



Mainstreaming SEEA Experimental Ecosystem Accounting into policy

Dr. Salman Hussain





What do we mean by policy mainstreaming?

A change in *outcomes*:

- Reduced impacts of anthropogenic activities on ecosystems and biodiversity



What is do we mean by policy mainstreaming?

A change in *outcomes*:

- Reduced impacts of anthropogenic activities on ecosystems and biodiversity

Achieving these changes in outcomes:

- Influencing the *behaviors of change agents*



What is do we mean by policy mainstreaming?

A change in *outcomes*:

- Reduced impacts of anthropogenic activities on ecosystems and biodiversity

Achieving these changes in outcomes:

- Influencing the *behaviors of change agents*

Mainstreaming SEEA-EEA:

- ***Establishing an environment*** such that change agents use the evidence and information provided by SEEA-EEA as an input to determining their behaviors, and in turn reducing impacts



What is do we mean by policy mainstreaming?

A change in *outcomes*:

- Reduced impacts of anthropogenic activities on ecosystems and biodiversity

Achieving these changes in outcomes:

- Influencing the *behaviors of change agents*

Mainstreaming SEEA-EEA:

- ***Establishing an environment*** such that change agents use the evidence and information provided by by ~~SEEA-EEA~~ [other competing frameworks or tools] as an input to determining their behaviors, and in turn reducing impacts



What does SEEA-EEA bring to the table?

1. **The only statistical framework that is endorsed by the UN Statistical Commission**
 - Same agencies (National Statistical Offices) that are charged with providing System of National Accounts (SNA) and GDP measures, i.e. *credibility*
 - Like the SNA, *continuity* of data collection
 - Transactions costs of establishing the mechanisms to collect the data for the first time versus *lower on-going costs* of continuing to do so year-on-year



What does SEEA-EEA bring to the table?

1. *The only statistical framework that is endorsed by the UN Statistical Commission*
 - Same agencies (National Statistical Offices) that are charged with providing System of National Accounts (SNA) and GDP measures, i.e. *credibility*
 - Like the SNA, *continuity* of data collection
 - Transactions costs of establishing the mechanisms to collect the data for the first time versus *lower on-going costs* of continuing to do so year-on-year
2. **Links to achieving global commitments**
 - Sustainable Development Goals
 - Aichi Biodiversity Targets



What does SEEA-EEA bring to the table?

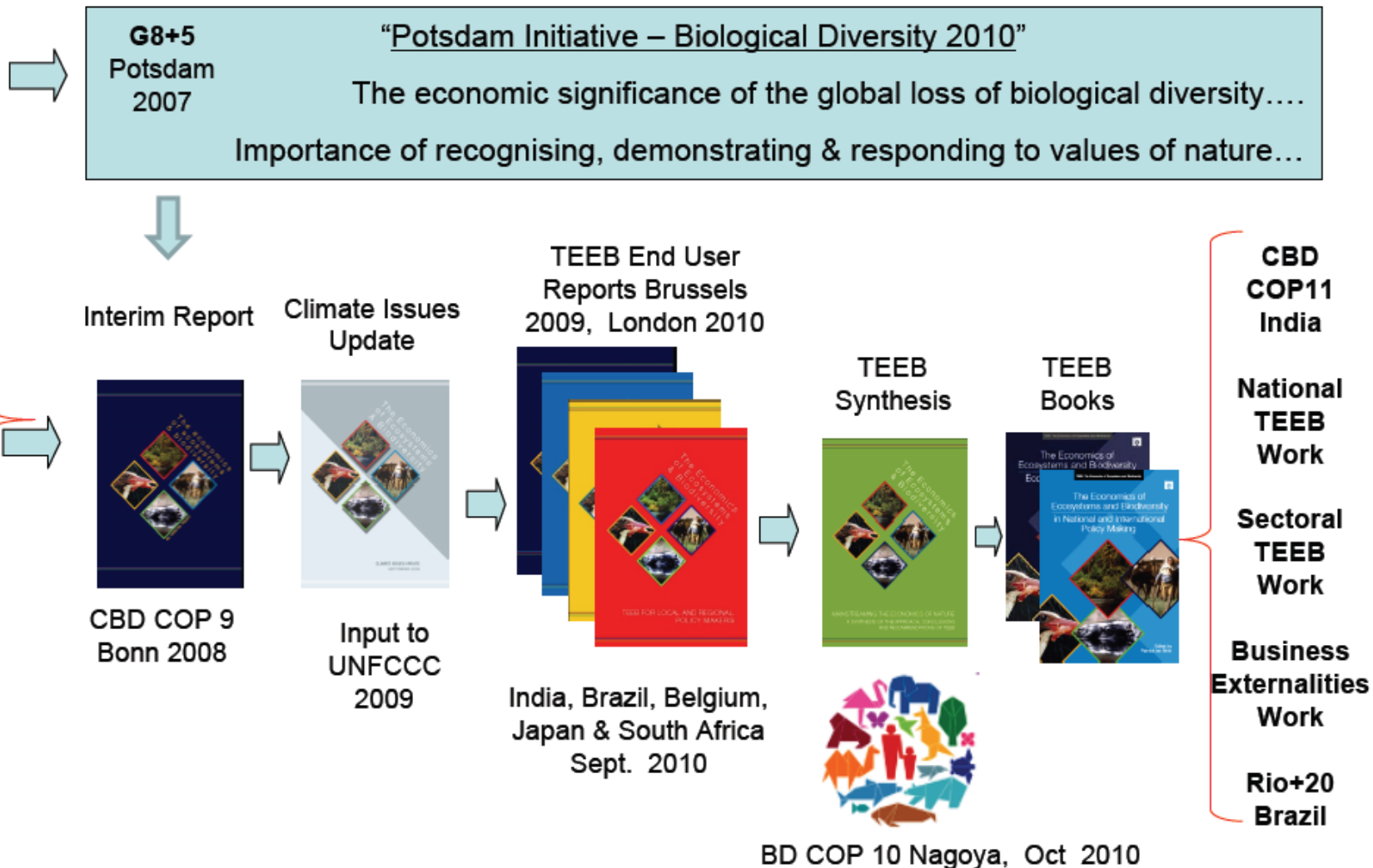
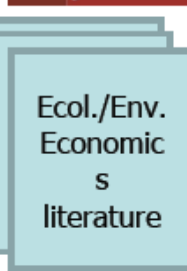
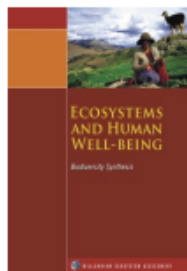
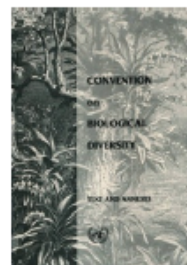
1. *The only statistical framework that is endorsed by the UN Statistical Commission*
 - Same agencies (National Statistical Offices) that are charged with providing System of National Accounts (SNA) and GDP measures, i.e. *credibility*
 - Like the SNA, *continuity* of data collection
 - Transactions costs of establishing the mechanisms to collect the data for the first time versus *lower on-going costs* of continuing to do so year-on-year
2. **Links to achieving global commitments**
 - Sustainable Development Goals
 - Aichi Biodiversity Targets
3. **A framework that can support *spatially-specific* decision-making**
 - The vast majority of economic/political choices have a spatial dimension



The economics and valuation component of SEEA-EEA

1. UN Environment-TEEB are leading the *valuation* and policy-mainstreaming component of the EU-funded project
 - Brazil, India, China, South Africa, Mexico
2. Valuation is important in decision-making
 - The vast majority of decisions linked to anthropogenic impacts have an economic component
 - This is *not* about commoditizing nature

TEEB initiative (2008-2012)





Timelines - 2012 and SEEA

- The **SEEA Central Framework** was adopted as an international statistical standard by the UN Statistical Commission in 2012
- The **SEEA Experimental Ecosystem Accounting** complements the Central Framework and represents international efforts toward coherent ecosystem accounting





The TEEB Six Step Approach

- STEP 1: Refine the objectives of a TEEB Country Study by specifying and agreeing on the key policy issues with stakeholders
- STEP 2: Identify the most relevant ecosystem services
- STEP 3: Define information needs and select appropriate methods
- STEP 4: Assess and value ecosystem services
- STEP 5: Identify and outline the pros and cons of policy options, including distributional impacts
- STEP 6: Review, refine and report: Produce an answer to each of the questions



Agro-forestry study

- Agroforestry is a practice involving the **deliberate integration of trees or shrubs in farming landscapes** involving crops or livestock in order to obtain benefits from the interactions between trees and/or shrubs the tree and crop or livestock component
- Global extent of agroforestry over **1 billion hectares of land**, supporting more than **900 million people**, mostly in the tropical and sub-tropical (Zomer et al. (2014))





Agro-forestry case studies

| Selection criteria | Cocoa agroforestry Ghana | Coffee agroforestry Ethiopia | Ngitili system Tanzania |
|---|---|---|---|
| Trend of agroforestry system | Increased by about twice the area in the 1990s to about 1.6 million ha (FAOSTAT 2013) | Increased by 100% since the 1990s to about 520,000 ha (FAOSTAT 2013) | Increased from 600 ha in 1986 to >350000 ha in 2003 (Mlenge 2004) |
| Number of people benefiting from the system | Between 1.9 million (Coulombe & Wondon 2007) to 6 million people (Anthonio and Aikins, 2009) - 700,000 smallholder farmers (Kolavalli & Vigneri 2011) | 7 million to 15 million people (Petit 2007); 95% of the coffee produced by smallholder farmers About 4.5 million smallholder farmers (Central Statistical Agency 2013) | No data available, but estimated about 1500 households employed in Shinyanga's formal and informal forestry sector, in which ngitili products play a major role |
| Contribution to national economy | 18.9% of the agricultural GDP; 8.2% of the Ghana's GDP and 30% of total export earnings (GAIN, 2012) | 36% of national export income in 2006/07 (Ejigie 2005) <i>Approximately 10% of national GDP (Economic Report on Africa 2013)</i> | No data available but estimated to contribute approximately 0.43% of Shinyanga region's GDP |



Agro-forestry: Credible Scenarios I

1. In Ethiopia, the rate of deforestation is estimated at **1-1.5% per year** (Teferi et al. 2013), mostly driven by smallholder coffee expansion (Davis et al. 2012)
2. Coffee profitability is very low in smallholder agroforestry systems in Ethiopia, mostly due to **volatility in global market prices**
3. Climatic predictions show that areas bioclimatically suitable for coffee production may **reduce by 65%** (Davis et al. 2012)



Agro-forestry: Credible Scenarios II

I: Conversion to maize monocrop - drivers:

price volatility

climate change

allocation of land to investors for biofuel

II: Conversion existing agroforestry coffee to heavy shade grown coffee – drivers:

ongoing Climate Resilience Green Growth Strategy

the national REDD+ program

certification programs and improvements in land tenure conditions

III: Conversion and further expansion of heavy shade grown coffee – drivers:

contingent on success of scenario II



Agro-forestry: Modelling

The **WaterWorld model** was also used to model ecosystem services change

- freshwater provision and runoff
- increased water quality
- above ground carbon stock
- reduction of soil erosion





Agro-forestry valuation methods

| Ecosystem Service | Agroforestry System | | | Valuation Method |
|--|---------------------|--------|---------|---|
| | Cocoa | Coffee | Ngitili | |
| Provisioning | | | | |
| Cash Crops | *** | *** | N/A | Market price ¹⁶ |
| Food Crops | *** | *** | *** | Market price |
| Tree Crop Products | *** | *** | N/A | Market price |
| Medicines | * | * | *** | Shadow price ¹⁷ , replacement cost |
| Wild Food and all other NTFP | * | *** | *** | Shadow price |
| Timber and Poles | *** | *** | *** | Market price |
| Energy (Wood fuel and Charcoal) | * | *** | *** | Market price, shadow price, replacement cost |
| Regulating and Supporting | | | | |
| Soil and biomass C stocks | *** | *** | *** | Market price, avoided cost |
| Erosion control | ND | *** | ND | Contingent valuation, replacement cost |
| Soil fertility (Soil N also P and K where available) | ** ¹⁸ | ** | *** | Replacement cost |
| Biological Pest Control | ** | ** | ND | Insufficient data for benefit transfer |
| Pollination | ** | ** | N/A | Insufficient data for benefit transfer |
| Biodiversity | ** | ** | ** | Insufficient data for monetary valuation |
| Avian Diversity | ** | ** | ** | Insufficient data for monetary valuation |
| Vegetative Diversity | ** | ** | ** | Insufficient data for monetary valuation |
| Other mammalian diversity | ** | ND | ND | Insufficient data for monetary valuation |

*** Sufficient data for biophysical quantification and monetary valuation;

** Quantitative biophysical data available, but insufficient data for monetary valuation;

* Qualitative information available; ND No relevant data available; N/A No applicable



Agro-forestry valuation outcomes

| Ecosystem service | Scenario 1: Converting to Maize monoculture (million \$/y) | Scenario 2: Canopy cover ≥ 30% [due to REDD+ or certification incentive] (million \$/y) | Scenario 3: Canopy cover ≥ 30% & expansion of agroforestry to all areas bar: (I) urban; (II) priority land use such as forests; and (III) wildlife reserves (million \$/y) |
|------------------------------------|---|--|--|
| Increase in system extent (ha) | -202,342 | 0 | +286,852 |
| Provisioning | -38.4 | No change | 73.4 |
| Coffee | -115.9 | No change | +143.9 |
| Maize | +90.5 | No change | -128.3 |
| Other ES (fuel wood, honey) | -13.0 | No change | +57.9 |
| Carbon regulation | -435 | +292 | +655 |
| Other regulating | -19 | +74.5 | +54.3 |
| Water yield | -34.9 | +58.6 | +10.7 |
| Soil erosion | +15.9 | +15.9 | +43.6 |



Agro-forestry:

How could SEEA-EEA have helped?

1. Researchers from ICRAF/WCMC used *whatever data were available to them*. A centralized repository of data in a standardized form (i.e. via SEEA-EEA) might have thus improved the modelling



Agro-forestry: How could SEEA-EEA have helped?

1. Researchers from ICRAF/WCMC used *whatever data were available to them*. A centralized repository of data in a standardized form (i.e. via SEEA-EEA) might have thus improved the modelling
2. This is ultimately a policy decision on *ecosystem extent* (agro-forestry versus maize) and one that affects/is affected by *ecosystem condition* (canopy cover). The unit of account was changes in Ecosystem Services provisioning. This is the SEEA-EEA space...



Agro-forestry:

How could SEEA-EEA have helped?

1. Researchers from ICRAF/WCMC used *whatever data were available to them*. A centralized repository of data in a standardized form (i.e. via SEEA-EEA) might have thus improved the modelling
2. This is ultimately a policy decision on *ecosystem extent* (agro-forestry versus maize) and one that affects/is affected by *ecosystem condition* (canopy cover). The unit of account was changes in Ecosystem Services provisioning. This is the SEEA-EEA space...
3. If NSOs were to be involved then that might change the *potential for policy uptake*, if they linked with other line Ministries



Agro-forestry: What is TEEB doing with the results?

1. Part of a wider roll-out of TEEBAgriFood implementation – one of circa 15 studies

STEP 6: Review, refine and report: Produce an answer to each of the questions

2. Inviting policy makers to a *TEEBAgriFood policy forum* in Nairobi, February 2019. Need to get the right people round the table/in the room.
3. Need to understand the needs of change agents and also those that have a vested interest to maintain the status quo/'*change blockers*'
4. For TEEBAgriFood, Environment Ministries not always aligned with Agriculture/Forestry/Planning/Finance Ministries: Need to *speak their language*



Evidence on valuation affecting policy

1. Current presentation has focused on TEEB but many other initiatives, e.g. World Bank WAVES, UNDP BIOFIN, GIZ ValuES
2. To win funding, since it is a crowded space – we need to *show value added from applying SEEA-EEA*
3. TEEB: extensive (but dated) *library of case studies* showing that the application of valuation to land use/land cover choices has influenced policy uptake

The Economics of Ecosystems & Biodiversity

→ ↻ ⓘ www.teebweb.org/resources/case-studies/



The Economics of Ecosystems & Biodiversity



search the site...



[blog](#) | [partners](#) | [useful links](#) | [contact us](#) |

[HOME](#)

[ABOUT](#) ▾

[AREAS OF WORK](#) ▾

[PUBLICATIONS](#) ▾

[RESOURCES](#) ▾

[NEWS](#) ▾

TEEB > [RESOURCES](#) > Case studies

Case studies

Share 11

These case studies prepared in collaboration with [Helmholtz Centre for Environmental Research \(UFZ\)](#) and [GIST Advisory](#) describe examples where a focus on ecosystem services and their economic significance helped decision makers to find more sustainable solutions for the management of ecosystems.

These case studies can be an informative reference for stakeholders who might be facing similar scenarios and are looking for examples of possible options.

[Global](#)

[Africa](#)

[Asia](#)

[Central America](#)

[Europe](#)

[North America](#)

[Oceania](#)

[South America](#)

1. A long term financial mechanism for conservation agreements in the Ecuadorian Chocó (2013)
2. Adaptive co-management for conservation of the Llancahue watershed in southern Chile (2013)
3. Agroecological Zoning, Brazil (2010)
4. Better fishery management could significantly increase economic returns, Argentina (2010)
5. Compensation scheme for upstream farmers in municipal protected area, Peru (2010)
6. Conserving forests through grants, Brazil (2010)
7. Cost-benefit analysis of road construction considering deforestation, Brazil (2011)
8. Financing conservation through ecological fiscal transfers Brazil (2010)
9. Inter-municipal cooperation in watershed conservation through the establishment of a regional water fund – FORAGUA – in Southern Ecuador, Ecuador (2012)
10. Payments and technical support for reforestation and soil conservation for watershed protection, Brazil (2010)
11. Reducing nutrient loads by providing soft loans, Fúquene Lake, Colombia (2012)
12. Subsidy for traditional rubber production, Brazil (2013)
13. The PES experience in Costa Rica, Colombia and Nicaragua (2013)
14. The Socio Bosque Programme for Rainforest and Paramo Conservation, Ecuador (2014)
15. Water fund for catchment management, Ecuador (2010)
16. Water Funds for conservation of ecosystem services in watersheds, Colombia (2010)

RESOURCES

- [Guidance Manual for TEEB country studies](#)
- [Case studies](#)
- [Training Resource Material](#)
- [Glossary of terms](#)
- [Ecosystem Services](#)
- [Useful links](#)

Latest Publications



TEEBAgriFood Interim Report

The Interim Report introduces the key questions, issues and arguments to be addressed by TEEBAgriFood.

[| next >](#)

[read more](#)

[View the TEEB blog](#)



[Newsletter signup](#)

name

email address

[Follow us](#)



sign up for the latest news and information

teebweb.org



Thank You!



Dr Salman Hussain
salman.hussain@unep.org

UNEP TEEB Office