Virtual Expert Forum on SEEA Experimental Ecosystem Accounting 2020

Breakout session

Climate regulation service / carbon retention

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Outline

• Context and issue
• The carbon retention proposal
• Why carbon retention?
• Link with sequestration
• Testing efforts
• Discussion
Context

• Agreement of the importance of compiling carbon accounts (in physical terms) that describe stocks and changes in stocks of carbon.

• Since 2019 Forum (and before) – ongoing discussion about how to reflect carbon related service(s) in the ecosystem supply-use table (on physical and monetary units), proper framing
  > Is it a service or a process? Final or intermediate?
  > Sequestration only? Storage only? Both?
  > Range of other issues

• SEEA EEA TC (in May) discussed various options (with pros and cons) and broadly agreed with carbon retention approach, noting some further clarifications were needed.
What is wrong with seq. / storage?

• Sequestration (only):
  > Asymmetry: only deals with removals from the atmosphere, silent on situation on (net) emissions from peatlands (e.g. due to soil subsidence).
  > Perverse policy incentives (e.g. replace a tropical old growth forest by fast-growing bamboo);
    - Loss of stored carbon would not show in degradation costs (only extent to which this would change future sequestration services;)
  > Unclear what metric for sequestration would be most appropriate: NPP, NEP (net of soil respiration), NECB (net of timber harvest).
  > Sequestration for how long in order to count?

• Sequestration + emissions
  > Need to recognizing disservices in the account (with negative output)

• Sequestration + storage
  > Unclear how to value a distinct storage service that avoids double counting
Carbon retention proposal

• Retention can be defined as:
  > (i) estimate carbon stocks,
  > (ii) multiply this by a suitable carbon price, and
  > (iii) turn this into an annual service flow by multiplying this value by a suitable rate of return (to create an annuity).

• This framing recognizes that the retained carbon stocks represent a value (avoided damages).
  > In physical terms, the amount stored is a “proxy” for the service flow provided;
  > in monetary units, the service flow is the annual annuity, with higher annuity flows reflecting higher levels of ecosystem services provision.
Why carbon retention?

• Retention provides the ‘right’ signals to policy makers;
  > if an ecosystem loses carbon, we have lower retention services;
  > ecosystems with high carbon stocks (e.g. tropical rainforests) would get high retention values (even though oftentimes they have low sequestration (as they are in equilibrium / old growth); sending the signal that they are worth conserving;
  > in case of logging, the accounts display the range of trade-offs of services;

• the focus on storage aligns well with REDD+ schemes;

• on the data availability side, getting estimates of carbon stored (needed for retention) seems to be easier for most countries than getting estimates for sequestration

• change in the level of service can be decomposed into changes due to sequestration and removal/loss of carbon.
Retention and sequestration

• Retention records to the extent sequestration leads to permanent storage

• Example:
  > Sequestration increases carbon stocks, and therefore also its return (in monetary terms) in the current period;
  > If the sequestered carbon is released again the next period, we have lower retention value (but negative);
  > However, if the sequestration leads to permanent storage, due to PV approach, its full value would be included (assuming rate if return equal to discount rate)
  > Difference being that this would be recorded as an ecosystem enhancement (investment).
  > “Solves” another problem with the sequestration approach
Ongoing testing

- India
  - Scope around carbon retention in forests (data from Forest Survey of India)
  - Valuation: value of 2-3% of GDP, larger than GVA of forestry sector

- Mexico
  - Variation: sum of retention + sequestration

- Australia
  - Test the approach also with longitudinal data from NSW
Questions for discussion

• Does the carbon retention approach provide a meaningful pathway for accounting for the global climate regulation service?
  > Do you have comments on the carbon retention proposal, specifically on its relationship with carbon sequestration?

• What measurement boundaries should be adopted for ecosystem accounting purposes?
  > Where should the boundaries of carbon stocks be drawn (subsoil carbon, blue carbon, long-lived / short-lived biomass)