



Research School for  
Socio-Economic and  
Natural Sciences of  
the Environment

Netherlands Research School for  
Socio-Economic and Natural  
Sciences of the Environment

**SENSE**

**SENSE Update 2020**

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## Introduction: mission and background

The Netherlands Research School for Socio-Economic and Natural Sciences of the Environment (SENSE) was established in 1994. SENSE is a joint venture of the environmental research institutes at [ten Dutch universities and research organisations \(see also annex 1 for a list of members\)](#).

The SENSE Research School is dedicated to supporting the development and dissemination of cutting-edge disciplinary, interdisciplinary and transdisciplinary knowledge in the field of environmental and sustainability sciences, and to provide a stimulating and supportive context for PhD students and early-career researchers to develop their competencies towards professional leadership in science and society in this field.

We understand environmental and sustainability sciences as research efforts that advance knowledge for responding effectively to the risks and opportunities of local and global environmental change and for supporting a transformation towards global sustainability.

### Mission

SENSE has three fundamental goals in which it wishes to excel:

- **SCHOOL** for environmental researchers and professionals: Education and training of young researchers in disciplinary and multidisciplinary environmental issues.
- **NETWORK** for disciplinary and multidisciplinary environmental sciences: Scientific research of environmental changes, both with regard to disciplinary understanding of the relevant issues and with regard to multidisciplinary understanding in the context of society.
- **BRIDGE** to society and environmental governance: Support of society, environmental stakeholders, and policy makers with independent and scientifically based expert advice.

To meet these objectives, the SENSE Research School is dedicated to organizing and facilitating processes of environmental learning, both in terms of relevant scientific research and in terms of relevant training and advanced education, and to improve communication and exchange amongst disciplines and between arenas of science and arenas of policy.

SENSE was formally accredited by the Royal Netherlands Academy of Arts and Sciences (KNAW) for the period 1997–2001 and was subsequently re-accredited in 2002 and 2008. In 2014 the re-accreditation system by the ECOS-KNAW was discontinued and the assessment of the PhD policy and training became part of the regular SEP research assessments.

Moreover, all universities were asked by the Ministry of Education, Culture and Science, to set-up (local) Graduate Schools in which all PhD candidates could participate. This resulted in the development and establishment of local, often faculty-wide, Graduate Schools at the SENSE partner universities in which all PhD candidates are registered and have to participate.

As a consequence, the role of the SENSE research school has gradually evolved from a centrally managed inter-university research and graduate school into a network of local research institutes and graduate schools in the field of environmental and sustainability sciences. The mission of this Dutch network is threefold: SENSE function as (i) a national research network (ii) a network for PhD education and training and (iii) a bridge to society in the field of sustainability.

SENSE occupies a critical position in the wider Dutch research and education landscape on sustainability. To provide relevant and timely research and skilled graduate students in times of increased societal contestation, complex decision-making and growing uncertainties and related risks, SENSE has invested in building lasting connections among researchers and PhD students. Our joint training programs, seminars, symposia and outreach activities contribute to building a strong and responsive expert community that is combining scientific excellence with societal impact. The next sections explain how SENSE fulfils its triple role as research network, PhD raining school and bridge to society.

## SENSE review 2014 and 2021

In 2014, the SENSE research school coordinated the research assessment of seven institutes (CML-LU, ITC-UT, WMG-UT, IHE-Delft, Copernicus Institute UU, IVM-VU and WIMEK-WUR) at chair group / research group level, institute level and SENSE level regarding the review period 2007-2013. The assessment report can be downloaded [HERE](#).

The review at SENSE level was meant as preparation for the re-accreditation by the ECOS-KNAW, but this re-accreditation procedure was discontinued in 2014 and the assessment of the PhD policy and training became part of the regular SEP assessment of the SENSE institutes. Therefore, the assessment at SENSE level became unnecessary and subsequent reviews will take place at institute level.

Nevertheless, the deans and rectors of some of the SENSE institutes preferred a joint evaluation and asked SENSE to coordinate the external review of five SENSE institutes in line with the Strategic Evaluation Protocol (SEP 2021-2027) in 2021. The following departments and institutes will participate in an external review coordinated by SENSE in 2021:

<b>University:</b>	<b>Research Institutes / Research units:</b>
Wageningen University	<a href="#">Wageningen Institute for Environment and Climate Research (WIMEK)</a>
VU University Amsterdam	<a href="#">Institute for Environmental Studies (IVM)</a> <a href="#">Department of Environment &amp; Health (E&amp;H)</a>
Utrecht University	<a href="#">Copernicus Institute of Sustainable Development</a>
IHE-Delft	<a href="#">IHE Delft Institute for Water Education</a>

The evaluation is performed by an assessment committee, consisting of independent academic peers as well as optionally non-academic experts.

## SENSE Management and organization

The management structure of the SENSE research school is characterized by lean processes, efficiency, and a maximum degree of flexibility and service-provision to its members.

### General Board of SENSE

The highest decision-making body is the General Board, which comprises of senior representatives of all participating institutions, usually at the level of institute director, as well as a representative of the SENSE PhD Council. The General Board meets usually twice a year, and decides on the general strategic direction of the School.

### SENSE Directorate

The SENSE Directorate is responsible for the daily management of the School. It consists of the General Director and two coordinators, one at WIMEK-WUR and one at IVM-VU. The SENSE Directorate meets once every two months. The SENSE Directorate is supported by a SENSE team, including the A1 and A2 coordinators and a communication officer responsible for the management of the SENSE website and the digital monthly newsletter SENSE e-news. Moreover, the SENSE coordinators support the Education Committee and the Research Committee (see below).

### SENSE advisory committees

In addition, SENSE has two advisory committees: a Research Committee and an Educational Committee. These committees include faculty and PhD candidates from all SENSE partner institutes, and advise the Board of Directors on SENSE policy and developments. The committees meet once or twice a year.

### SENSE PhD Council

The SENSE PhD Council represents the collective input of the SENSE PhD candidates. Representatives of the SENSE PhD Council participate in the General Board of SENSE and in the Education and Research Committees. The SENSE PhD Council also advises the SENSE Board of Directors on all issues regarding the SENSE PhD policy, either upon request or upon own initiative.

### Finances

The annual SENSE budget is about k€120, which is spent on the financial compensation of the SENSE team members at IVM-VU and WIMEK-WUR, hosting the SENSE website and a small budget to co-organise SENSE events and activities. There is also a budget for the development of joint PhD courses available.

This SENSE partner institutes pay a financial contribution yearly, in proportion to the total research input (PhD candidates and staff) of that institute in SENSE.

## SENSE activities

### SENSE Research Network

The scientific research of the participating SENSE research units covers a broad range of topics, including:

- Environmental contaminants and nutrients: behavior, exposure and effects of environmental contaminants and nutrients on ecosystem and human health
- Natural resource management: ecosystem dynamics; ecosystem services; biodiversity; sustainable management of natural resources
- Global environmental change: integrated assessment of global and climate change at various spatial and temporal scales; risk analysis; mitigation and adaptation policies; sustainable climate, water and land-use policies and management
- Sustainable technologies and innovation: development of sustainable environmental, water, energy, and transportation technologies; renewable energy systems; critical material supply chains; Life Cycle Assessment (LCA); Material Flow Analysis (MFA)
- Sustainable development and social change: economic valuation of the environment; economic, social and policy instruments to change human behavior

The SENSE research efforts contribute to solutions for the grand challenges, such as climate adaptation, energy transition, agricultural transition / sustainable food production, circular economy, biodiversity conservation and environmental & human health.

Moreover, the SENSE research contributes to the following Sustainable Development Goals:

- 2: [Zero hunger](#)
- 6: [Clean water and sanitation](#)
- 7: [Affordable and clean energy](#)
- 11: [Sustainable cities and communities](#)
- 13: [Climate action](#)
- 15: [Life on land](#)

## SENSE as a training network for PhD candidates

The SENSE Research School aims to provide a joint high-level programme of PhD courses and training activities for its PhD candidates with a diversity that individual universities in the Netherlands cannot offer. The PhD courses organised at the SENSE partner institutes are also open to PhD candidates from other SENSE institutes and announced in the monthly newsletter SENSE e-news and at the SENSE website.

The SENSE Research School offers the following PhD courses / training activities at SENSE level:

- The PhD introductory course [A1](#)
- The PhD assignment environmental research in context [A2](#) and
- The SENSE PhD course [Grasping Sustainability](#)

Moreover, the SENSE Research School has determined the minimum requirements for a SENSE PhD Training and Supervision Plan (TSP). A SENSE Diploma (or Certificate) for specialised PhD training can be obtained after fulfilling the SENSE TSP requirements. The Diploma is presented to the PhD candidate as part of the PhD Graduation Ceremony. The SENSE TSP requirements are mandatory for PhD candidates at WIMEK-WUR, IVM-VU and IHE-Delft. SENSE PhD candidates at other SENSE institutes can choose to fulfil the SENSE TSP requirements on a voluntary basis and to obtain a SENSE Diploma / Certificate too. In addition, SENSE offers support for the formation of PhD networks and discussion groups around topical issues.

SENSE researchers play various roles in the dissemination of knowledge to society. The direct impact of our school is largely at the national level, where we serve as a collective voice of our member institutions for example vis-à-vis the Dutch government agencies. Moreover, SENSE organizes national workshops and symposia to exchange information and research results with stakeholders on topical issues. Internationally, our partner institutions are very active in their own networks, for example in European or United Nations processes, yet here usually without a direct reference to a membership within SENSE.

## SENSE as a bridge to society

### **SENSE symposia and workshops**

SENSE organizes symposia and workshops to exchange information and scientific research results with stakeholders. Some examples are mentioned in annex 2.

### **SENSE as Dutch platform for environmental and sustainability research**

SENSE researchers are closely involved in advisory boards and committees on national and international environmental issues. For example: SENSE research leaders are currently involved in the development of a Dutch Sector Plan Earth and Environmental Sciences. This Sector Plan stresses the important contribution of this research field to the grand societal challenges, such as climate change (mitigation and adaptation), the energy transition, the agricultural transition, biodiversity conservation, etc. The aim of the Sector Plan is to ask the government to make extra budget available for innovations in the Earth and Environmental Sciences which can contribute to solutions for the grand challenges.

**Annex 1: SENSE participants**

The SENSE Research School is a joint venture of environmental research groups of eight Dutch universities and two institutes:

 <p>rijksuniversiteit  groningen</p>	<p><b>Groningen University</b> (RUG) Integrated Research on Energy, Environment and Society (<b>IREES</b>)</p>
	<p><b>Leiden University</b> (LU) Institute of Environmental Sciences (<b>CML</b>)</p>
<p><b>Open Universiteit</b></p> 	<p><b>Open University Heerlen</b> (OU) School of Science (<b>OU</b>)</p>
 <p>Netherlands Environmental Assessment Agency</p>	<p><b>Netherlands Environmental Assessment Agency</b> (<b>PBL</b>)</p>
<p>Radboud University Nijmegen</p> 	<p><b>Radboud University Nijmegen</b> (RU) Environmental Science Group (<b>ES</b>)</p>
<p><b>UNIVERSITY OF TWENTE.</b></p>	<p><b>University of Twente</b> (UT) Faculty of Geo-Information Science and Earth Observation (<b>ITC</b>) Multidisciplinary Water Management Group (<b>WEM</b>)</p>
 <p><b>IHE DELFT</b></p>	<p><b>IHE Delft</b> Institute for Water Education (<b>IHE</b>)</p>
	<p><b>Utrecht University</b> (UU) <b>Copernicus</b> Institute of Sustainable Development</p>
 <p>vrije Universiteit</p>	<p><b>VU University Amsterdam</b> (VU) Institute for Environmental Studies (<b>IVM</b>) Department of Environment and Health (<b>E&amp;H</b>) Department of <b>Earth Sciences</b></p>
	<p><b>Wageningen University</b> (WUR) Wageningen Institute for Environment and Climate Research (<b>WIMEK</b>)</p>

**Annex 2: SENSE symposia**Internal SENSE symposia

An example is the [SENSE symposium 2019](#) "Innovative research techniques in Environmental Sciences", held on Friday 11 October 2019 at ITC Enschede. This SENSE symposium focused on innovative research approaches through cutting edge technology in environmental research, such as sensors, DNA sequencing, big data, machine learning, high speed cameras, drones, Artificial Intelligence (AI). Another example is the [SENSE workshop](#) on "Transdisciplinary needs for achieving the Sustainable Development Goals" held on 6 April 2018 in the Academy Building in Utrecht. The workshop focused on the importance, pros and cons, of knowledge co-production and transdisciplinary by exchanging good experiences with transdisciplinary approaches in research and the development of transdisciplinary skills of PhD candidates in practice.

SENSE symposia focusing on the interaction with stakeholders

[SENSE Workshop Circular Economy](#) (13 March 2017, PBL Building, The Hague)

This workshop was organized by the SENSE Research School in close collaboration with the Ministry of Infrastructure and Environment (I&M) and the Netherlands Environmental Assessment Agency (PBL). The main goal was to exchange ideas on how SENSE researchers, companies and governments can join forces to assist the transition towards the circular economy.

[SENSE conference "our future energy landscape"](#) (Dutch spoken)

Thursday 20 June 2019, FORUM and ORION building, Wageningen

In June 2019 SENSE organised a symposium on the energy transition, focussing on the development of attractive energy landscapes. This SENSE conference aimed to contribute to the analysis of competing claims for land resulting from the proposed energy transition, climate adaptation, agricultural transition and urbanization in the medium long term (2050) and the development of integral solutions for the spatial implementation based on broad societal support.

The symposium was attended by about 120 participants from many different Dutch sectors: local governments, provinces, water authorities, architectural firms, solar and wind companies, researchers, etc. Some participants asked when SENSE will organise a continuation of this symposium.

[SENSE conference on Environmental, Cultural, Economic & Social Sustainability](#)

24 – 26 February 2021, Vrije Universiteit Amsterdam, The Netherlands

The conference will focus on accelerating the transition to sustainability: Policy Solutions for the Climate Emergency and the following themes: (1) ecological realities; (2) participatory process; (3) economic, social and cultural context ;and (4) education, assessment and policy.