WAVES
Water
Accounts
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Image credit: Rosalind Goodrich/IIED

Natural capital accounting: water

Water accounts provide information on three issues on an annual basis:

- The physical flows of water within the economy, and between the economy and the environment
- The stocks of water assets and changes to these stocks
- Economic activity and transactions related to water resources.

Potential benefits

- Water accounts link the physical amount of water used by each sector with what value the same sector contributes to the economy
- This can help policymakers design better policy around, for example, water allocation between households, manufacturing, services and agriculture
- Accounts information can help design pricing strategies more in line with the ability to pay
- The accounts can inform where targeting of investments in water infrastructure can generate the largest impact on the economy.

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Wealth Accounting and the
Valuation of Ecosystem Services

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Quenching the thirst for data

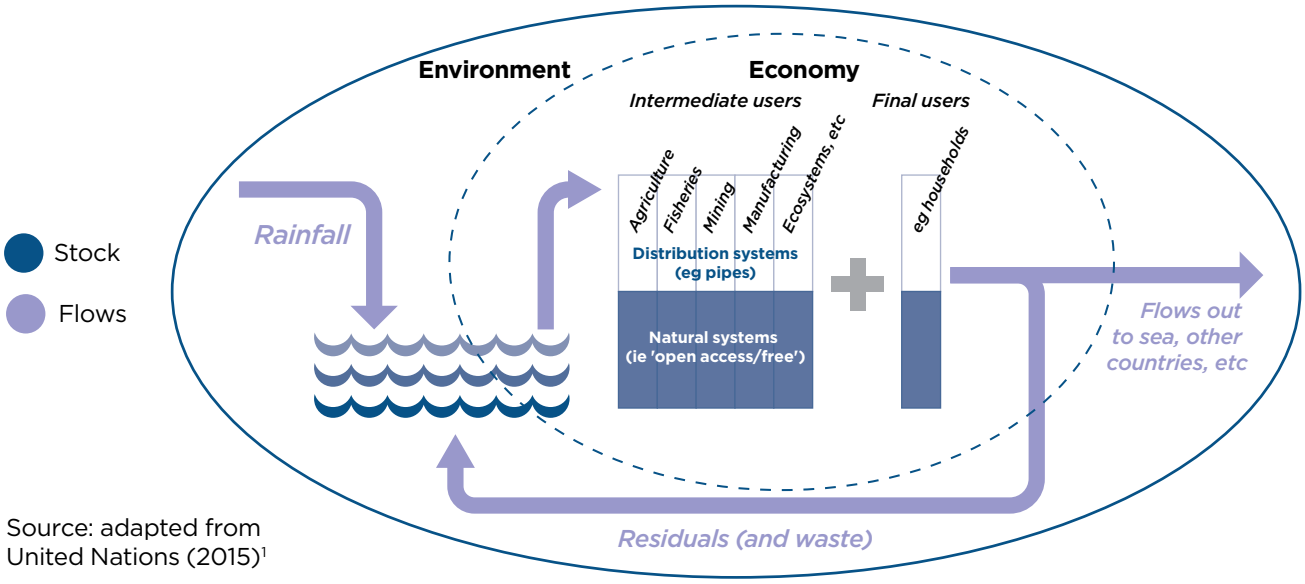
"We plan to sustain the good work going forward. Annual updates of water accounts, expansion of the accounts and studies on experimental accounts will continue to guide policy and development."

Dr Obolokile Obakeng, Deputy Permanent Secretary, Ministry of Mineral, Energy and Water Resources

Natural capital accounting provides an approved and comparable framework to collect information on how water resources interact with the economy in a way that is compatible with traditional GDP. The detail of the accounts can be used in planning for development, including implementing such commitments as Goal 6 of the Sustainable Development Goals: 'to ensure availability and sustainable management of water and sanitation for all'.

Water is one of the most freely renewable resources on our planet. It is basic to sustain human life, and an irreplaceable input for many production systems such as agriculture and hydroelectricity. Every year most countries receive more than enough water to satisfy their needs. Yet conflict over water resources is on the rise. There are many reasons for this, including lack of governance and poor infrastructure. Underlying this is a dearth of information on how much water is really available, who uses it, and in what quantity. Not enough is known about how users benefit from the water, how much they waste, and what their impact on the economy is.

Figure 1. The water accounting framework



Source: adapted from United Nations (2015)[1]

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What are water accounts?

Many countries design their water strategies with the best intentions but using incomplete information. This may result in mismanagement and poor cost-recovery systems, preventing further investment. Some will commission independent studies — useful but rarely repeated — restricting the ability to check for impacts and make a comparison with other sectors and/or countries.

This is where water accounts help. Following a transparent and internationally approved framework, the accounts show the physical amounts (eg millions of m^3) of water used by each sector of the economy. They are linked to 'traditional' national accounts indicators, like GDP, and so in turn are linked to how much value each sector contributes to the economy annually.

How are water accounts produced?

Water accounts follow the System of Environmental-Economic Accounting (SEEA) framework (see Figure 1). They provide information on three issues on an annual basis:

- The physical flows of water within the economy, and between the economy and the environment, in other words how much water is used by each sector and how much of it remains after use
- The stocks of water assets and changes to these stocks, or the total amount of water at the beginning and the end of the year, and
- Economic activity and transactions related to water resources.

This is the same basic process followed by other SEEA accounts, such as forests, land and ecosystem services.

Setting up these accounts for the first time is not easy. Experience from Guatemala, Botswana and the Philippines shows that significant efforts need to go into establishing a system that goes beyond data collection. The methodologies to collect the data must be understood and established, as must the channels by which the data will reach a central management unit — usually the country's Central Bank. These dialogues are time-consuming but valuable. For example, providers of data will also become users of better information, but they need to learn how to use it. A better understanding of how the accounts can be used will support their long-term application.

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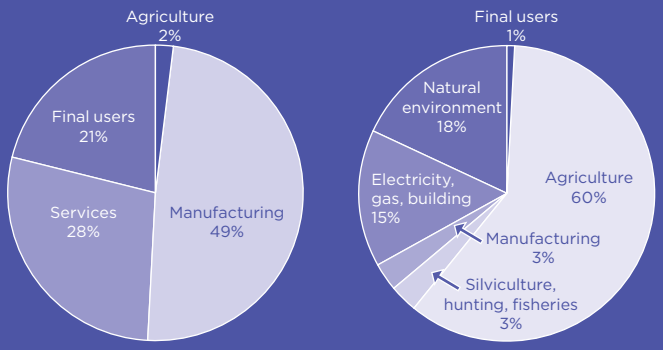
Case study: what water accounts show in Guatemala

Image credit: descubriendoelmundo/Creative Commons via Flickr

Figure 2. Water accounts in Guatemala for 2010 (in millions of m³)



Water from distribution systems — 418 million m³, 1.2% of total flows

Water taken from natural systems — 35,139 million m³, 98.8% of total flows

Source: adapted from Guatemala Water Accounts[2]

Guatemala has implemented a water accounts system for the period 2001–2010 (Figure 2 presents some results). With very high annual precipitation, Guatemala is water-rich and like all tropical countries it has high seasonal variation. However, only 1.2 per cent of annual flows goes through distribution systems such as pipes, which are more likely to be measured and charged for. This means that most of the water in the country (35,139 million m³ per year) is free. Agriculture uses 60 per cent of this but has low productivity (between 10 to 15 US cents per m³). Most of the water distributed through systems goes to manufacturing and services (49 per cent and 28 per cent, respectively), with important benefits for the economy (eg jobs), but also high levels of waste from inefficient use of water and pollution from untreated discharges. Policies addressing water conflicts must take into account who the main users of water are, rather than focusing only on household provision because it is easier to measure and charge. Results from the water accounts are informing implementation of the new National Water Law.

With thanks to Juan Pablo Castañeda and Glenn Marie Lange from the WAVES Secretariat for their comments on the text.

Prepared by Ina Porras, International Institute for Environment and Development, January 2016.

[1] United Nations (2015). System of Environmental-Economic Accounting 2012. Central Framework. United Nations, European Union, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development, The World Bank.

[2] Banguat y URL-Iarna (2009). Cuenta Integrada de Recursos Hídricos. Bases teóricas, conceptuales y metodológicas. Guatemala: Instituto de Agricultura, Recursos Naturales y Ambiente, Universidad Rafael Landívar.

Wealth Accounting and the Valuation of Ecosystem Services

Wealth Accounting and the Valuation of Ecosystem Services (WAVES) is a global partnership led by the World Bank that aims to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts.

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