

Nature Value Explorer (Natuurwaardeverkenner)

Origin: Tool developed by VITO and University of Antwerp with support of the Flemish government (Agency for Nature and Forest and Department of Environment, Nature and Energy)

Description:

The nature Value explorer is an online calculation tool that end users use to establish the impact that various land use scenarios will have on the value of ecosystem services. These pragmatic methods for the valuation of ecosystem services enable us to help land developers, governments, nature conservation organizations or land managers. They can be used to show the value of changes in land use, the benefits of management measures or the advantages of green development projects. Companies use these methods to calculate the impact of their company premises on the local green space.

Ecosystem services characteristics

1) Ecosystem types and ecosystem services considered

The tool looks at terrestrial and aquatic ecosystems. The tool exists of 2 subtools: rural and urban ecosystems. It looks at a whole range of ecosystem services: food production, wood production, noise mitigation, air quality improvement, global climate (carbon sequestration), local climate (heat stress), nutrient removal, erosion control, pollination, recreation, amenity values and health effects.

2) Scale

Multiple scales but best site scale. Data in the tool are site specific (Belgium) but methods are transferable for similar eco-regions.

3) Mapping of results

The tool gives qualitative, quantitative and monetary valuation methods for a range of ecosystem services. The qualitative score is illustrated with a 'spiderweb diagram'.

Tool characteristics

1) Model accessibility

The tool can be consulted on the internet via <http://www.natuurwaardeverkenner.be>. End-users are able to create and save scenarios, share scenarios with other registered users and consult public scenarios. User-friendliness is increased by adding information boxes explaining each service and its required input data, a section with frequently asked questions

and an information page containing background documents and publications related to the nature value explorer.

2) Application approach

The tool uses pragmatic functions to value ecosystem services. The quantification and valuation functions that are presented are built on the current state of knowledge and data-availability, but can be improved in the future when new scientific insights emerge and /or better data is available.

The tool integrates spatial data that automatically generate the required inputs. In the current prototype users need to define the study area and define future land use changes inside this study area (draw on a map). In a next step the tool automatically estimates existing and future land use composition, determines the most dominant characteristics of soil, air and water quality, noise, erosion sensitivity, etc. and performs buffer operations to estimate for instance the amount of inhabitants living within 1km of the study area. Preparatory GIS analyses by the user are avoided.

The duration of calculating a scenario is max. 2 hours

3) Intended use

The tool estimates and values the impact of land use and land cover change on the delivery of ecosystem services in natural, rural and urban context.

The aim of this web application is to calculate impacts on ecosystem services for the purpose of environmental impact assessments and cost benefit analyses to support public and private (investment) decisions. The guidance and tool can help professional users (land managers, planners, national and local authorities and non-governmental organisations) who wants to map the socio-economic importance of ecosystems.