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# Green Teacher Award 2015



WAGENINGEN UNIVERSITY

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Wiek, Arnim, Lauren Withycombe, and Charles L. Redman. "Key competencies in sustainability: a reference framework for academic program development." *Sustainability Science* 6.2 (2011): 203-218.

Steiner, Gerald, and Alfred Posch. "Higher education for sustainability by means of transdisciplinary case studies: an innovative approach for solving complex, real-world problems." *Journal of Cleaner Production* 14.9 (2006): 877-890.

# Introduction



 Institutions of higher education play an important role in a societal transition towards sustainability. Teachers of these institutions are key actors in raising awareness for sustainability through their active engagement in research, teaching and outreach activities. Solving the interrelated complex problems human beings face in the 21st century requires system thinking and interdisciplinarity. Students need to be equipped with the required sustainable competences for dealing with the challenges of sustainability which await them ahead in the real world. Teachers thus deserve recognition for their hard work and dedication for making a difference in equipping students with sustainable competences.

As well as emphasizing the excellent works of teachers, the Green Teachers Award (GTA) is a valuable way of giving feedback on the positive academic experiences to improve the quality of teaching at Wageningen University. The 2015 GTA provides an opportunity to recognize and celebrate the many contributions teachers make to sustainability education and realizing the vision of "quality of life".

In this booklet you can find the ten interviews which Green Office Wageningen held with the selected Green Teachers of 2015. Since this is the start-up year, the candidates are selected based on recommendations within the Green Office network. Coming years we aim to combine GTA with the Teacher of the Year elections, these will then point out the nominees for the GTA.

The questions asked to each nominee are aimed to reveal the ways sustainability is put to practice. All interviews consist of three sets of questions; the first section intends to obtain a general introduction of the teacher. The second section emphasizes the skills applied during teaching to enhance the sustainability awareness of students. The third section is dedicated to the six competences which students should obtain (via education) to become actors for sustainability. These six competences are briefly explained below, based on Wiek et al. (2011) and Steiner et al. (2006).

<b>Systems-thinking competence</b>	<i>Capacity to analyse complex systems</i>
<b>Anticipatory competence</b>	<i>Analyse pictures of the future related to sustainability</i>
<b>Normative competence:</b>	<i>Map, specify, apply, reconcile and negotiate sustainability values, principles, goals and targets in current systems for creating a future vision.</i>
<b>Strategic competence</b>	<i>Implement interventions and governance strategies towards sustainability</i>
<b>Interpersonal competence</b>	<i>Motivate, enable and facilitate collaborative and participatory sustainability research and problem solving.</i>
<b>Transdisciplinary competence</b>	<i>Establish and enhance interaction between academics and practitioners in order to promote a mutual learning process between them.</i>



# Anouk Brack



Anouk Brack is working as a professional skills teacher under the Education and Competence Studies Group. In the same year as she graduated from her study Biology in Wageningen she started teaching at the WUR (2000). She helped setting up several MOS-modules, is an ACT coach and teaches guest lectures for the intuitive intelligence course, which she initiated.

At the beginning of her teaching career Brack followed teaching courses and to improve her skills further she followed various other relevant courses at later times. Regardless of this, she believes that her style of teaching is mostly formed due to her personality. Her classes consist of approx. 25 students. Lately, Brack is shifting more and more time away from teaching and towards her own company in 'process facilitation of sustainable development'.

For the interview Brack brought one of her students, Blair van Pelt. Van Pelt is one of the reasons that Brack is still active at the WUR. Together they examine the opportunities for a master program on entrepreneurial training. Most courses exist already, but they are not joined into one master program. Brack wonders: "Why is there no master for those that want to connect people, those that want to work in an interdisciplinary way". This could also become part of an existing master with themes such as entrepreneurship, facilitation, education and leadership. Brack believes that it would be a shame for Wageningen not to see this as an opportunity, due to the reputation of the WUR towards sustainability.



Brack is honored to be nominated and says she always tries to be sustainable. She believes her positive attitude, respect for everyone and some sense of humor are what make her a good teacher. She likes to motivate students to find, apply and improve their talents. What drives you, what lights your fire? What do you care about in the world? One of her example teachers is Wendy Palmer, she is always challenging you to be more compassionate, Brack uses this now and teaches it to her students.



After hearing about the competences which students should obtain to become active actor for sustainability, Brack points to system thinking. There is more than just a scientific approach. In order to understand what is going on an overview of the whole system is needed. Although she encourages students to create a vision for a sustainable future, she leaves them free in how to do so. She helps students to reconnect or connect further to their own drive, motivating them to pursue their own passion.

She believes that students already get enough opportunities to assess the current situation of social and natural systems and instead lets them focus on where to start, she emphasizes where they are standing now. She lets them envision where they want to be and how to get there. In her eyes everyone can be a leader, a contributor. Leadership, communication and embodiment are instruments to be more daring, more confident. There is more than just meetings, she wants to show students what other ways there are to reach their goals.

When asked what improvements she would like to introduce to her lectures and ways of teaching she mentions that she would like to take a step back if there are other people that can do something who are younger than she is. She believes you should not guard your spot, but try to move up to create space and opportunities for younger and less experienced people.



# Simon Bush



 Dr. SR. (Simon) Bush is associate professor at the Environmental Policy Group (ENP). In his career, he studied marine ecology and got an honours degree in geography. He has a Phd in environmental geography.

In 2005 Bush started teaching at the WUR and he has been doing so for the last 10 years. He mentioned that he developed his teaching skills just by doing and by copying other teachers. Bush teaches the following courses: Environment and Development (ENP-33306), Environmental Quality and Governance (ENP-35806), Social Perspectives on Environmental Change (ENP-32806) and Oceans and Coastal Governance (ENP-52806).

Additionally, he has several other responsibilities amongst which are supervising MSc and Phds students, his own research and experiments on fisheries and aquaculture. Previously, he has been on the committee for MAM Master and he has given several lectures for study associations.



His reaction to being nominated: "Excited! Really nice, a specific angle. What is this, what is the story behind the GTA? I was very curious". His greatest strength is to make every student feel like they are being spoken to individually. "I acknowledge everyone and it often works. I want to talk to individuals, not a group of faces, this way you can feel the audience. How you tell a story is almost more important than what you are telling. Inspire people to join, say stupid or funny things, anything to get the attention of people." Depending on group size he uses different skills to reach his audience. It is much more difficult to reach all students with larger groups. "I try not to introduce my view on things in courses, and focus on passing on knowledge. Try to make it their personal life, put them in a situation. "suppose you were here, what would you do?". I also use the experience of students as examples, often foreign students have very interesting backgrounds (e.g. worked for NGO's, etc.)."

Inspire students with your passion, interests. If they can see your enthusiasm, I hope they get inspired as well. Support your enthusiasm with scientific examples, so they can see where it comes from and how it can be used. Motivate them through individual research, field trips, sent them out into the world, instead of having only theoretical cases in the university.

Make students question information. "If a group is eager, I will take them deep. If they are struggling with the basics, I might not go in depth. I will not give them my latest papers. When students are working on cases/independent research paper, current research is expected to be used, depending on relevance. Interdisciplinarity is often a challenge, since knowledge amongst students differs per individual."



According to Simon the most important one is anticipatory, because it embodies most of the others. "They are all important. Learn to anticipate on people and environment. Learn to see from different perspectives." He often teaches students to be critical towards systems-thinking. It is important to understand that social aspects in systems don't always fit in. What forms of social organisation exist around decisions made in complex systems/problems. There is often little consensus over what constitutes the problem/who decides what the problem is/etc.. System thinking and social aspects sometimes do not go together. You have to learn to see limitations and possibilities.

From social science perspective: how do you anticipate the positions people take in a debate over an environmental case. Not through scenarios, you have to let students envision how the future should be. Learn to reflect on your norms and those of others. If you can do so, you can understand what is going on and anticipate on what will be. It is important for students to understand the importance of interdisciplinarity required to solve sustainability issues, to put them in a role that they are not used to be in. Let them play out simulations according to new norms and values (e.g. a pro-GMO student takes on the role of a Greenpeace activist). WUR is very nice in the sense that it is very interdisciplinary, you can have many different kinds of students in almost every course. WUR students are able to take different perspectives, which is a very strong point.



# Edith Lammerts



 Edith Lammerts van Bueren, professor of Organic Plant Breeding, endowed chair at Wageningen University, is known for her contributions to the field of organic plant breeding and her participation in the societal debates about Genetically Modified Organisms. Her course Organic Plant Breeding and Seed Production (PBR-90303) has many times been on the list of the top 10 courses in the university due to the good perception that students have on the methodologies, the contribution to the learning process and inspiration they get from the course.

"I'm very honoured," says Lammerts, when she was told that she was nominated. "I wonder what the criteria are. Teaching organic agriculture is quite green so hopefully other teachers with less organic-minded topics can also be nominated". This is certainly the case, because a green teacher has also an important role inspiring students to develop sustainable thinking and this is what she has been doing since 2005 at Wageningen University.

Lammerts was inspired by Henk Verhoog from Leiden University in Bioethics who is also involved in the polemic GM discussion. "People make different choices in their life," says Lammerts, "in the scientific field you can debate and disagree, but still you can respect each other as brothers and sisters in science," she argues that any discussion only makes sense when there is mutual respect, "I have a more generalist background," claims Lammerts "It helps to clarify the debate when one makes his/her moral attitude e.g. with respect to man-nature relationship as point of departure in the research more explicit, so people can understand why you have a specific opinion".



An important part of Lammerts' course is an excursion to organic seed and breeding companies and regularly visit the Wageningen fields with a lot of trials. Lammerts thinks this very important, since "many plant science students have hardly field experience." In the assignments, students must pick up a subject and discuss papers with different approaches and how the outcomes differ from what they hypothesised. The idea is that they broaden their view without judging what is good or wrong, taking into account the context. "My course is very much problem-oriented," she says, dilemmas such as the commercial feasibility for small areas, integration of organic and conventional selection fields in the breeding program, and its pros and cons are studied in her courses. She also invites guest speakers to her lectures, not only scientists, but also conventional breeding professionals addressing traits of interest for organic varieties. Lammerts thinks that personal stories are very convincing and show how it works within a company. These activities give students an idea of how to deal with real world situations and relationships.

But how to inspire students? "My own passion, enthusiasm" states Lammerts, "I go to the field and connect with farmers regularly in my work because I can't think of new topics if I don't. I am the Organic Potato Breeding Program Coordinator, but allow me to be involved in the crossing and field selection each year, so that you can teach from your own experiences and examples. I like interactive teaching, to be connected with students and to answer their questions." She also integrates current developments by bringing questions from the field into the fundamental research, "Students should be able to speak both languages: of social and natural science"



When it comes to establish the competencies for sustainability professionals, Lammerts teaches system thinking in her courses, she considers that as the most important because it offers people the capacity to analyse complex problems. On the other hand, she thinks that reductionism is not bad as such, but people have to relate the outcomes back to the context where the question came from, "a holistic approach does not exclude reductionist steps" states Lammerts.

Regarding anticipatory competences, Lammerts argues that her course offers future-oriented knowledge to students because it is related to the topic. "I show alternatives, trade-offs and how to overcome obstacles", she says. In this aspect, she does not think that science is neutral; scientists should show politicians the options and the possible consequences of potential choices, but politicians have to make the choices.

Lammerts argues that organic agriculture is not simply banning chemical or GM treatments; considering the normative competence "You have to compensate those products because there are some problems that must be solved", she says, "If you want to refrain from herbicides one has to design a smart crop rotation to manage weeds and breed for varieties with more weed competitiveness covering the soil at an early stage". "I also debate about the intellectual property problems with respect to farmer's rights and breeder's rights, the patents and their consequences. I want to show how it is related", says Lammerts.

Skills like communication, negotiation, leadership and empathy to solve sustainability problems are addressed by Lammerts in her courses by being a role model, she teaches students how to deal with real life issues. "A student from Iran once asked me: how can I be like you" she says, "I told her to be patient and to do the things organically, step by step and see how life goes while keeping your objective in mind. People have to make choices and to have courage." "Older wise", she says "I have not much to lose, I like to share my experience."



# Rik Leemans



Prof. dr. HBJ (Rik) Leemans is the chair of the environmental systems analysis group (ESA). He started working at Wageningen University 12 years ago. Currently he is co-responsible for the courses introduction to global change (ESA-23306) and environmental system analysis (ESA-22806), and he aims to give guest lectures in all the courses that are given in his chair group. Education-wise, his main responsibility is supervising PhD-students. Leemans did not take any special teaching courses. He mentions that he learns most from the feedback from students during the lectures and he is already giving 'guest' lectures for about 30 years now. He emphasizes to us that professors should be seen! They are the beacon of the studies. As the chair of the group he reads all the MSc and PhD theses. He is not committed to extra activities, but this is mainly because being the chair of a group already comes with many 'extra activities', such as actively engaging with the education committee of Environmental Sciences.

Leemans' research focuses on ecosystems, biodiversity and emphasizes resilience, vulnerability and sustainability. Next to teaching, he actively participates the UN-Panels on Climate Change (IPCC) and biodiversity (IPBES), and in ICSU/ISSCs international interdisciplinary global-change research programmes. Next to this he is editor-in-chief of Current Opinion in Environmental Sustainability.



Asked about his opinion on being nominated for the Green Teacher Award Leemans answers "It is great, it is an honour". "I moved to Bennekom, to be able to come by bicycle to work! Also, I live in a wooden house with solar panels. However, I travel a lot". Leemans has met with many world experts on climate issues in the different committees he attended. Often he recognizes the help of others only afterwards, and therefore he does not have one teacher who inspired him. Two persons he mentions as inspiring teachers are the teacher who asked him to come along to Sweden and Martin Kropff.

Leemans sees his expertise, knowledge and enthusiastic presentation skills as his greatest strength as a lecturer. He always uses timely material in his lectures, because climate reports are constantly reviewed. Furthermore he pushes very much that students write as many essays as possible and review each other's essays. They learn many different skills by doing that. Leemans focuses a lot of attention on critical thinking and forming a balanced view, he is allergic to ill-founded myths. He indicates the European Workshop (ESA-60312) as a very good example of a course where students learn all types of knowledge and skills.



When we asked Leemans if he was aware of the competences he answers " Yes, definitely!" All the competences we named were important to his opinion. The most important to him is communication, reflection and daring to ask about 'concept interpretation'. Make an integrative framework from the start, create a common framework. Students learn this by joining the European Workshop-course or similar things.

Leemans encourages students to analyse complex systems by simplifying them. Make cause and effect chains and analyse the current status , the final goal and how we want to get there from different perspectives. He thinks the way is much more important than the finish and the shortest way is not per se the way to go.



# Albert van der Padt



Albert van der Padt, endowed professor of Sustainable Production of Food (FPE) started his career at Wageningen University with both a study and a PhD on food technology. Since he returned to Wageningen University he started teaching again and since this year he teaches and manages the course Sustainability in Food Chains (FPE-31806). The number of students in this course increases yearly. Next to supervising several PhD-students, van der Padt works for FrieslandCampina.

During didactics courses Albert learned the importance of giving real-life examples to keep the audience interested. Also, his physics teacher, whom he sees as a great example, put this into practice by talking in terms "1.4% NaCl, to say vegetable soup without noodles". Currently Van der Padt tries practice this himself.

His aim is to get brains working by encouraging students to continually think; *what does it mean*; 'meat is bad' or is 'local really better'? You will only really know by calculations. He wants to make students aware of our personal impact along the chain. Besides, he emphasizes that business models should be changed in order to not only use proteins, lipases and salt for food products.



He is very surprised about his nomination for the Green Teachers Award after only one year of teaching. Though he mentions he also got a lot of energy from giving these lectures because of the enthusiastic students. He believes this is due to **the way he teaches, which is to stay close to yourself and to tell many examples to illustrate situations.** But he is open to suggestions to improve his teaching.

On the question what he would like to change of his own behaviour his answer is that e.g. he put on the Blackboard discussion board to take only one piece of chocolate instead of four, "because of the huge water footprint." But, he emphasizes, **we should still enjoy the daily pleasures while taking care of the environment.** In the FPE-course issues about society, politics and economics are well represented, as is the use of water, "but energy use should not be such a big problem, since there is enough sun." He brings forward that we should apply more biomimics in order to resolve the resource problem.

We asked if he stimulates innovative ideas in students, which he encourages with the help of the "yoghurt project" in his course. Students have to design a sustainable dessert. This way he hopes to encourage students to come up with innovative ideas.



After reading the competences to Van der Padt, he mentions that systems-thinking is the main message of the whole course. He hopes that students apply this message in their lives.

The future-oriented (anticipatory) competence comes forward during the future energy supply question about solar energy but this is not a main aim of the course. The normative competence is more embedded in the course, indicators are mentioned which point out the sustainability of several aspects. Students are asked to think and calculate with these indicators. For the strategic competence Van der Padt's reaction is that it is not part of the course, but "if everybody has sustainable goals, there is no need to tell the bosses anymore!"

Interdisciplinarity however, is a large part of the course. The logistics chair group and two food science groups provide lecturers to show students all important aspects of food sustainability. By the presentation of their yoghurt products interdisciplinarity is enhanced, as it is when the question is raised if they would start up the production of their product if they would have two million euros at their disposal. Here the entrepreneurship is touched upon. Transdisciplinarity comes forward by the guest lectures of FrieslandCampina and Nizo. Van der Padt could give these lectures himself but he prefers to introduce students to others from the field.

After we spoke about all the competences with Van der Padt we asked him how he would improve his lectures in the future. He already implicitly tries to develop these competences, but with drawing more attention to it, this can be improved. Further he mentions he would like to continue in the way he is doing now, **"stay close to yourself by telling examples, this makes you more passionate about it and it is a good way to share your own vision."**



# Stefano Pascucci



 Originally from Naples, Italy, Stefano Pascucci has been engaged with Wageningen for quite some years, starting in 2003 as a PhD student at the WUR. His professional career started in 2009 at the Management studies chair group (MST). Topics of his interest are institutional analysis of land use, farmers (inter)action in their own context, regulations and norms within cultures, agricultural economics and rural politics and agri-food value chains. Stefano is currently coordinating the courses 'Closed-Cycle Design' and 'Technology, Innovation and Strategy' and he gives lectures in 'Institutional economics and Economic Organisation Theory', 'Organization of Agribusiness' and 'Environmental Management and Industry'.

Stefano started his teaching career in Italy with groups of approximately 400 students. In Wageningen he took courses to improve his teaching and he talked about it with colleagues. Step by step he developed his teaching skills. Although his groups range between 60 and 200 students, it is still most challenging for him to reach large groups. Besides his educational tasks, Stefano is education coordinator and engaged in all kinds of meetings about education.



'Fascinating, interesting,' answers Stefano when asked about his nomination for the Green Teacher award. Although he does not see himself as a 'green guy', he does like to engage in discussions about sustainability. To him it is not an ideology, but he sees it as acting 'normal' to analyse the trade-offs that come along with your behaviour. He uses many examples from daily life in his teaching. A teacher who inspired him on many levels was Ljiljana Rodic-Wiersma, a strong woman who taught him about closed cycle design, how to use energizers (small exercises), how to deal with students, and to feel free to be the way you are.

His greatest strengths as a teacher are his abilities to 'feel' people and the atmosphere in a classroom and use this to guide his lectures. Besides using the standard course materials like books, readers and articles, Pascucci is very keen on using visuals and games such as role play. When asked about the best method to inspire students, he emphasized the importance of developing a 'sustainable' mindset, mobilizing ideas, moving students out of their comfort zone and creating a critical approach. "Be aware of the consequences of your actions, take responsibilities, never judge."



To Stefano the most important competence is 'Systems-thinking'. "Politicians and society have the tendency to simplify reality, therefore, researchers should not over-simplify things." He likes to find structure in complexity. "Complexity is one dimension, the interrelation that actions have is another dimension. Nothing is in isolation, everyone should be aware of consequences and start from that point". Another competence he considers important is being able to work with closed cycle designs. Many skills come along by working with this model. Students analyse the institutionalisation of beliefs/norms in society, and they learn to assess social and natural systems and their relations.

He encourages long and complex debates on how to solve sustainability issues wherein he devotes much attention to the roles of different disciplines. "No discipline can claim superiority. Every person should enter interdisciplinary work with disciplinary background (something you are good at) and acknowledge that others can always enrich your life". He considers it very important that teachers teach students about 'the rules of engagement'. Especially in group work, the teacher has to facilitate the set-up of those rules.

Pascucci believes it to be extremely important to share experiences of transdisciplinary work, also of persons/organisations with other believes. He would, for example, engage with the CEO of Monsanto, on something related to their activities, not ideology-wise, but content-wise and try to prove elements contradictory to each other. Share the insights with students, let them exercise in critical thinking.

Stefano would like to see a stronger sense of community amongst students and teachers in Wageningen. "In order to construct a more sustainable future it is important that more attention is paid to political consequences of our actions/thoughts. When something bad happens, a community should be able to rely on its beliefs and principles. To encourage this, courses about sustainability in a community within a critical mass should be embedded."



# Maarten Schutyser



Maarten Schutyser is nominated as a Green Teacher because he inspires students by sharing examples of sustainable behaviour in his own life. We were curious about the man who catches the cold water from the tap that normally gets spilled waiting for the hot water.

After his studies (Bioprocess Technology, WU) and his PhD on Solid State Fermentation Schutyser worked a couple of years at Akzo Nobel and NIZO food research. In September 2008 he started at the Laboratory of Food Process Engineering as Assistant Professor. He developed the course Sustainability in Food Chains (FPE-31806), teaches Food Engineering (FPE-20306), Food Fermentation (FHM-21806) and the Product and Process Design course (FQD-60312), which is the final course for Msc food technology students.

Teaching he learned simply by doing, but also he completed the University Teaching Qualification (BKO, Basis Kwalificatie Onderwijs). Besides teaching he is involved in research on dry food processing and he chairs the Dutch Working Group on Drying (NWGD), which is the network of drying experts in the Netherlands.



Schutyser is honoured for being nominated for the Green Teachers Award. He assumes the course Sustainability in Food Chains he developed is the reason for his nomination. He is inspired by for example the developers of the Cradle to Cradle principle, Braungart and McDonough, but he also mentions his colleagues of Food Process Engineering with whom he has frequent discussions on sustainability in the food domain.

If we ask about *his greatest strength as a green teacher he thinks it is his creativity in designing new attractive assignments, which stimulate students to think critically about making choices to improve sustainability of our food chain.*

When it comes to motivating students he believes it is important to let students work in a team for example on a challenging design task. During his lectures on sustainability he frequently makes use of examples from his daily life and his previous industrial experience. Preferably, he lets students make calculations to compare different food (processing) chains on sustainability criteria. Such calculations provide a more objective basis to organize our food chain in an efficient way.



Schutyser concludes that in relation to sustainability the competence systems thinking is the most important one. *“To increase the sustainability of the food chain one needs to consider all steps in the food chain and not just optimize an arbitrary single step.”*

During course assignment this competence is addressed by checking system boundaries and making systematic calculations. He challenges students to think how to develop a sustainable food chain on a new planet earth and discusses new approaches to avoid for example addition of water in the chain to reduce overall energy consumption.

Also, discussions are held on what the Cradle to Cradle concept could mean for more efficient organization of the food chain. Finally, working with challenging design assignments with involvement of a real company is very stimulating for students and also increases their experience with team work.



# Arnold van Vliet



 Arnold van Vliet is a professor at the Environmental Systems Analysis (ESA) chairgroup. He graduated in biology at Wageningen University in 1996 and remained connected with Wageningen UR ever since. During his MSc Biology Van Vliet got interested in 'global future exploration' related to yearly recurring events, phenology, in particular on biodiversity.

Van Vliet coordinates the courses *Principles of environmental sciences* (ESA-20806) and *Milieuwetenschappen en maatschappij* (ESA-10309). Next to that, he gives guest lectures of different kind. Some are related to his professorship in environmental systems analysis and others are intended to teach life science to communication scientists. Van Vliet considers his ability to communicate effectively with diverse audience as his strongest point! Van Vliet followed basic teaching courses in the start of his teaching career.

During lectures he makes use of electronic voting devices to maximize the interaction with the audience. He states that it is very handy for two reasons; (1) it is an easy way to explore the level of knowledge of a group of students, adapt your lecture on this, and (2) everybody feels involved. And it increases the awareness of the diversity amongst students. Van Vliet finds it important that students become very aware of diversity in a broad sense of the word, also referring to sustainability this may be a crucial skill.



Van Vliet says it is motivating to him that he is nominated for the Green Teacher Award. The his example teacher was next to being teacher also a tv presenter, this gained interest amongst students. In class it proved to be an intriguing combination. **Van Vliet recalls as his greatest strength as a lecturer to be able to transfer passion. Also he emphasizes to students that individual persons are able to reach high goals, motivates students that they are able to make a change themselves! He believes that active communication is key for implementation.** Furthermore, Arnold uses examples of daily life in his teaching. Think of examples as buying organic meat. Concerning motivating students to have a sustainable behaviour Van Vliet indicates working with case studies as an important teaching tool and also the importance of social publication to increase the interaction between scientists and the public.

Van Vliet initiated the 'Natuurkalender' (nature calendar) to contribute to broadening what he calls 'citizen science'. **He wants to make environmental pollution more visible and ultimately make citizens more aware of ways to reduce the pollution that we process all together.** Following the principles of the 'Natuurkalender', Van Vliet Arnold started the 'Allergieradar' (Allergy radar) and 'Tekenradar' (Tick radar) in the Netherlands and he is working on creating a global 'Natuurkalender'.



Arnold is aware of the key competences for sustainability and he believes that all are very important. If he has to choose one that he finds most important it is system thinking. He claims that once you are able to see the complete picture, you are able to derive a lot of strength from it. In his teaching he looks upon problems from many different angles, thereby he always emphasizes the importance of gaining an understanding of natural and social systems. The students have to comprehend both and preferably make connections between them.

**In order to make students capable of solving sustainability problems Van Vliet emphasizes in his teaching the importance of communication versus implementation and its effects.** The aim of Van Vliet is that science will be introduced much more into the domain of 'news'. This needs a complete shift in focus.



# Bas van Vliet



 Bas van Vliet is teacher at the Environmental Policy Group (ENP) where he coordinates the Bsc course 'Sustainability Transitions: Concepts, issues and indicators' (ENP-23806) and the Msc course 'Sustainable Technology Development' (ENP-37803/38). Furthermore he is involved and teaching in the European Workshop (ESA-60312). He is known for his contributions in the fields of sustainability and policy with his background in Environmental Sociology.

"When I first heard about my nomination, I was wondering why (me)?," said van Vliet, "All my colleagues at ENP teach sustainability topics." However, a green teacher has an important role inspiring students to develop sustainable thinking and this is where he excels in.

A teacher who in particular inspired Van Vliet was Gert Spaargaren, who started the Environmental Sociology Group at Wageningen University. Van Vliet got firstly inspired by Spaargaren when he was a student environmental science and followed Spaargarens courses in social theory. A couple of years later he got very inspired by Spaargaren when the latter took the role as Van Vliets promoter in his PhD project on greening of water and energy infrastructures.



Van Vliet explains that he uses a practice oriented approach in his Bsc course. He addresses historical and probable future developments (of water and energy systems) next to the contemporary policies and innovations around these systems. Also, he focuses on improving students scientific writing skills and does the course include an field excursion. In the Msc course, **Van Vliet addresses the social construction of technology and shows that sustainable technology development (STD) is an inherently social process.** He draws upon many examples of STD and he encourages his students to think “out of the box” for instance in utilizing a back-casting methodology. This method starts with the definition of a desirable future and then works backwards to identify the way to connect the future to the present.

“For me the best teaching experience is the European Workshop”, says van Vliet. In this course, he encourages students to take ownership over the project, therewith he encourages creative thinking and multi-disciplinary collaboration. He inspires students to have a more sustainable life-style by giving real-life examples and by integrating current developments from his field of research in his courses. “I like to work with small groups of people, it enhances a better conversation, and I like brainstorming with students” argues Van Vliet.

Additionally to teaching, Van Vliet does research together with PhD students on various topics such as energy, building and urban environmental governance. Also is he highly involved in research and curriculum development on metropolitan solutions at the AMS institute in Amsterdam together with colleagues from the universities of Delft and Wageningen.



Reflecting upon the competencies for sustainability, Van Vliet indicates that students should first gain a generalist understanding of sustainability issues. Eventually they should also build a disciplinary profile, with this he means focusing on knowledge on social- or natural sciences, to be applied to different fields. He emphasizes that students should specialize in a perspective, they shouldn't stay generalists. For him multidisciplinary in groups is very important. **“Critical-analytical thinking is what I want to encourage in students,” says Van Vliet “facts and a proper analysis are much more convincing than just preaching ideals.”**

Van Vliet devotes in particular attention to the strategic competence in his teaching. He teaches his students how to implement strategies to enable transitions towards sustainable development by reflecting on the importance of societal factors. Especially he refers to the influence of society in sustainability “society is not just an external factor that must be changed before the innovation works but is highly interwoven with the process.”

Within the European Workshop he teaches students about the interpersonal competence, the interdisciplinarity required to solve sustainability issues and about transdisciplinarity because the projects are executed for real clients and include the participation of different societal stakeholders

In closing, he stated that teaching in sustainability should be adaptive to the topics and challenges that we see emerging in the future. **“The main pitfall is that you only use your current beliefs and understandings as the basis for envisioning the future. One thing we know for sure is that such particular vision will not become reality in any foreseeable future.”** concludes Van Vliet.



# Grietje Zeeman



 Grietje Zeeman is personal professor 'New Sanitation' at the Environmental Technology sub-department. During her study at Wageningen University she grew an interest in the anaerobic treatment. After working at a drinking water company for one year, she started research on this topic, which resulted in the PhD thesis "Mesophilic and Psychrophilic digestion" of animal manure . She is working at Wageningen University from 1980 and started teaching several years later. Since 2000 she has been mainly working on 'new sanitation', meaning the recovery and reuse of raw materials from domestic waste and waste water.

Zeeman is leader of the courses: Principles of urban environmental management (ETE-22806) and Global water cycle (XWT-20805). And she teaches in several other courses. She is also active in the Education commission of the department and she is chairman of the program committee for BMW, MES and MUEM.

About her teaching skills she mentions that she slowly rolled into her current manners. Increasingly she asks questions to students and she really tries to make them aware of the bigger picture, and to make connections with other fields. She tries to make students aware of their own situation, for example how much waste and wastewater do they produce and what is the concentration of these streams. Latter is important for becoming aware of the possibilities of recovery and reuse of resources.

 Zeeman thinks it is "Great!" and "a bit of a surprise" that she is nominated as green teacher. She names Lettinga, an authority in her field, as a teacher who inspired her. He was her supervisor for Msc and Phd and afterwards worked with him for a long time. He used a lot of examples from research and practice into teaching and Zeeman does the same. **Combining practice with theory is what she indicates as her greatest strength:** "make it more alive for students". During the interview, we found out that she really practices what she preaches! In her own house Zeeman has an UASB (Upflow Anaerobic Sludge Bed)-septic tank to treat the own black (toilet) water. The Black water is collected with vacuum toilets only using 1 liter of water per flush. The gas that is produced is currently used as energy for a street light, it could also be used for cooking.

**Zeeman emphasizes the importance of 'experience' in her field "students have to experience, see, feel, smell, besides learning the theory.** Zeeman is very much focused on innovation. The past decade she has been highly involved in the development of concepts and technologies for recovery of resources from source separated domestic waste(water) streams, which is currently put into practice at 3 locations in the Netherlands, in a newly built neighborhood of 250 houses in the Dutch city Sneek, in the NIOO building in Wageningen and in an office building, Villa Flora, in Venlo. Considering educational innovation, she was involved in the improvement of the course Principles of Urban Environmental Management. .

 Zeeman is aware of the student key competences . Answering which is the most important to her she says "System-thinking is very important, to take as much as possible into account and to be able to think from different perspective / fields". She encourages students to become curious about things they have not thought about before. For example, where does toilet water come from and where does it go? Looking at the anticipatory competence, she tries to show her students current research of her group and let them work on designing systems. She tries to motivate students to be part of closing the cycles!

Zeeman mentions that case studies make students aware that technologies and concepts that are developed should be implemented. She is a big fan of application oriented research! "Let students also think about future challenges. Not only the technology itself is important, transitions should be developed too; very import for 'new sanitation'! Think also about social / economic / policy aspects".

The last thing that is very important for her as a teacher is to facilitate group work, like implemented within the European workshop, and to facilitate interpersonal interactions. We have so many students from different cultures, we should learn from each other".

Burandt, Simon, and Matthias Barth. "Learning settings to face climate change." *Journal of Cleaner Production* 18.7 (2010): 659-665.

# Closing words



Ten inspiring teachers were interviewed to discover what skills and qualities are required to carry out education for sustainability. According to Burandt and Barth (2010, p660) the main goal of education for sustainability is to “allow for an active, reflective cooperation and participation in the obligation to contribute to sustainable development”. It turned out already many interesting examples and methods are present at Wageningen University and although the interviewed teachers cover a wide range of disciplines, teaching methods used are often similar.

All interviewed teachers indicated teaching with passion and enthusiasm towards their discipline as their main strength. “The teacher is the actor to convince the audience”, according to Simon Bush. Students clearly have a sense for it, it stirs up their own enthusiasm and their commitment. It was generally agreed that teachers should constantly try to inspire students, to encourage and develop their own vision, while being aware of the consequences of their choices.

Many teachers mentioned that they use examples from daily life to make their story more approachable and to create a clear image for students. It was emphasized several times that students should feel they are spoken to as individuals. Besides being inspiring, Green Teachers create more platforms for studying than theoretical learning and presentations in front of a class. Examples are roleplay in class, discussion forums on Blackboard, excursions to experience the topic and many guest lectures.

The six competences (see introduction) we asked them about were considered very important to each teacher, with systems-thinking as the most important one, because it sets the discipline or topic into perspective to the rest of the chain and it creates awareness to students of the complexity of the topic related to actual systems. Simon Bush even emphasized to look beyond the prevailing system.

The normative competence (about the current state to create a future vision) and the anticipatory competence (future situations) are closely linked together. Many teachers actively check current practices together with students by calculations, groupwork and/or cases. This creates awareness of realistic future opportunities.

The strategic competence is implemented in many disciplines, however some are more suitable to apply than others. Good examples are found in social sciences, which usually have a constant focus on implementation of sustainable development.

The interpersonal competence is also one of the favourites: many interactions among students, teachers, chair groups and outside the university are facilitated, and International and interdisciplinary teams are formed among students. Transdisciplinarity is closely related and is also covered by many teachers, by inviting guest lecturers from companies and governments.

Hopefully this research can inspire other teachers and students to seek education for sustainability!

*"Our biggest challenge in this new century  
is to take an idea that seems abstract  
– sustainable development –  
and turn it into a reality for all the world's people."*

KOFI ANNAN,  
Secretary General of the United Nations

