

# The SENSE Research School 2008–2013

**Taking Stock and Moving Forward**

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## Introduction

The Netherlands Research School for the Socio–Economic and Natural Sciences of the Environment (SENSE) was established in 1994, and formally accredited by the Royal Netherlands Academy of Arts and Sciences in 1997. As a national, inter–university research school, SENSE has been one of the pioneers in the country. Ten years after its first accreditation, we believe that the success of the School has evidenced that the investments of the founders in this new initiative were justified and worth the effort. A prime indicator is the tremendous growth of the School in recent years. Today, nine leading institutes at eight universities as well as UNESCO–IHE participate in SENSE. More than 150 tenured environmental scientists and 350 PhD students are member of the SENSE community. The size of the School in terms of faculty, researchers and students, its disciplinary diversity and the strong variety in research and teaching programmes put the SENSE School today on a par with larger graduate schools at major universities in Anglo–Saxon countries.

The success of the SENSE School is reflected also in the regular international evaluations. The most recent in–depth review of the School, in June 2007, involved 20 international experts from all fields of environmental sciences. The Review Commission concluded that almost all research groups of the SENSE School meet high standards and are internationally ‘competitive’ or even ‘internationally at the forefront’ in their fields. Overall, the School was judged as being ‘... well recognized as a major international player in environmental science and in identifying emerging research needs in the fields of environmental sciences and global change’. The scientific quality and productivity of all SENSE research groups was on average judged as ‘very good’, including several internationally leading groups that were judged as ‘excellent’ and as ‘international leader’. This highly positive evaluation will serve as a strong basis for the current re–accreditation of the School through the Royal Netherlands Academy of Arts and Sciences for the period 2008–2013.

As highlighted by the 2007 international review, the SENSE School fulfils a number of vital functions for the environmental sciences community in the Netherlands. First and foremost, the School provides a high–level programme of courses, classes and training programmes for its 350 PhD students in a diversity and quality that individual universities in the Netherlands cannot offer. Second, the School fulfils an important function as a co–ordinator and catalyst for top–quality research of the participating research groups. Third, SENSE serves as a platform and network for its members that efficiently synthesises and disseminates the research results both domestically and internationally. Fourth, SENSE serves as a collective voice of the environmental sciences community in the country vis–à–vis other organisations and programmes, such as the Netherlands Organisation for Scientific Research, the Royal Netherlands Academy of Arts and Sciences, and the Ministry of Housing, Spatial Planning and the Environment. Last but not least, the SENSE School plays an important role in quality assessment and quality control in the environmental sciences in the Netherlands.

However, the success of the SENSE School will not let it rest on its laurels. In a number of important areas, we believe that a further strengthening of the School is possible and indeed needed, and that there are manifold options and opportunities for SENSE to further

improve its procedures, its programmes, and thus the quality of its service to participating research groups and the community of natural and social environmental scientists in the Netherlands. Such further improvements in the functioning of the School should reflect, first and foremost, the wishes and aspirations of its members and PhD students. Any change will also need to take into account the substantial growth in terms of participating institutes, departments, researchers and programmes in recent years. Reforms will also require careful consideration of the detailed suggestions of the 2007 external review. Last but not least, the SENSE School needs to adapt to recent developments in the fields of our study, regarding both the state of the art in the multidisciplinary study of environmental change and the changing nature of the problems we are faced with.

In the following, we outline ten activities for what we see as important steps to improve the functioning of the SENSE School in service of its members. We plan, as the management team of the SENSE School, to focus our efforts in the coming years on the further elaboration and implementation of this set of activities.

## Education

Higher education has been a main function of the SENSE School since its inception, and probably its main success so far. We believe it is important that the educative programmes of SENSE are further strengthened and elaborated.

### Activity 1: Expanding the Postgraduate Training Programme

First, SENSE offers a wide variety of courses and programmes for its more than 350 PhD students. However, given that environmental research is in general highly specialised and multidisciplinary, we plan to further extend the offer of courses for PhD students. In particular, we will endeavour (a) to broaden the offer of social–science oriented classes and programmes through further efforts of the relevant research groups within SENSE, (b) to improve and expand options for SENSE PhD students to attend classes from other research schools in the Netherlands, and to further explore options for joint courses with other research schools; and (c) to expand our European networks in order to increase the offer for our PhD students, for example through co–operation in the setting up of European summer schools.

### Activity 2: Re–launching the SENSE Certificate

Second, we plan to re–launch the SENSE Certificate. We believe that an intense multidisciplinary study programme is vital for the success of a PhD project and for the broader education of our PhD students who have to excel in their later career stages not only in their narrow fields, but also through sufficient knowledge of neighbouring disciplines and fields of study. Our programmes thus include introductory classes into environmental sciences, a menu of training classes in academic skills, credits for publications, presentations and study visits abroad, as well as specialised classes in a variety of environmental study areas.

At present, however, it appears that the benefits of the SENSE Certificate—which is based on a successful completion of a number of diverse courses and other activities—are not suffi-

ciently known to new PhD students, and at times not sufficiently appreciated by their supervisors. In addition, it seems that the current structure of a rather informal ‘certificate’ does not increase, but rather decreases interest from students to follow the full programme. Therefore, we plan to re-launch the SENSE certificate. We plan (a) to further increase options for students to make the programme even more useful to them; (b) to further engage with SENSE research groups in a discussion on how incentives for full participation in the study programme can be strengthened, and how disincentives can be minimised; (c) to formalise agreements on the final educative goals to be achieved through the SENSE programme; and (d) to increase the standing of the certificate with students and employers through re-launching it under a new name—as a SENSE Diploma—and through a fresh information campaign.

### **Activity 3: Internationalising Education Programmes—Distance–Learning**

Postgraduate education is no longer confined to the national sphere but has evolved into a global ‘market’ for top-level students and teachers. Most universities in the Netherlands now plan to increase their attractiveness for foreign students, especially at the level of master and PhD education. One evolving form of this internationalisation is distance learning, for example through long-distance video transmission or web-based programmes. We believe that in this new and emerging field of distance-learning and e-learning, with its relatively high start-up costs, the SENSE School can play an important service role for its participating institutes. One option is the mutual ‘exchange’ of postgraduate teaching modules of SENSE programmes with universities in nations as diverse as India and Ireland, two countries with which first explorative discussions have been held. A significant amount of expertise is available within SENSE—for example at UNESCO-IHE—and could be utilised for a broader exploration of these new types of international programmes.

### **Activity 4: Extending the Service Functions in the Area of MSc Education**

Fourth, the SENSE School is so far only marginally involved in MSc education, apart from making some courses available for SENSE PhD students. We firmly believe that MSc programmes will remain also in the future a chief task for the participating universities and institutes, and not a task for the SENSE School. However, we also see the need for a stronger supporting and co-ordinating role of the SENSE School in the area of graduate study programmes. For example, SENSE can better function as a clearing house for foreign students that offers basic information on all programmes that are available in the Netherlands in the field, with appropriate links to the websites of the respective research groups and institutes. Likewise, the SENSE School can have some role in facilitating co-operation with foreign partner institutions, for example in the area of long-distance learning, where initial planning and transaction costs for individual institutes might be too high. SENSE can also play a role in the closer co-operation within Europe, for instance through co-operations such as the one envisaged with a comparable school in Ireland. Eventually, we can imagine SENSE in the long run also as a potential initiator and facilitator of inter-university MSc programmes, notably one or several ‘international top master’s programmes’ that bring together the best researchers and teachers of the participating institutes.

### **Activity 5: Strengthening the SENSE Alumni Network**

Fifth, we believe that SENSE can play an important role in facilitating and co-ordinating the continuous involvement of the alumni of SENSE programmes in the activities of the participating institutes. Strengthening alumni networks, both in the Netherlands and abroad, is already part of the work programme of the SENSE School, and we plan to pursue this further. We envisage tailor-made alumni programmes for Dutch and foreign alumni, who have different needs in terms of communication and closeness of contact, and who can contribute in different ways to the further success of the SENSE School.

## **Research**

The main role of the SENSE School in the area of research is as a catalyst and co-ordinator of high-level academic work. As evidenced in the 2007 international evaluation of the 27 research groups within SENSE, the research of the members of SENSE is on average of a very high level and internationally competitive or leading.

We see essentially two areas where the role of SENSE can be strengthened.

### **Activity 6: Increasing Research Co-ordination—Revitalising the Core Themes**

First, we believe that the current organisation of research co-ordination within SENSE is no longer appropriate given the tremendous growth of the School in recent years. The four Core Themes of SENSE are, in their current formulation, too broad to provide a meaningful orientation to the 150 researchers and 350 PhD students within SENSE. Activities of Core Themes have been limited in the past, and members of SENSE—especially the newer ones—often lack certainty about which Core Theme they belong to and what this theme can do for them. Reforms in this area thus seem crucial.

Based on our assessment of options and suggestions from the community, we now plan to leave the overall structure of four main Core Themes within SENSE intact, but to initiate in addition the creation of 12–15 smaller, and more flexible Research Clusters within a Core Theme or cutting across several Core Themes. While the Core Themes will need to be chaired by senior professors who have a broad understanding of the entire area in terms of academic developments and the interests of the research groups in the Netherlands, we envisage the Research Clusters to be initiated and co-ordinated by younger members of SENSE, and ideally bring together enthusiastic co-ordinators from several participating research groups. SENSE will provide a limited amount of resources, including material support for workshops and access to specialised websites.

As it stands now, we have the support of the following highly accomplished researchers as chairs of the four Core Themes: Core Theme 1—Prof Jacob de Boer, Vrije Universiteit Amsterdam; Core Theme 2—Prof Jan Hendriks, Radboud University; Core Theme 3—Prof Pier Vellinga, Wageningen University and Research Centre; Core Theme 4—Prof Arthur Mol, Wageningen University and Research Centre. The ‘idea competition’ for new Research Clusters, and their co-ordinators, is currently underway.

### **Activity 7: Strengthening Systems of Quality Control**

Second, we see it as an important role for SENSE to provide for neutral, unbiased, mutually agreed systems of quality control for the participating research departments. The 2007 VSNU evaluation has been a recent example for the important impartial co-ordination function of SENSE in this respect.

In this context, we see the current SENSE criteria, based on the CERES criteria, as an important step forward in establishing national quality standards that take account of journals as well as of books, and that rank publications according to standards that take account of differences among disciplines. Yet we see some remaining issues that require further refinement. For example, one could argue that the current SENSE system does not sufficiently privilege A-publications, and from a social science perspective, it could give more weight to books, including single-authored books that remain major outputs in the social sciences. We thus plan to organise a consultation process of members of SENSE to prepare a more detailed SENSE catalogue of performance criteria, which are, in our view, internationally pioneering in multidisciplinary research contexts.

In addition, we plan to strengthen quality control by raising the visibility of the SENSE membership. At present, there is little public information available on who the members of SENSE are. We will thus provide on the SENSE website a list of all full and all associate members of the SENSE School, as well as a list of registered SENSE PhD students, instead of the current alphabetical listing of all the names involved with SENSE. We will also engage with the four Core Themes in a discussion process to determine whether ‘honour lists’ of ‘highly publishing members’—per discipline or Core Theme—are feasible and desirable. All lists can be linked to separate lists regarding the four Core Themes, the circa 12 Research Clusters, and the participating departments, institutes and universities, thus providing an easily searchable *Who’s Who* of the Dutch experts in the field of environmental science and studies. This listing will serve then also as an impartial entry-point for the outreach functions of SENSE, for instance for students, the media, government officials, or foreign researchers.

### **Activity 8: Increasing Communication within the SENSE School**

In addition, communication between the research groups can still be intensified, and we understand that much communication has been top down and has not sufficiently engaged all researchers within SENSE. We thus plan, in order to increase the visibility of SENSE and its programmes, to provide more information to research cluster co-ordinators, department heads, other research-management personnel, and all researchers, on a regular basis.

## **Outreach**

Apart from education and research co-ordination, we see the bridge function of SENSE as a major part of its future mission. In the current globalised research environment with an increasingly worldwide active research and student ‘market’, we believe that SENSE can play a major role in attracting the best and brightest talent to the Netherlands, and in communicating Dutch research findings internationally. In addition to the outreach activities, websites and newsletters of the participating research institutes in SENSE, we believe that a uni-

fied Dutch bridgehead is important *as a complement* to the individual marketing strategies of the institutes.

#### **Activity 9: Outreach within the Netherlands—Bridging Science and Society**

First, within the Netherlands, SENSE is the natural partner for VROM to assist the ministry in defining its research strategy, and to find appropriate partners. This link has been much strengthened in the past, and the current ‘competition’ on behalf of VROM to solicit the best new research ideas is a prime example. As the overarching, neutral network of all research departments in the field, SENSE can play a major role as a unified voice vis-à-vis Den Haag. Second, regarding NWO, SENSE could explore more ways to increase the quality of the review of multidisciplinary proposals, given that a key concern with NWO is its disciplinary orientation and organisation, which makes the evaluation of multidisciplinary projects and programmes difficult and possibly less favourable.

#### **Activity 10: Raising the International Visibility of Dutch Research**

We believe that there are probably few countries that are so active in participating, and in leading, international research and assessment programmes as the Netherlands, notably the projects under the Earth System Science Partnership and the Intergovernmental Panel on Climate Change. We believe that SENSE can play a role in further strengthening this internationally leading role of Dutch environmental research, and in assisting in the communication of the Dutch achievements to students and colleagues abroad.

First, one element is improved means of modern communication. For one, we plan to improve the communication of Dutch research and to increase visibility of Dutch findings through the SENSE website. We envisage a reformed SENSE website as an improved clearing-house on research projects in the Netherlands. We also consider reforming and internationalising the SENSE newsletter that currently presents mainly events and local news.

Second, we see a role for the SENSE School in co-ordinating and facilitating the participation of Dutch scientists in international research programmes. One way could be to better embed the SENSE research strategy in the network of the Earth System Science Partnership, for instance through focussing on ESSP joint projects on health, carbon, food, and water, and to better present Dutch research findings on each of these joint projects.

Third, a combination of improved external communication and international co-operation could be a focused effort of the SENSE School that leads to the initiation of an annual, publicly accessible report on Dutch environmental research. One possible structure for such a book series could be to focus each year on an important policy issue, analysed from a multidisciplinary perspective through contributions from different groups.