

# Seven ecosystem services valued at more than EUR100 million annually

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Environmental systems analysis is a quantitative and multidisciplinary research field aimed at analyzing, interpreting, simulating and communicating complex environmental problems from different perspectives.

The annual contribution of seven ecosystem services to the economy of Limburg, the southernmost province of the Netherlands, can be estimated at around €112 million. This was the conclusion of a study conducted by Roy Remme, Matthias Schröter and Lars Hein of Wageningen University, in collaboration with Bram Edens. The aim of

the study was to develop knowledge about the monetary contribution of ecosystems to the regional economy. The study has been published in the journal Ecological Economics.

The researchers modelled and valued seven ecosystem services: crop production, fodder production, drinking water production, air quality regulation, [carbon sequestration](#), nature tourism and hunting. The study was conducted to test part of the 'System of Environmental-Economic Accounts', a framework for ecosystem accounting that was developed under the auspices of the United Nations Statistics Division . The aim of ecosystem accounting is to develop knowledge about the contributions of ecosystems to the economy. In this study, monetary ecosystem service models were developed to specify the spatial distribution of these contributions in Limburg province. The ecosystem services with the highest monetary value were the contributions to crop production (€46 million) and nature tourism (€39 million). Carbon sequestration and air quality regulation had the lowest values (€2 million). Areas with the highest values were found in the South Limburg hills, especially due to nature tourism and drinking water abstraction areas. The municipalities of Gennepe and Echt-Susteren had relatively high values due to their existing [drinking water](#) abstraction areas.

The study provides insight into the valuation methods that can be used for ecosystem accounting. Monetary valuation for ecosystem accounting takes into account economic production and consumption; it therefore differs from a welfare-based valuation approach, which also accounts for the values that people assign to certain services. Moreover, some ecosystem services, such as experiential value, are still difficult to value in ecosystem accounting. The outcome of the study should therefore not be interpreted as the total monetary value of ecosystem services in Limburg province.

The study signals that investments are required to collect the ecosystem

service data that is used to develop monetary accounts for all ecosystem services. In combination with physical accounting, monetary accounting can provide a good picture of the contribution of ecosystems to economic activities, and how changes in ecosystems will affect the economy. Ecosystem accounting can provide relevant information for policy-makers in land-use planning and spatial planning. It can also act as an early warning system to signal the loss of [ecosystem services](#) and their possible consequences.

Provided by Wageningen University

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