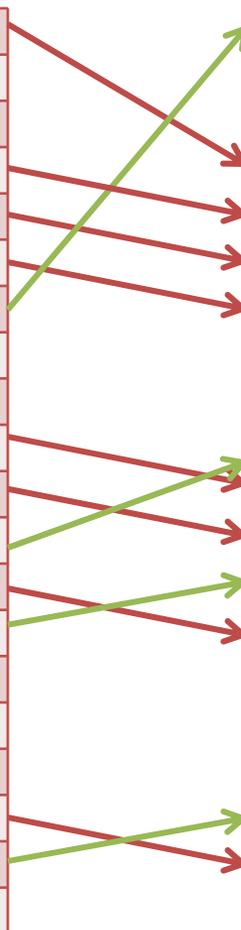
# The Ranks change in GDP and IWI

## GDP per capita of 2008 (PPP 2005 US Dollars)

1. Norway
2. United States
3. Canada
4. Australia
5. Germany
6. United Kingdom
7. Japan
8. France
9. Saudi Arabia
10. Russian Federation
11. Chile
12. Venezuela, RB
13. South Africa
14. Brazil
15. Colombia
16. Ecuador
17. China
18. India
19. Nigeria
20. Kenya

## Inclusive Wealth Index

1. Japan
2. United States
3. Canada
4. Norway
5. Australia
6. Germany
7. United Kingdom
8. France
9. Saudi Arabia
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12. Chile
13. Brazil
14. South Africa
15. Colombia
16. Ecuador
17. China
18. Nigeria
19. India
20. Kenya



# **Key findings and recommendations**

- 70% of countries assessed present a positive IWI per capita growth
- Human capital has increased in every country, being the prime capital form that offsets the decline in natural capital in most economies
- There are clear signs of trade-offs among different forms of capital as witnessed by increases and declines of capital stocks for 20 countries over 19 years
- 25% of assessed countries, which showed a positive trend when measured by GDP per capita and the HDI, were found to have a negative IWI
- The primary driver of the difference in performance was the decline in natural capital
- Countries witnessing diminishing returns in their natural capital should invest more in renewable natural capital to increase their inclusive wealth
- Governments should move away from GDP per capita and instead evaluate their macroeconomic policies based on their contribution to the IWI of the country



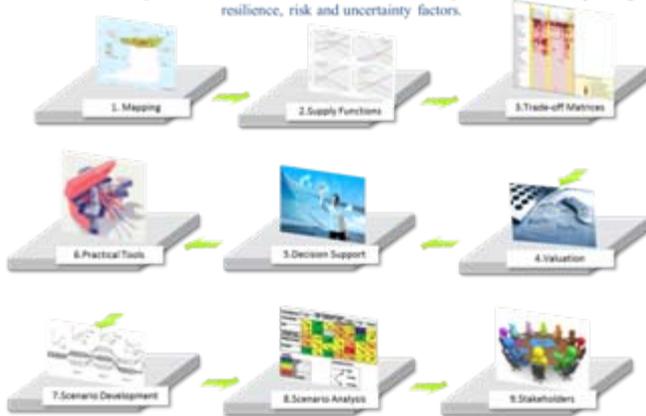
## Objective and Components

*to reduce threats to globally important biodiversity through integrating the findings and tools of ecosystem service assessments in policy and decision making at various scales.*

*This will be achieved by:*

### 1. DEVELOPING TOOLS

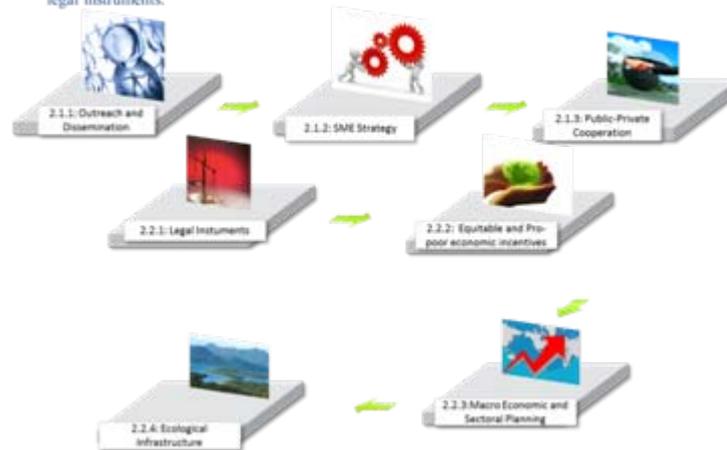
Outcome 1.1: Decision- and policy-makers have access to strengthened capacity and advisory services to analyse how decisions affect selected bundles of ecosystem services, incorporating resilience, risk and uncertainty factors.



### 2. USING TOOLS AT POLICY IMPLEMENTATION

Outcome 2.1: Increased awareness and involvement of targeted stakeholders in ecosystem services management in the pilot countries

Outcome 2.2: Ecosystem services are considered for integration into socio-economic, political and legal instruments.



### Project Sites & Partners



### 3. EXCHANGING EXPERIENCES

Outcome 3.1: Increased policy relevance of ecosystem services sciences' results in international BD and ES-related processes.





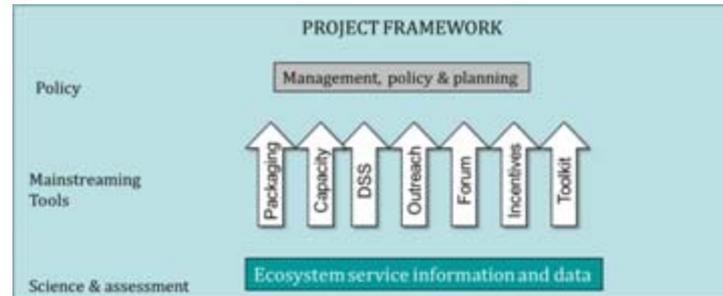


# Proecoserv – South Africa

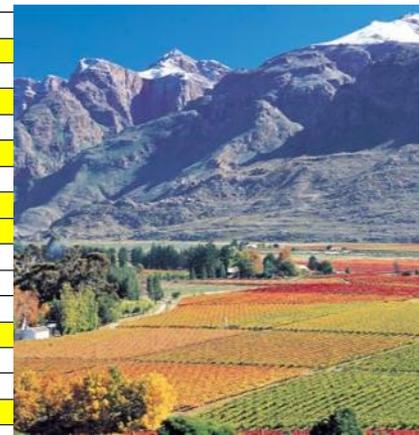
- Pilot Site:** 1. Eden District: Disaster management, Land use planning.  
 2. Olifants: Integrated water management,  
 3. Providing support for National development planning

Ecosystem Services Valuation studies in South Africa has been assessed. Current knowledge gaps in valuation have been identified.

Yellow shading denotes little to some valuation information, green shading denotes good to complete information



Service Groups (TEEB 2010)	Ecosystem services	Marine		Fresh water			Natural terrestrial						Transformed			National			
		Marine	Coastal	Estuaries	Wetlands	Rivers	Fynbos	Thicket	Forest	Savanna	Grassland	Karoo	Succulent Karoo	Desert	Urban areas		Cultivated	Plantations	Mires
Provisioning services	Food																		
Provisioning services	Water																		
Provisioning services	Raw Materials																		
Provisioning services	Genetic resources																		
Provisioning services	Medicinal resources																		
Provisioning services	Ornamental resources																		
Regulating services	Air quality regulation																		
Regulating services	Climate regulation																		
Regulating services	Moderation of extreme events (weather)																		
Regulating services	Regulation of water flows (hydrological cycle)																		
Regulating services	Waste treatment																		
Regulating services	Erosion prevention																		
Regulating services	Maintenance of soil fertility																		
Regulating services	Pollination																		
Regulating services	Biological control																		
Habitat services	Maintenance of life cycles of migratory species																		
Habitat services	Maintenance of genetic diversity																		
Cultural & amenity services	Aesthetic information																		
Cultural & amenity services	Opportunities for recreation & tourism																		
Cultural & amenity services	Inspiration for culture, art and design																		
Cultural & amenity services	Spiritual experience																		
Cultural & amenity services	Information for cognitive development																		



# Proecoserv – Trinidad and Tobago



**Pilot Sites:** Nariva Swamp; Northern Range, and Buccoo Reef.

Major objectives and Aims of Project: 1. Introduce Ecosystem Services Accounting into the T&T National accounts. 2. Introduce GIS based Ecosystem Services maps and an associated Decision Support System into Physical Development Planning in T&T. 3. Develop a pilot Decision Support System for Ecosystem Services (PES) case study.

## Trinidad Nariva Swamp

Provisioning Services	Regulating services	Cultural Services
1. Commercial Hard wood Timber 2. Game Animals 3. Animals for wild sale as pets	1. Flood Regulation 2. Carbon Sequestration 3. Erosion Regulation 4. Water Purification	1. Tourism (Local /International) 2. Hiking 3. Bird watching 4. Recreational Hunting

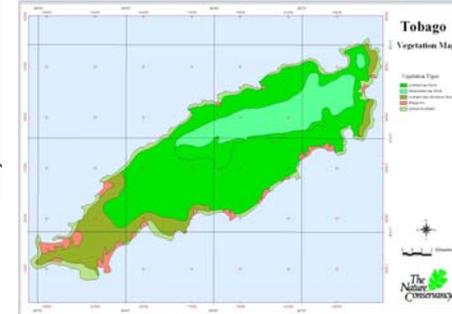
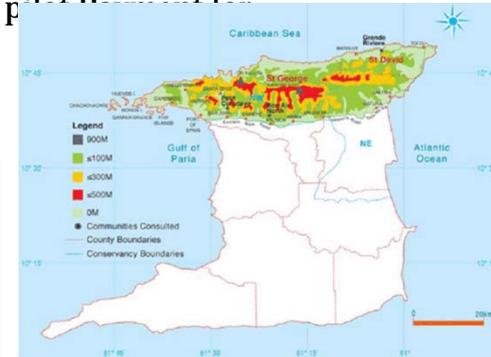
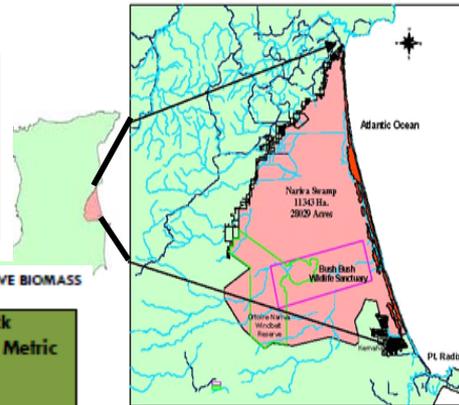
TABLE 5 LIST OF NORTHERN RANGE ECOSYSTEM SERVICES

TABLE 6 CHANGE IN TOTAL CARBON STORED IN VEGETATIVE BIOMASS

Time Period	Opening stock (Thousands Metric tonnes)	Closing stock (Thousands Metric tonnes)
1990-2000	20540	19750
2000-2005	19750	19620
2005-2010	19620	19170

TABLE 7 CHANGE IN AREA OF TRINIDAD AND TOBAGOS FOREST ECOSYSTEMS FOR THE PERIOD 1970-2010

Time Period	Opening Stock (Ha)	Closing Stock (Ha)
1970-1990	256346	237863
1990-1994	237863	240726
1994-2000	240726	233570
2000-2005	233570	220080
2005-2010	220080	226413



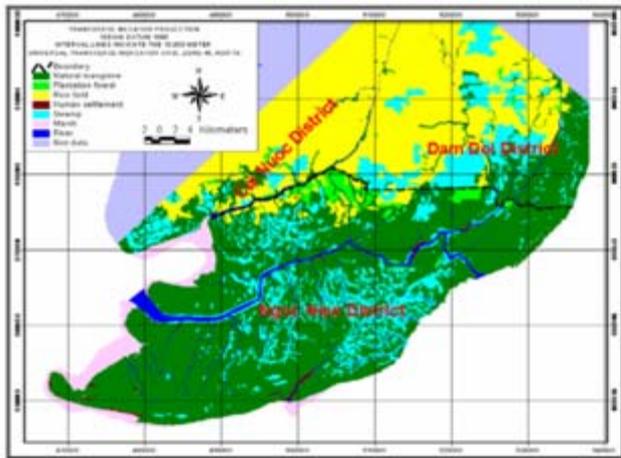
# Proecoserv – Vietnam



**Pilot Site:** Mangrove Forests in Ngoc Hien District, Ca Mau Province

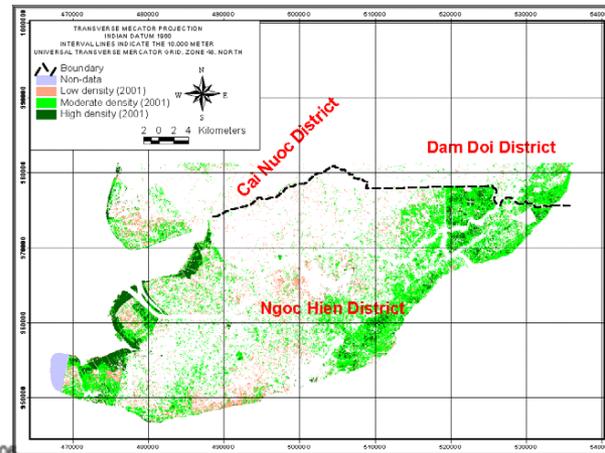
**Core problem:** Loss and degradation of Mangrove forests at alarming rates

The team collected, and reviewed ecosystem data and maps. Identified major drivers of change in the region.

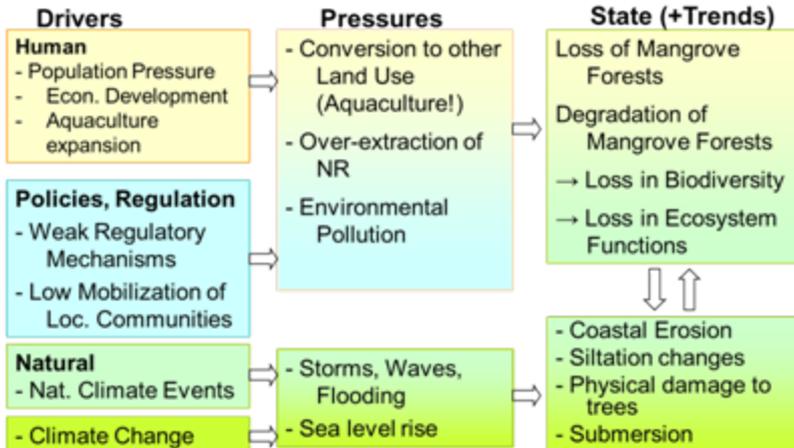


**1965:**  
87,097 ha mangrove forest  
3,249 ha plantation area

Phan Minh Thu 2006



**2001:**  
32,875 ha mangrove forest  
5,766 ha high density  
23,860 ha moderate density  
8,677 ha low density



# Let us make a consensus

