Transforming the Future of Money

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Need for an Ecological Currency to Measure Ecosystem Capital Degradation

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The call for "green" monetary policy

"*The discussion on whether, and if so how, central banks and banking supervisors can contribute to mitigating climate change is at an early stage but should be seen as a priority*"

All institutions, including the ECB, "*have climate change risk and protection of the environment at the core of their understanding of their mission*."

Christine Lagarde to the European Parliament, 2019

https://www.theparliamentmagazine.eu/

Mark Carney, Governor of the Bank of England: "Breaking the tragedy of the horizon - climate change and financial stability", 29 September 2015:

Financial risks = Physical risks, Liability risks and Transition risks

https://www.bankofengland.co.uk/speech/2015/breaking-the-tragedy-of-the-horizon-climate-change-and-financial-stability

OECD: environmental, social and governance factors in investment decision **(ESG)**

EU Sustainable Finance Strategy (Taxonomy, GPW Green Public Works, GND Green New Deal for Europe, ….

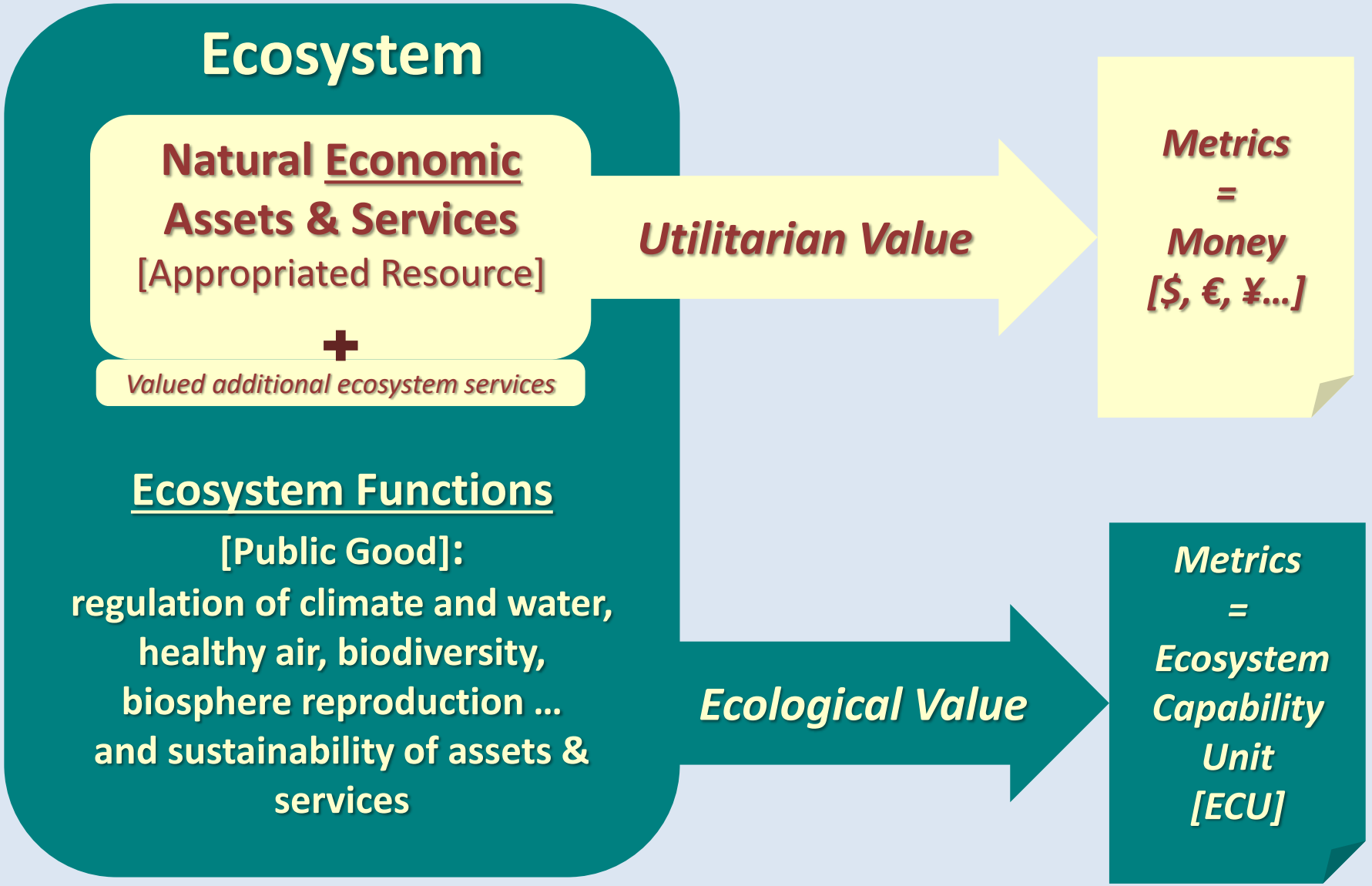
UNEP Finance Initiative … and many others

"Partial solutions to problems in complex social-ecological systems do not work for very long." Brian Walker, 2006

- *Environmental issues are de facto addressed in silos:*
  - *Climate change: UNFCCC, IPCC model, "carbon" policies, energy transition…*
  - *Biodiversity (biosphere): UNCBD, IPBES, nature protected areas, attempts for integration*
  - *Desertification: UNCCD, "land degradation neutral development"*
  - *Pollutions: a range of policies*
- ***Present focus is on global warming mitigation** because climate policies can built on CO_2eq, the currency for "carbon accounting".*
- *However, climate de-regulation results AT THE SAME TIME of greenhouse gas emissions (from combustion of fossil energy) AND of the degradation of the biosphere (by deforestation, soil degradation and sealing, pollution of water systems).*
- ***Biodiversity/biosphere** have not (yet) such accounting system and their priority is low despite warnings of possible forthcoming collapse (therefore of climate collapse…)*
- *Monetary valuations are about economic resources weak sustainability, not about biosphere strong sustainability.*

➔ **Need for a metrics of ecological value to measure ecosystem capital degradation**

Ecological value vs. Economic value



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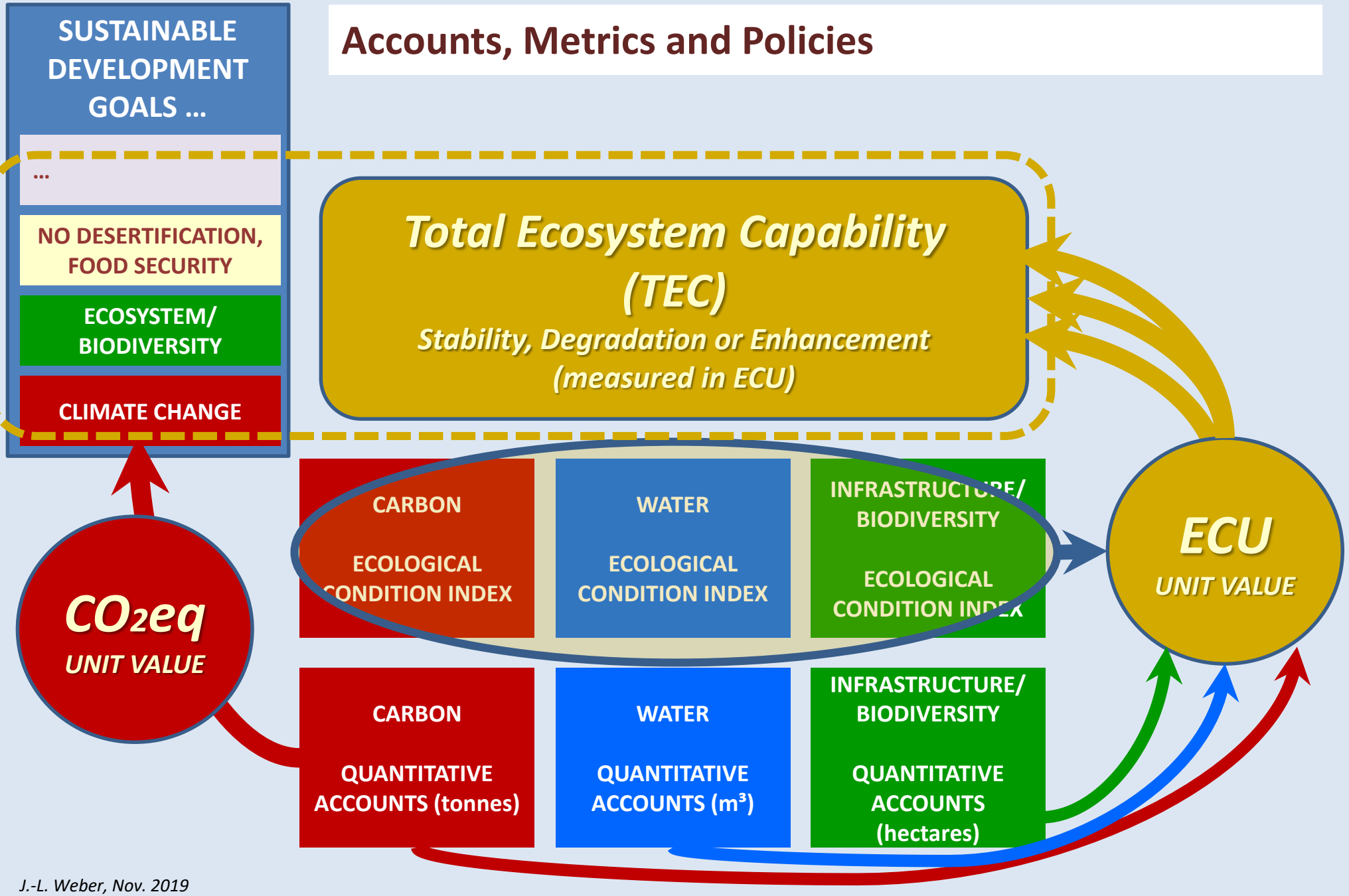
Accounts, Metrics and Policies



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ECU: a composite currency to measure ecological values: ecosystem capability, degradation and enhancement, ecological debts and receivables…

In basic physical accounts, measurements are made in basic units (tons, m^3 or ha) which cannot be aggregated between themselves. These measurements are converted to a special composite currency named **ECU** for **'Ecosystem Capability Unit**'.

The unit-value of one physical unit (e.g. 1 ton of biomass) in ECU expresses at the same time the intensity of use of the resource in terms of maximum sustainable yield and the direct and indirect impacts on ecosystem condition (e.g. contamination or biodiversity loss). Loss of ecosystem capability resulting from human activity is a measurement of ecological debt (in ECU).

Just an alias…

François 1st (1515-1547), Ecu d'or au soleil du Dauphiné, Source : Münzen & Medaillen GmbH (DE)

1 ECU = 1 unit of accessible ecosystem resource, ECUs are additive

- *ECU is a general equivalent for ecological value, a unit of account for all ecosystems*
- *ECUs can be stored*
- *ECUs can be used in transactions regarding ecosystems (e.g. mitigation or offset banking)*

***TEC**, is the **Total Ecosystem Capability** in ECU of a socio-ecological unit. It is the SUM of the ECU values of Bio-carbon, Water and Infrastructure/Biodiversity.*

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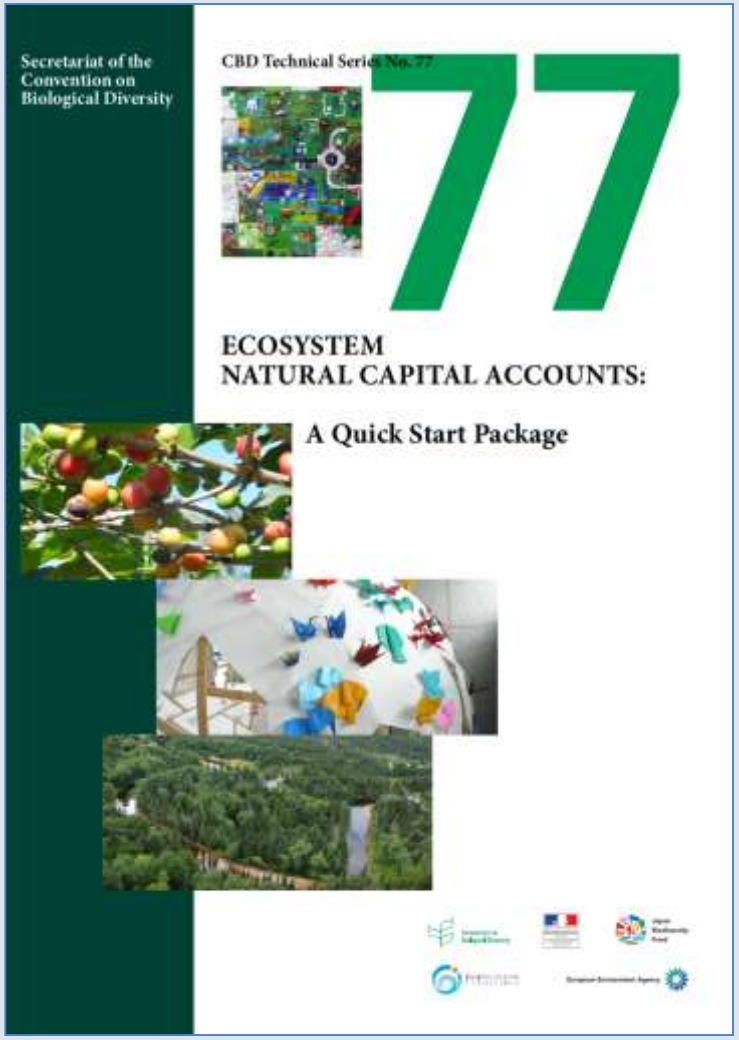
Methodology: CBD's ENCA-QSP: A Quick Start Package to support the implementation of ecosystem accounting



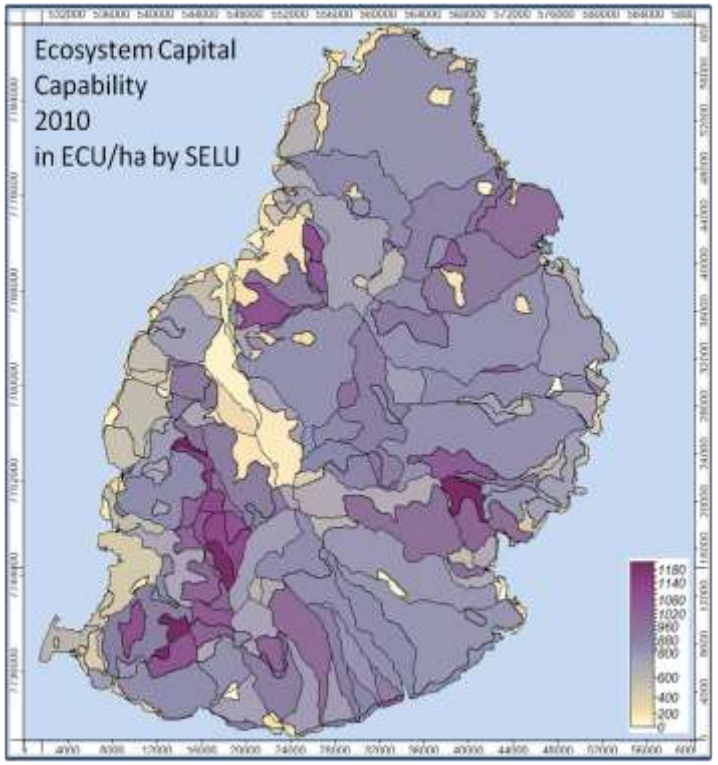
- The **Ecosystem Natural Capital Accounts** manual is a response to the requirement of the 2010 **CBD's Aichi Biodiversity Strategy Target 2** call for *incorporating, as appropriate and by 2020 at the latest, biodiversity values into national accounting*.
- A **technical accounting framework** for measuring ecosystem sustainable capacity, resilience and economic sectors' accountability to the ecosystem. It includes a set of tables and compilation guidance
- A "distribution" (in the sense used for open source software) of the UN SEEA-EEA, aimed at putting it to work
- A **Quick Start Package**
- Supported by **a tutorial for technical training** of experts (Kangaré)

http://www.ecosystemaccounting.net/

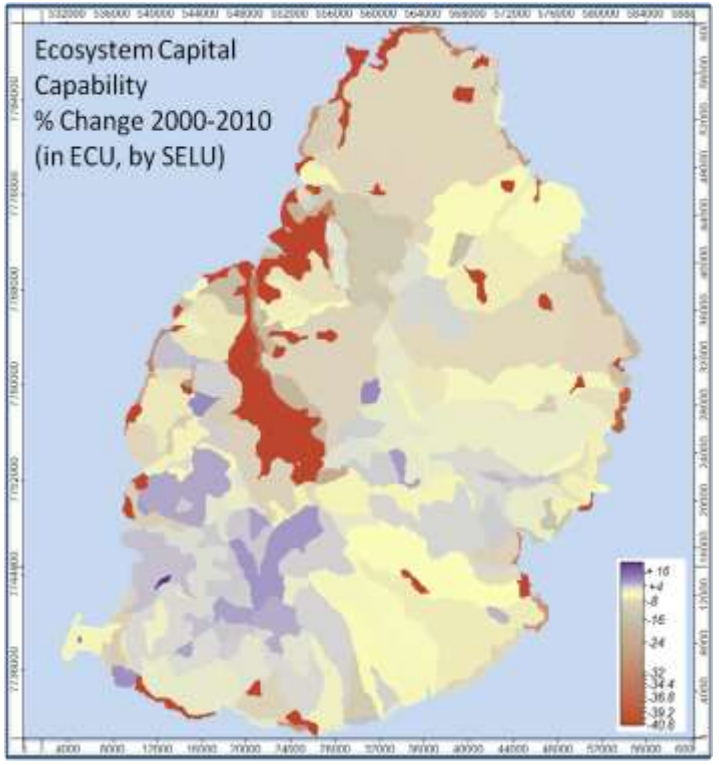
An example of ecosystem accounts in ECU

Total Ecosystem Capital Capability and Change in Mauritius (Provisional results)

Total Ecosystem Capital Capability (inland): ECU value by Socio-Ecological Landscape Units, 2010



Total Ecosystem Capital Capability (inland): Change in ECU value, % by Socio-Ecological Landscape Units, 2000-2010



Source: UNCEEA meeting 2014
https://unstats.un.org/unsd/envaccounting/ceea/meetings/ninth_meeting/UNCEEA-9-8e.pdf

Experimental ENCA, Mauritius Case Study (IOC, 2014)

The ECU Metrics and Policy Measures

Policies to Halt or Mitigate Ecosystem Degradation

Traditional policies

- Regulations, command & control
- Fiscal policy, taxes, PPP
- **Public procurements** (conditionality)

Novel or emerging policies

- Reporting on ecosystem degradation **& ecological debts (ecological balance-sheet)**
- **Green finance** (conditionality)
- **Rating sovereign & private financial risks**
- Integration of **ESG** (Environmental, Social and Governance) risks factors (OECD)
- **Nature offset payments & banking**

Policies to Support Ecosystem Conservation & Enhancement

Traditional policies

- **Public investments** (conditionality)
- **Subsidies to programmes** (conservation, reforestation, organic agriculture, water treatment…)
- **Public procurements** (conditionality)

Novel or emerging policies

- Statement of ecosystem enhancement and **ecological receivables** for nature conservation and restoration **(ecological balance-sheet)**
- **Green finance** (conditionality)
- **Nature offset payments and banking**

→ **Liability/Accountability/Responsibility :** a fair measurement, comparable and verifiable

→ **Strong sustainability policies:** No Net Ecosystem Degradation (in ECU)

→ **Depreciation recording:** Provision of the amount of money needed to remediate degradation

J.-L. Weber, Nov. 2019

Thank You !

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