

A brief review on material flow accounting and ecosystem accounting as part of environmental accounting (SEEA)

Novel methods for the accounting of forest ecosystems and circular materials (ENVECO), 25th January 2021

Jukka Muukkonen

Material flow accounting

- Statistics Finland compiles annually economy-wide material flow accounts according to EU regulation on environmental accounts.
- Finnish Environment Institute has made several studies and reports that give more detailed information on material flows, e.g. by calculating RMC indicator for Finland and is now also working on accounts for circular use of materials.
- Demand for very detailed material flow accounts and waste statistics has increased significantly because of circular economy as one main target of environmental policy.
- Co-operation between Stat.Fi, Finnish Environment Institute and Natural Resource Institute Finland is essential for efficient production of data on material flows.

Brief history of environmental accounting

Environmental Accounting	Economic Statistics, Energy Statistics, Water Statistics
Handbook of National Accounting: Integrated Environment and Economic Accounting 1993 (SEEA 1993)	System of National Accounts 1993 (SNA 1993)
Handbook of National Accounting: Integrated Environmental and Economic Accounting 2003 (SEEA 2003)	
Handbook of National Accounting: Integrated Environmental and Economic Accounting for Fisheries 2004 (SEEA-F)	System of National Accounts 2008 (SNA 2008)
System of Environmental-Economic Accounting for Water 2007 (SEEA-Water)	International Recommendations for Water Statistics 2010 (IRWS)
System of Environmental-Economic Accounting Central Framework 2012 (SEEA CF)	
Experimental Ecosystem Accounts 2013 (SEEA part 2) Extensions and Applications 2013 (SEEA part 3)	International Recommendation for Energy Statistics 2011 (IRES)
System of Environmental-Economic Accounting for Energy 2013 (SEEA-Energy)	Energy Statistics Compilation Manual 2013 (ESCM)

EU regulation on environmental accounts

Current mandatory accounts:

- Economy-wide material flow accounts
- Air emission accounts
- Physical energy supply-use tables
- Environmental expenditures
- Environmental goods and services
- Environmental taxes

Planned new ones:

- Forest accounts
- Water accounts
- Ecosystem accounts
- Environmental subsidies and similar transfers

Main content of 'new' accounts

Ecosystem accounts

- Ecosystem extent account table by ecosystem types
- Supply and use of ecosystem services by ecosystem types and by service type, monetary
- Supply of ecosystem services by ecosystem types and by service type, physical

Water accounts

- Asset account for water resources,
Water flow accounts (physical SUT) by economic activities (NACE) and by type of water

Forest accounts

- Area of wooded land, Timber on wooded land (volume and value),
Monetary and physical supply and use tables (SUT) of wood in the rough, Economic aggregates of the forestry and logging industry (NACE 02)

Stat.Fi is responsible of mandatory accounts included into the EU regulation on environmental accounts, and of following the SEEA standard.

Finnish Environment Institute and Natural Resources Institute Finland have expertise, experience and basic data for ecosystem accounting.

Monetary ecosystem accounts must be compatible and linkable to National Accounts, and data on material flows to economy-wide material flow accounts

Thank you very much, Finnish Environment Institute and Natural Resources Institute Finland, for ENVECO and other co-operation in the field of environmental accounting.

Development of Ecosystem accounts and circular material flow accounts are proceeding very well and extend the Finnish SEEA accounting.

Energy, environment and greenhouse gases -Group