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MAIA
Mapping and Assessment for
Integrated ecosystem Accounting

The MAIA country fact sheets summarize the state of affairs on natural capital accounting (NCA) in the countries connected to the MAIA project. They serve as an accessible overview and entry point for collaboration. The factsheets describe the needs from policy, society, science and business for the use of NCA, give an overview of the ongoing and published research -including knowledge gaps- in the country, include contact details and an overview of national partners and stakeholders involved in the accounts. Information in this document is based on MAIA Deliverables and exchanges, and the content is reviewed, co-authored and updated by MAIA-liaison persons in the participating country. This version was updated on August 5th 2022.

Country fact sheet: **Netherlands (NL)**

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Summary

There is much policy interest in the possibilities of NCA. The potential of NCA as a source of information for the parliament and to monitor SDGs is acknowledged. The first set of published accounts already attracted press attention and sparked interest from the private sector. Recently some specific policy areas are identified as to where NCA can contribute, among others forest strategy and circular agriculture.

The Netherlands has a high level of expertise in NCA. This is reflected in the high number of published accounts. The extent and condition accounts are available on a regional and national scale. A wide variety of ecosystem services is incorporated in their ecosystem asset, ecosystem services (ES) biophysical and ES monetary supply and use accounts. They are currently updating these accounts. For the thematic accounts, a carbon and biodiversity account are published, while a marine account on a national scale is still being developed.

The Netherlands has difficulties similar to the ones often highlighted in international meetings, for example during the revision process of the SEEA EA guidelines. This is mainly the use of the accounts in relevant policy debates and questions. The Netherlands are actively trying to engage policymakers and other stakeholders in the accounting process and are looking for relevant key indicators and usage of the accounts. Marine and biodiversity accounts need further development and still have some data gaps.

The MAIA project facilitated exchange of methods and knowledge between the members and the Netherlands are eager to support other partners. Specific needs include the development of an enhanced viewer for interested stakeholders which are not able to use the GIS datasets. They also stress the need to expand the scales of NCA to local, as well as international level to answer to the needs of both local and international stakeholders.

Country policy priorities for developing natural capital accounts

Based on MAIA D5.1 (Annex 8 section 3)

There is much policy interest in the possibilities of NCA. The potential of NCA as a source of information for the parliament and to monitor SDGs is acknowledged. The first set of published accounts already attracted press attention and sparked interest from the private sector. Recently some specific policy areas are identified as to where NCA can contribute, among others forest strategy and circular agriculture.

There are a broad range of policy needs for NCA. They would be used for, among others, monitoring and informing for the parliament and monitoring for the SDGs. Furthermore, stakeholders also mentioned climate adaptation and health as priorities for natural capital accounting.



The work on NCA in the Netherlands has already contributed to policy making on peatlands (a major issue related to farming and climate change in the Netherlands) and a range of press releases were made (mostly by Statistics Netherlands), based on the first set of accounts. There have also been discussions, and small scale pilots, to connect the accounts to companies.

Recently, a workshop on natural capital accounting was organized by Statistics Netherlands. Policy makers, and possible users of the accounts, from several provinces participated. The workshop was structured around the theme of nature-inclusive agriculture and biodiversity. The workshop gave multiple possibilities for further extensions of the existing accounts in the Netherlands. Other policy areas identified as to where natural capital and SEEA EA accounting can be helpful in the debate are e.g. policies around nitrogen, biodiversity, forest strategy, nature-inclusive and circular agriculture, area development, urban living environment and carbon storage and climate change adaptation.

Pilot accounts under development

Summary table of accounts

Account		Ecosystem Types / Ecosystem Services	Link to research
Accounts for ecosystem assets	Ecosystem extent account	All ecosystems	https://www.cbs.nl/en-gb/society/nature-and-environment/natural-capital/themas/ecosystem-types
		<i>All ecosystems</i>	Remme et al. 2014 Remme et al. 2015 Remme et al. 2016
		Marine	
	Ecosystem condition account	All ecosystems*	https://www.cbs.nl/en-gb/society/nature-and-environment/natural-capital/themas/ecosystem-condition
		<i>All ecosystems</i>	De Jong et al. 2016
		Marine	
	Ecosystem monetary asset account	Crop production*	https://www.cbs.nl/en-gb/background/2020/04/monetary-valuation-of-ecosystem-services-for-the-netherlands And Hein et al. 2016
		Fodder production*	
		Wood production*	
		Carbon sequestration*	
		Pollination*	
		Water filtration*	
		Air filtration*	
		Nature recreation*	
		Nature-related tourism*	
		Marine	
		Coastal protection	
		Reduction of Urban Heat Island	
Accounts for ecosystem services	Ecosystem services supply and use table - physical terms	Crop and fodder production*	https://www.cbs.nl/en-gb/background/2018/23/the-ecosystem-service-supply-and-use-in-the-netherlands And https://www.cbs.nl/en-gb/publication/2022/20/ecosystems-and-wellbeing-the-impact-of-land-use-changes
		Drinking water production*	
		Wood production*	
		Biomass from non-agricultural sources*	
		Erosion prevention*	
		Protection against heavy rainfall*	
		Pollination*	
		Pest control*	
		Carbon sequestration in biomass*	
		Air filtration*	
		Tourism; Nature recreation*	
		Inland water bodies*	
		Coastal protection	
		Reduction of Urban Heat Island	
	Ecosystem services supply and use table - monetary terms	Crop and fodder production*	https://www.cbs.nl/en-gb/background/2020/04/monetary-valuation-of-ecosystem-services-for-the-netherlands And Hein et al. 2016
		Timber production*	
		Water filtration*	
		Air filtration*	
		Carbon sequestration in biomass*	
		Pollination*	
		Nature-related tourism and recreation*	
		Amenity services*	
Thematic accounts		Biodiversity*	https://www.cbs.nl/en-gb/background/2020/41/seea-eea-biodiversity-account-2006-2013
		Carbon	https://www.cbs.nl/en-gb/society/nature-and-environment/natural-capital/themas/carbon-account
		Marine*	https://www.cbs.nl/en-gb/background/2019/51/natural-capital-accounts-for-the-dutch-north-sea-2019

Scale	State of development
National	Finished
<i>Regional</i>	Ongoing
<u>Local</u>	None ongoing or published
*Highlighted in the fact sheet	

Summary overview of highlight accounting projects

Natural Capital Accounts Netherlands (NKR_NL) phase 4

Statistics Netherlands, in collaboration with Wageningen University and Research, has recently updated a consistent time series of the SEEA ecosystem accounts. This involves a continuation of previous work on the extent account, condition account, physical and monetary ecosystem services, monetary asset account and carbon account with a national scale. Included is the terrestrial part of the Netherlands, with all relevant ecosystems. Marine ecosystems are excluded. Research is being funded by the Ministry of Agriculture, Nature and Food Quality.

The goal of the study is threefold:

- Updates have already taken place and are available for the time series 2013-2020 for the extent, ecosystem services, and asset accounts. For the condition account a time series is available for 2013-2020.

- Workshops and applications

Organize workshops and development of indicators around the themes nature-inclusive agriculture and biodiversity; recreation and living area; and peat meadows.

- Development of viewer

Statistics Netherlands is working on an enhanced viewer for publishing all its spatially aggregated output from various NCA projects.

A summary of methods, data and lessons learned are in the appendix of this document.

Final results of the study are expected in 2023.

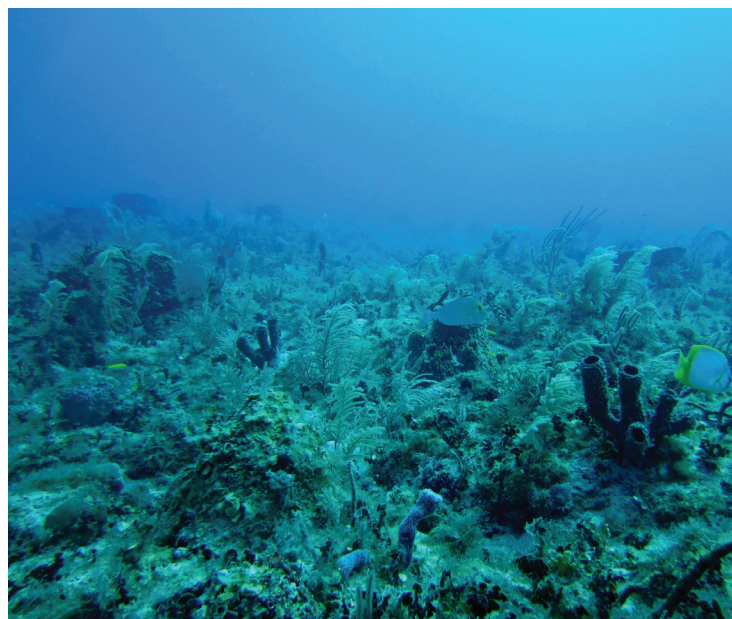
For more information, see:

<https://www.cbs.nl/en-gb/society/nature-and-environment/natural-capital>



SEEA-EEA North Sea Natural Capital Accounts 2021-2022

In this research Statistics Netherlands will continue the development of marine ecosystem accounting for the North Sea area. This research is funded by Rijkswaterstaat (RWS; executive agency of the Ministry of Infrastructure and Water Management). SEEA EA accounts included are: extent account, physical and monetary ecosystem services, monetary asset account, condition account and biodiversity account. Methods will be similar to the NKR_NL project, and therefore follow SEEA EA guidelines. Data used are from different sources, both available from Statistics Netherlands and other organisations. Final results are expected in 2023.



Biodiversity account

Statistics Netherlands will continue its research regarding the biodiversity account as was presented in <https://www.cbs.nl/en-gb/background/2020/41/seea-eea-biodiversity-account-2006-2013>. It will update, improve and extend the research previously done on experimental spatial indicators of the SEEA EA biodiversity account. This research will be conducted and financed within the MAIA project. Final results are expected in October 2022.

Knowledge gaps and difficulties for developing natural capital accounts

Based on MAIA D3.2 (Annex 8 section 5); D5.1 (Annex 8 section 5e and 6d)

The Netherlands has difficulties similar to the ones often highlighted in international meetings, for example as expressed during the revision process of the SEEA EA guidelines. This is mainly the use of the accounts in relevant policy debates and questions. The Netherlands are actively trying to engage policymakers and other stakeholders in the accounting process and are looking for relevant key indicators and usage of the accounts. Marine and biodiversity accounts need further development and still have some data gaps.

The Netherlands has already several years of experience in implementing the SEEA EA guidelines on a national scale for most of the (thematic) accounts. The Netherlands has an active role in the development of the revised SEEA EA guidelines and are therefore well-informed on the current (international) developments. Currently, main challenges lie not necessarily on implementation, but more on extracting information out of the accounts which are informative to stakeholders. This means: 1) for which policy questions can the accounts be used; 2) presenting the accounts and underlying data in a useful manner; and 3) development of key indicators.

As was also explained in section 1, progress is made towards the first point. Some policy areas are selected as to where SEEA EA can be supportive (e.g nature inclusive agriculture). The step forward is to test this with the relevant stakeholders. Concerning the second point, the Netherlands has presented the SEEA EA accounts in extensive reports, both highlighting the results, but also methodology and data used. This was mainly done so that others can learn how to implement the accounts. However, this is less useful for other stakeholders, such as users and policymakers. Additionally, accounts in general are sometimes hard to understand. Translation to the users is necessary. Development of key indicators generated from the SEEA EA accounts is taken up by the Netherlands, see for example <https://www.cbs.nl/nl-nl/longread/rapportages/2022/natuurlijk-kapitaal-en-brede-welvaart-in-nederland>.

Additionally, development of the marine ecosystem account is not yet as far reached as with the other accounts. Implementation of the marine account is something that needs further development, which will be done in a project during 2021-22. Statistics Netherlands is eager to learn from others in the MAIA project.

Concerning the biodiversity account, also something which is considered difficult in the international community, the Netherlands has finished a first report. However it remains difficult, also because of the lack of spatial biodiversity data. Some of the data gaps will be taken up in a follow up study of the biodiversity account.

Support needs for developing natural capital accounts

Based on MAIA D3.2 (Annex 8 section 6 and 7); D5.1 (Annex 8 section 6e, 7 and 8)

The MAIA project can facilitate exchange of methods and knowledge between the members and the Netherlands are eager to support other partners. Other specific needs include the development of an enhanced viewer for interested stakeholders which are not able to use the GIS datasets. They also stress the need to expand the scales of NCA to local, as well as international level to answer to the needs of both local and international stakeholders.

The MAIA project improved the network connections to share methods and knowledge between countries. The Netherlands themselves state to have the capacity to produce accounts and their focus will now lie in further development and updating of these accounts and supporting other partners.

Sharing the SEEA EA with stakeholders is key. Therefore, indicator derived from SEEA EA will be integrated in the "Sustainability Monitor", published by Statistics Netherlands, in the coming years (<https://www.cbs.nl/en-gb/publication/2022/20/monitor-of-well-being-the-sustainable-development-goals-2022>). Moreover, together with SarVision they are working on developing policy support tools. Previous experience with potential end-users of natural capital accounts have demonstrated that only sharing data (maps and accounts) is not sufficient for the end-users to be able to use it for their own policy applications. The goal is to develop an enhanced viewer, where not only maps can be shown, but where stakeholders can interactively select areas and accounts to generate data that is useful for them. This was also indicated by the stakeholders to be a high priority: they found the information in the accounts very interesting but were generally not able to use the GIS datasets. Additional stakeholder consultation rounds are organised to consult stakeholders and potential end-users to obtain information on what they need and what options should be included in the viewer. An option is also to connect to H2020 project 'Contracts 2.0' on biodiversity schemes for farmers, and it will be examined if the viewer can also be adapted for use for policy support of farmer organisations.

Several stakeholders mentioned that the natural capital accounting efforts would be more useful for their own organisation when they could use their own "bottom-up" data (for instance local scale management data). Next to more fine scale data, other stakeholders mentioned that upscaling from a national level to an international level would also be very relevant for companies that work internationally. With the goal of streamlining of the natural capital efforts between the member states, MAIA, can help facilitate this.

Involved partners and stakeholders

Based on D5.1 (Annex 8 section 2);
European NCA stakeholder day

Government	Research	Private sector or NGO
Statistics Netherlands (CBS)	Wageningen University (WUR)	Selected experts from farmers organisations
National Institute for Public Health and the Environment (RIVM)	Wageningen Environmental Research (WENR)	Selected experts from consultancy
Netherlands Environmental Assessment Agency (PBL)		Selected experts from private sector; Selected experts from NGO's
Ministry of Agriculture, Nature and Food Quality (LNV)		
Rijkswaterstaat (RWS)		
Province Zuid-Holland		
Municipality Den Haag		

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Annex: Ecosystem accounting (SEEA EA) in the Netherlands: Methods, data and lessons learned



WAGENINGEN
 UNIVERSITY & RESEARCH

Statistics Netherlands (CBS) and Wageningen University and Research (WUR), August 2022

Methods, data and lessons learned

Ecosystem accounts show the extent and condition of ecosystems and the flow of ecosystem services to society. The work on ecosystem accounting started in 2015 in the Netherlands where the concepts and methods of the System of Environmental Economic Accounts – Ecosystem Accounts (SEEA EEA) have been applied. Since then, improvements on the methodology, data and visualisations are made. This summary shows the methods and the lessons learned during the development of the accounts. The website of natural capital accounts in the Netherlands, www.cbs.nl/en-gb/society/nature-and-environment/natural-capital, gives an overview of the accounts and the work of Statistics Netherlands and Wageningen University. The maps and reports are published on this website: <https://www.cbs.nl/en-gb/society/nature-and-environment/natural-capital/publications>. A consistent time series of the years 2013, 2015, 2018 and 2020 has been developed. For more details on the methodology, please find our technical report here: <https://www.cbs.nl/en-gb/publication/2022/20/ecosystems-and-wellbeing-the-impact-of-land-use-changes>.



Core accounts

Extent

The extent account shows information on the extent in terms of area of different ecosystem types and can be seen as a starting point of the natural capital accounts. Challenge is to cope with changing data source formats throughout time, for example from a line to a surface. Data sources used are topographical maps, Cadastre maps, geographical registries, geographical land use data. The Netherlands distinguishes around 50 types of ecosystems. The extent account is expanding with the Wadden sea and North sea.

Condition

The condition account shows the quality of an ecosystem asset and its potential to supply ecosystem services. Challenge with the condition account is to find recurring data sources to update these accounts on a regular basis. Data availability and consistency with ecosystem types chosen is difficult in addition. Data sources used are among other the Living Planet Index, Atlas Natural Capital, National Institute for Public Health and the Environment (RIVM) and EU Water Framework Directive. Please find our report on the condition account here: www.cbs.nl/en-gb/custom/2019/15/seea-ecosystem-condition-account-for-the-netherlands.

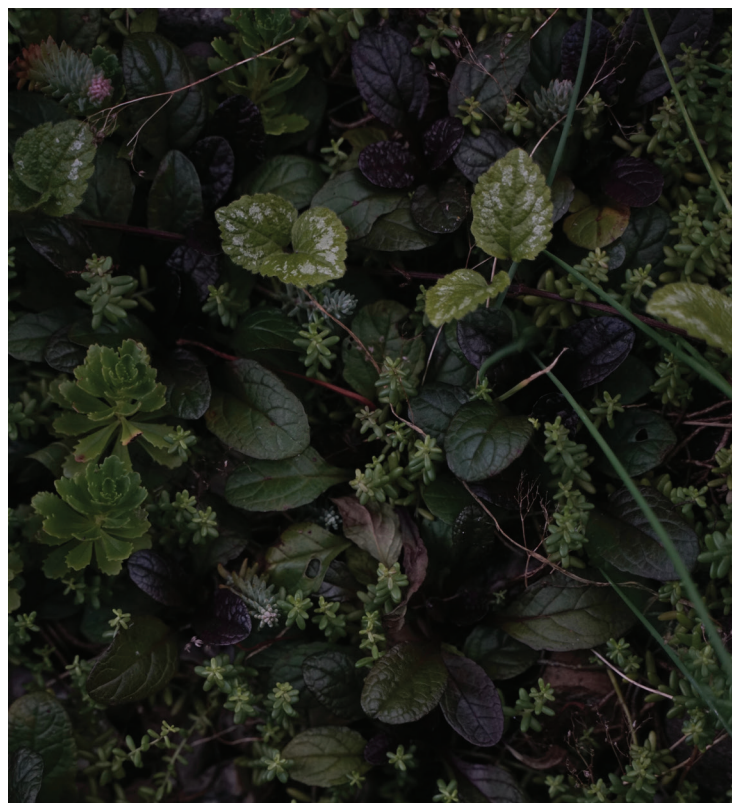


Supply and use of ecosystem services – physical

Ecosystem services accounts show the supply of ecosystem services by nature and the use by economic activities. There are many ecosystem services to measure. The physical ecosystem services that are compiled are: crop and fodder production, wood production, biomass from non-agricultural sources, protection against heavy rainfall, pollination, pest control, carbon sequestration in biomass, air filtration, coastal protection, nature related tourism and recreation. Data sources are national and provincial statistics, geographical registries, look-up tables from scientific research. Data availability and reliability, and the relevance for the Netherlands are factors when deciding on which services to focus. The detail and resolution differ a lot per ecosystem service model. The consistent time series 2013-2020 make it possible to analyse changes in ecosystem services throughout the years.

Supply and use of ecosystem services – monetary & Monetary asset

Ecosystem services accounts in monetary terms show the supply and use of ecosystem services in monetary terms. The monetary asset account shows the monetary value of ecosystem assets to society. The ecosystem services that are compiled are: crop and fodder production, timber production, water filtration, pollination, carbon sequestration in biomass, air filtration, coastal protection, nature related tourism and recreation and amenity services. To increase the reliability of figures on ecosystem services in monetary terms, it is important to choose a valuation method that is suitable for the service. This might be different per ecosystem service. Many different data sources are used in compiling the monetary assets and supply and use of ecosystem services. Mainly SNA production and income accounts, Agriculture Accounts, Tourism Satellite Account, Authority for Consumers and Markets, statistical publications of VEWIN (water), IPCC, Netherlands Enterprise Agency and scientific research. Important is a careful way of phrasing and showing the results since interpretation can be difficult. A distinction should be made in that the contribution of ecosystems to economic activities is measured and not the value of nature. Please find our report on the monetary valuation of ecosystem services here: www.cbs.nl/en-gb/background/2020/04/monetary-valuation-of-ecosystem-services-for-the-netherlands.



Thematic accounts

Biodiversity

The biodiversity account comprises ecosystems and species. The genetic diversity aspect of biodiversity is left out due to lack of quality data. Many national figures can be derived, but this account is difficult to make spatially explicit with the currently available data sources. These data sources are mainly Living Planet Index, Red List indicators and occupancy modeling of distribution maps of several species. Most recent publication can be found on <https://www.cbs.nl/en-gb/background/2020/41/seea-eea-biodiversity-account-2006-2013>.

Carbon

The carbon account shows the stock and flows of all types of carbon, namely biocarbon, geocarbon, carbon in the atmosphere and carbon in the economy. Data sources used are SNA Energy Accounts, Material Flow Accounts, Air Emissions Accounts, Water Emission Accounts and the National Emission Inventory, Waste Accounts, and scientific research. The results of the carbon stock are affected by how deep into the ground is taken into account.

Marine - Wadden sea and North sea

The initial focus of the ecosystem accounts in the Netherlands was on terrestrial ecosystems. To explore the potential of ecosystem accounting on coastal and marine ecosystems, the extension to the North sea has been made. Data sources used are different reports and statistical information. Also, the accounts on the Wadden sea are being developed. Please find our report of a first pilot project here: www.cbs.nl/en-gb/background/2019/51/natural-capital-accounts-for-the-dutch-north-sea-2019.