



The Uganda Ecosystem Services & Asset Accounts 1990-2015

Summary

The Ecosystem Services and Asset Accounts for Uganda 1990-2015 report presents the most comprehensive set of ecosystem accounts developed to date in Uganda. The accounts were developed with financial and technical support from the World Bank's Global Program on Sustainability. Ecosystem accounting (EA) uses the UN System for Environmental and Economic Accounting (SEEA). It involves accounting for ecosystem extent and condition, flows of ecosystem services (both physical and monetary), and the resultant asset value of ecosystems, in a way that is compatible with the international System of National Accounting (SNA). This helps policymakers to ensure that the benefits derived from ecosystems are included in their decisions on economy and development planning.

Although Uganda is known for supporting extraordinary biodiversity, very little intact natural vegetation or wildlife now remains outside of protected areas. Uganda's lakes, rivers and wetlands are increasingly degraded, and soil fertility is declining. This has impacts on the economy as well as people's wellbeing. Uganda's rapid population growth poses further challenges for meeting Sustainable Development Goals.

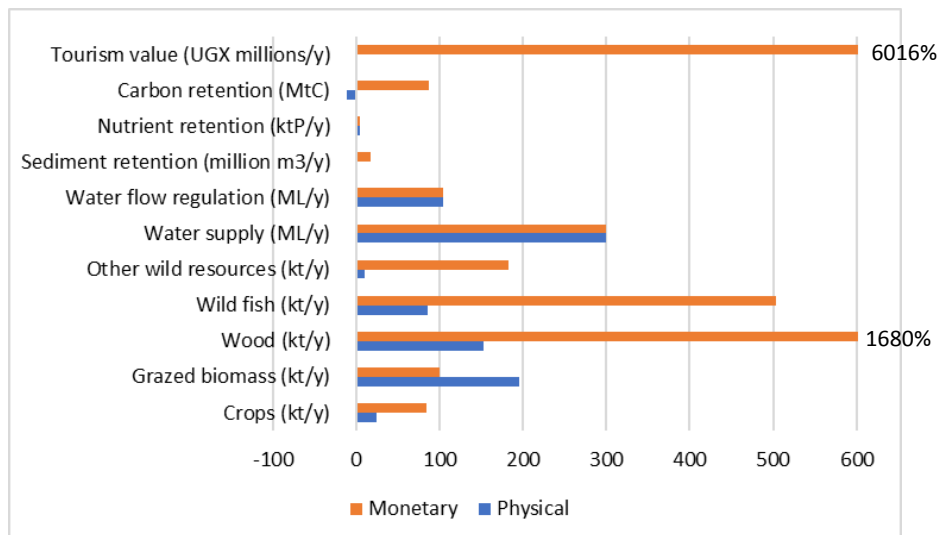
The ecosystem accounts include physical and monetary value flows of twelve ecosystem services and the ecosystem asset values for each of the country's ten major ecosystem types, including farmland and urban green spaces, for the period 1990 to 2015. It should be noted that these are just a subset of the ecosystem services provided by nature. The Ecosystem Accounts framework include around 24 main services. Compiling all of these was not possible at this time because of time and resource constraints.

The ecosystem accounts show the change in the physical supply and use of ecosystem services over the 25 year long period. They show how the value of the services is changing, influenced by demand for the services (e.g. by households, agriculture and other production sectors) as well as changes in other prices in the economy.

Background

Uganda is implementing the Natural Capital Accounting (NCA) Program to mainstream natural capital into development planning policy dialogue and to inform national policies and plans. The NCA program is implemented with technical and financial support from the World Bank led Wealth Accounting and the Valuation of the Ecosystems Services (WAVES) and Global Program for Sustainability (GPS) programs. The accounts developed previously with the WAVES support are Land Accounts, Wood Assets and Forest Accounts, and preliminary Ecosystem Accounts. In addition, Environmentally Adjusted Macroeconomic Indicators have been developed and are now regularly produced by the Government.

Figure 1: Ecosystem services in physical and monetary terms, percent change from 1990 to 2015.



Findings

During the period 1990-2015, the use of provisioning services in physical terms increased substantially, ranging from a 25% increase for crops to a 300% increase for water supply (Figure I). This can be at least partly attributed to the fact that population doubled over this period. In comparison, the use of regulating services did not increase much, apart from the water flow regulation service, likely due to supply constraints. The most significant increase was that of the ecosystem contribution to tourism value. This was not expressed in physical terms, but the value increased by 6,016% over the 25-year span of the accounts and is due to an increase in national and international demand, as well as a result of investments in parks and tourism facilities.

Provisioning Services;

Biomass provisioning services

Crop

Grazed biomass/Livestock

Aquaculture

Wood

Wild fish and other natural aquatic biomass

Wild animals, plants and other biomass

Water supply

Regulating Services;

Global climate regulation

Soil and sediment retention

Water purification

Water flow regulation

Cultural services;

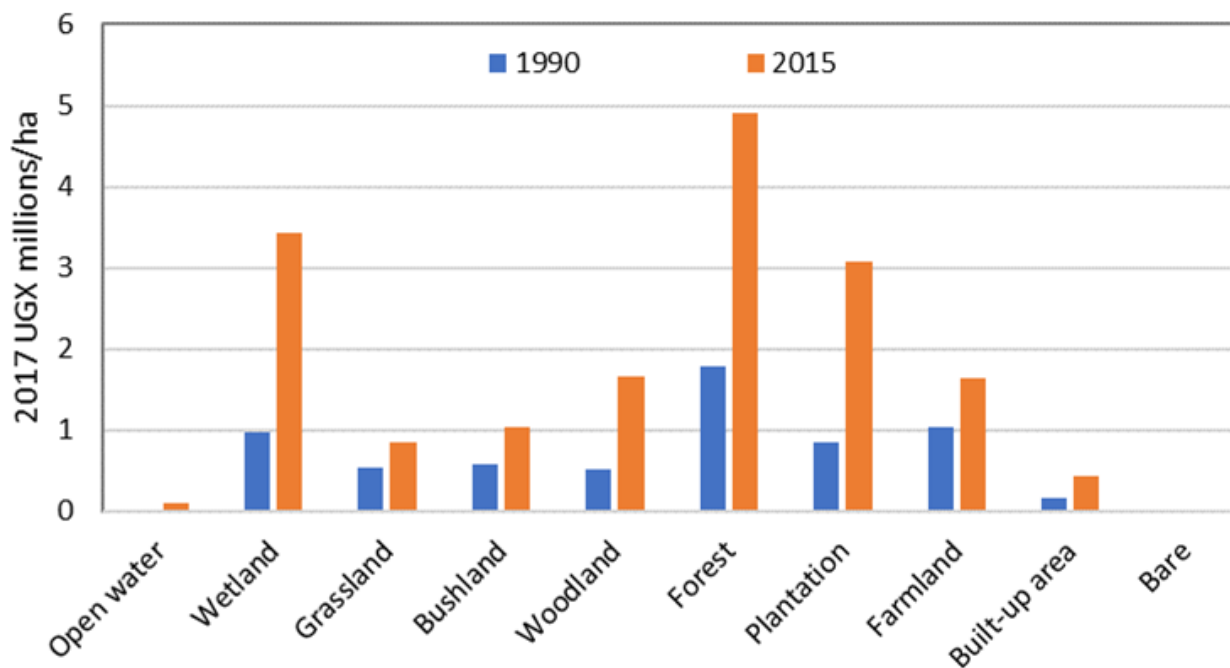
Tourism

In monetary terms, the value flows of all services increased. All provisioning services at least doubled in value. The percentage increases in value for water, flow regulation, sediment and nutrient retention services were the same as for physical flows, since no real price changes were recorded. Despite a decline in carbon retention in physical terms, the monetary value of the service more than doubled due to the increased price of carbon. Tourism value had by far the highest increase of any ecosystem service. The total monetary value of ecosystem services was 16,800 billion UGX in 1990 and 32,000 billion in 2015.

Uganda's GDP grew from 25,280 billion in 1990 to 101,800 billion UGX in 2015. Hence, ecosystem services had a value equivalent to 65% of GDP in 1990 and 30% in 2015 (all in 2017 UGX).

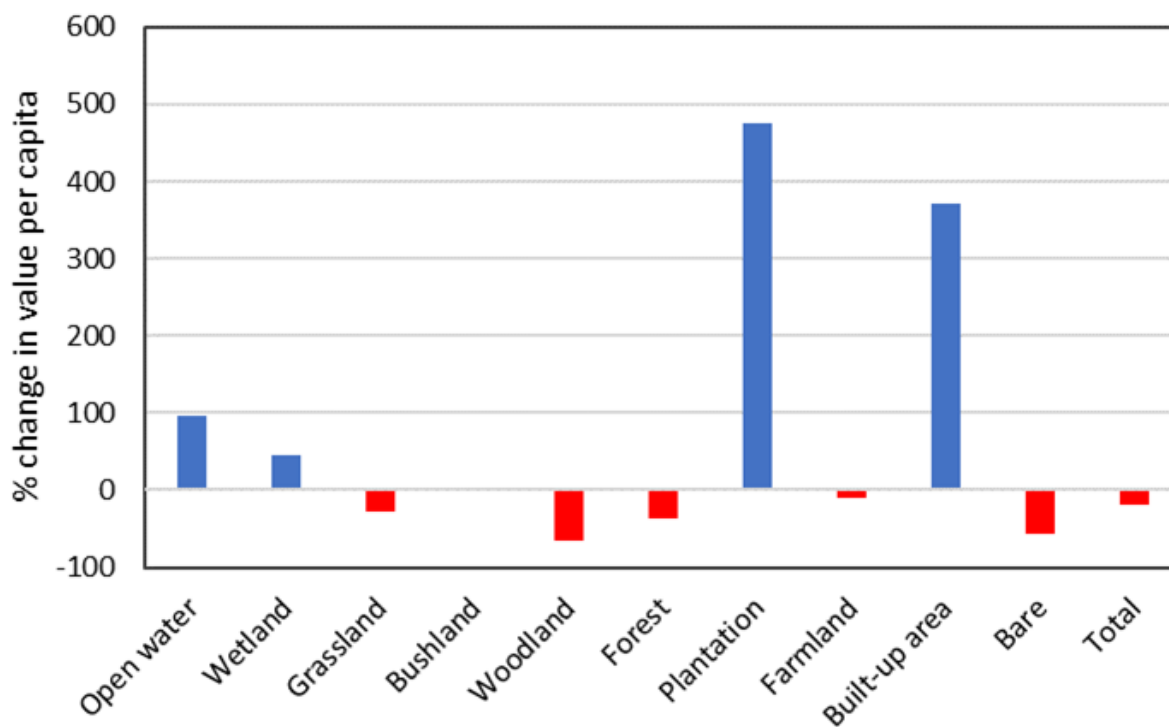
The monetary value of ecosystem service flows per ha in 1990 and 2015, expressed in constant 2017 UGX (i.e. correcting for inflation), is shown graphically in **Figure 2**. All ecosystem types increased in value per unit area from 1990 to 2015 except for "Bare", largely because of the increase in demand. The largest monetary value per ha, both in 1990 and 2015, comes from forests and wetlands.

Figure 2: Average monetary value of ecosystem service flows per ecosystem type per ha per year in 1990 and 2015. Values expressed in constant 2017 UGX millions per ha per year



The total asset value of national ecosystems increased between 1990 and 2015, – however, the per capita value of most ecosystem assets declined due to the increase in population (See Figure 3).

Figure 3: Percentage change in the per capita asset value of ecosystems between 1990 and 2015



Policy implications

The findings suggest that ecosystems have been pushed close to or beyond their tipping points and will not be able to provide each additional Ugandan with the same, or more, services. Uganda needs to ensure that standards of living are increased without further degrading and depleting its natural assets. This will require substantial investments in restoration and increased protection of natural capital, as well as investments in education and measures to reduce population growth.

Methodology

For these accounts, ten ecosystem types were delineated from the land cover accounts: open water, wetland, grassland, bushland, woodland, natural forest, plantation forest, farmland, built-up area and bare. Within these, the detailed land cover data and vegetation maps were also used in estimating spatial variation in ecosystem service delivery where relevant. Data used to compile the ecosystem services accounts come from a large number of sources, including previously developed accounts for land, water, soil, fisheries, biodiversity and tourism. The regulating services were derived using the Integrated Valuation of Ecosystem Services and Tradeoffs (InVest) model developed by Stanford University and adapted to Uganda using national data sets.



Chris N. Mukiza (PhD)

EXECUTIVE DIRECTOR / CHIEF STATISTICIAN