Landscape Architecture Group

2012 - 2013
A record of the activities of the Landscape Architecture Group from Wageningen UR from July 2012 to December 2013

WAGENINGEN UNIVERSITY
WAGENINGEN UR

Other items

Education

PhD Research

Research

This booklet describes the teaching, research and other activities of Wageningen University's Landscape Architecture Group from summer 2012 until the end of 2013. We are proud of the achievements and wider services to society we have made during this period. In retrospect, those eighteen months have been important ones for us. Not only have we reaped the rewards (publications, graduated students and contributions to professional practice) of the seeds sown in previous years, but we were also able to sow new seeds in the form of new research projects and new members of staff.

Our mission is to understand the present and future challenges, both local and global, facing the landscape in the Netherlands and abroad, and to contribute to finding solutions to these challenges through landscape architecture and urban design. These challenges include climate change, the transition to renewable energy, food security, water management, sustainable development, enhancing ecosystem services, preserving biodiversity, and urbanisation. We believe it is essential to base design interventions on the results of sound research into the nature of these challenges, and so we educate and train our students to become thoughtful, responsive and well-equipped researchers and practitioners. Our core competence is recognising and analysing the various scales of complexity and dynamics in landscape systems and proposing meaningful and imaginative design solutions.

On behalf of all of us in the Landscape Architecture Group I hope you enjoy reading about our work and feel the inspiration that guides us.

Professor
Adri van den Brink

Cover photo by R. van Etteger.
All photos on these pages by staff members.

Highlights


(Rebecca Leaman CC Flickr)

Over the past eighteen months the Landscape Architecture Group (LAG) at Wageningen University has made major contributions to the theory and practice of landscape architecture and to promoting its value to society. In this section we highlight some of the accomplishments of our staff and students.

Significant contributions to landscape architecture research
Sven Stremke (LAG) and Andy van den Dobbelsteen (TU Delft) edited the book *Sustainable Energy Landscapes: Designing, Planning and Development*, which was published in early 2013. This book presents the state of the art in the exciting new field of sustainable energy landscapes and has received very positive reviews. Sanda Lenzholzer's book *Het weer in de stad, hoe ontwerp het stadsklimaat bepaalt* [The Weather in the City: How Design Determines the Urban Climate] was published in November 2013. This book is primarily for professionals and students and is based on the urban microclimate design research conducted in the Group in recent years. Pierre Bélanger (Harvard Graduate School of Design) was awarded his PhD in May 2013 for his exceptional thesis *Landscape Infrastructure, Urbanism Beyond Engineering* under the supervision of Jusuck Koh. Our group also published an analysis of the entries for the 9th Eo Weijers regional design competition as well as several articles in key peer-reviewed journals in our field on a variety of topics, such as climate-responsive landscape architecture, design education, research by design, phytoremediative urban design, landscape machines and strategies for enhancing landscape architecture research.

Awards to staff and students for their design work
In 2012 Diedrich Bruns, president of the European Council of Landscape Architecture Schools (ECLAS), presented Emeritus Professor Meto J. Vroom with the *ECLAS Lifetime Achievement Award*. Meto Vroom was chair of the Landscape Architecture Group in Wageningen from 1966 until 1989. ECLAS honoured him for his contribution to education and research in the field of landscape architecture at the European level. Adriaan van Haaften was presented with the *ECLAS Outstanding Educator Award 2013*. He was honoured for his excellence as a teacher of drawing and visualisation, to which he has made an original contribution, including a set of drawing rules expressed in a drawing language. Wiebke Klemm participated in a design team led by OKRA that won the prestigious design competition *Rethink Athens – Towards a New City Centre*. The team presented a plan called *One Step Beyond* that proposes a green framework of vegetation and urban spaces in Athens. It brings together contemporary ideas on climate control in cities, changing transportation nodes and activating the public realm, and takes them further than in many other European cities.

Dissertation of Pierre Bélanger


Award M. Vroom
(photo from the ECLAS website)


Award A. van Haaften
(photo by A.Noordman)


Africa Thesis Award Roxanne and Esther

Students Esther Bergstra and Roxanne Hornman won the *Africa Thesis Award 2013* for their MSc thesis *Cyclone Resilient Landscape: The Case of Vatomandry, Madagascar*. They proposed a landscape-based design approach to improve the resilience of the landscape and its people. They also received the 2nd prize for their entry to the *3D Poster Competition* at the Digital Landscape Architecture 2013 Conference at Anhalt University of Applied Sciences, Germany. *The Folkert Hellinga MSc Award 2012* was presented to René van Seumeren and Gerjanne Brink for their thesis *Revitalising Zeeuws-Vlaanderen: A Landscape Design Experiment for the Shrinking and Climate Sensitive Region of Zeeuws-Vlaanderen*. In their thesis they took the vulnerabilities of the region (population shrinkage, climate change) as a starting point for an optimistic vision for the future.

Media attention for our research
Sanda Lenzholzer was interviewed by several newspapers and journals about her book on urban microclimate design. She also appeared in the *For a Better City Climate* video on the Kennis voor Klimaat [Knowledge for Climate] channel on YouTube, showing how cities and their inhabitants can adapt to climate change. Wiebke Klemm was filmed by RTV Utrecht during her microclimate measurements in the city as part of her PhD research. Staff members launched two blogs: *NRGlab, the laboratory on sustainable energy landscapes* (see p.8) initiated by Sven Stremke and Renée de Waal, and *Landscape Machines – Design Laboratory* (see p.9), founded by Paul Roncken, which is about designing and conceptualising living landscapes with productive qualities. These blogs are our online platforms for sharing knowledge and experiences and informing people about future research, design and teaching projects on these topics.

Appointment of special professor
On 1 September 2012 the Board of Wageningen University appointed Adriaan Geuze professor by special appointment in landscape architecture. Adriaan is director of West 8, an urban design and landscape architecture practice.

Professor emeritus
On 30 May 2013 Jusuck Koh gave his farewell address, *On a Landscape Approach to Design, an Eco-Poetic Interpretation of Landscape*, on the occasion of his retirement as professor of landscape architecture.


Folkert Hellinga Award René and Gerjanne

In the World

External memberships

(Ace Alejandre CC Flickr)

Adri van den Brink is founder and coordinator of the Landscape Architecture and Spatial Planning (LASP) thematic network of the Euroleague for Life Sciences (ELLS), a network of leading universities cooperating in the life sciences, including natural resource management and environmental sciences. LASP aims to develop the international dimension of landscape design and planning education and research by organising student summer schools and PhD seminars. Collaborating partners are the University of Natural Resources and Life Sciences in Vienna, the University of Copenhagen's Faculty of Science, the Swedish University of Agricultural Sciences, the Czech University of Life Sciences in Prague, Warsaw University of Life Sciences, the University of Kassel, the Estonian University of Life Sciences and Wageningen University.

Adri is a board member of the Dutch Schools of Landscape Architecture (DSL) and a deputy member of the Netherlands Geodetic Commission of the Royal Netherlands Academy of Arts and Sciences (from 1 January 2014 the Netherlands Centre for Geodesy and Geo Information). He is also a member of the Advisory Committee on Spatial Development of the Province of Noord-Holland, and the Heads of Schools coordinator for the European Council of Landscape Architecture Schools (ECLAS).

Sanda Lenzholzer was invited to join the Board of Associates of the Conference on Passive and Low Energy Architecture (PLEA), a major annual international conference founded more than 30 years ago. In this role she advises on the general strategy and orientation of the conference and the selection of conference themes, and reviews conference contributions.

Sanda is an external advisor for students of the Academy of Architecture, Amsterdam (Amsterdam School of the Arts).

Paul Roncken is a board member of Werkgemeenschap voor Landschapsonderzoek (WLO), a society for professionals and researchers involved in landscape research. Paul is the initiator of Reizend Landschap (Traveling Landscape), a series of meetings between professionals and scientists engaged in landscape research to reflect on and share experiences of the practical implications of landscape research. Paul is a board member of Archiprix Nederland and Archiprix International and the initiator of a subsidised study of a large part of the project archive to analyse trends and the predictive value of student projects.

Paul is external advisor to students of the Academy of Architecture, Amsterdam (Amsterdam School of the Arts).

Sven Stremke is a scientific member of the committee to the ELS project in Belgium (a research and design project on energy landscapes) and a scientific advisor in the T.OP project in Belgium (a research by design territorial development programme). He was also a member of the working group that preselected Energy Landscape projects for the Innovatieprogramma Mooi Nederland (Beautiful Netherlands innovation programme). Furthermore, Sven was a member of the scientific committee for the Urban Nature through Projects (UNTP) conference held in February 2013, and the Digital landscape Architecture Conference (DLA) held in Bernburg Germany in June 2013.

Marlies Brinkhuijsen was appointed to the Executive Committee of the European Council of Landscape Architecture Schools (ECLAS) in September 2012. The goal of ECLAS is to foster and develop scholarship in landscape architecture throughout Europe. ECLAS provides a network and platform for the exchange of information, experience and ideas, supports the development of a Europe-wide research community in landscape architecture, develops standards for landscape architecture education and stimulates dialogue with professional practice in Europe. ECLAS activities include an annual conference, PhD colloquia, teaching workshops, online seminars, and publishing JoLA, the Journal of Landscape Architecture.

Marlies was a member of the feedback group for the preparation of the 2012 Professional Experience Period Regulations for the Architects Register. The regulations provide clarity about the level of knowledge, understanding and skills candidates must have acquired on the completion of their two-year professional experience period. These standards will be mandatory for students who graduate after 31

over 20 refereed articles and books, over 20 professional and semi-professional publications, over 70 other publications and 10 awards

In 2012 50 students started their Bachelor

In 2012 47 students started their Master

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In the World

External Memberships

Presentations and Visiting Lecturers

(Norm Hanson CC Flickr)

December 2014 and want to be registered. The regulations also contain requirements for the structure of the period, mentor supervision and assessment of the professional experience period. The feedback group included architects, interior architects, urban designers and landscape architects.

Marlies is a member of the Advisory Council of the Netherlands Association for Landscape Architecture (NVTL). The Council consists of prominent members with specific expertise and positions in Dutch landscape architecture and meets with the NVTL Board twice a year.

Rudi van Etteger is a member of the Spatial Quality and the Quarrying of Sand in Noord-Brabant team. National spatial planning policy states that the quarrying of sand on land is only permitted on the condition that after extraction the site is restored to a state that provides added value to the landscape and to society ('spatial quality'). The province of Noord-Brabant has established a committee to advise the provincial executive on this.

Ingrid Duchhart is a member of the Examination Committee of the Architects Registry Office and a member of the NVTL International Committee. She is advisor to the board of SUPO, Stichting Urbane Planning in Ontwikkelingslanden (Foundation for Urban Planning in Developing Countries).

Annet Kempenaar was a member of the executive committee of the Werkgemeenschap voor Landschapsonderzoek (WLO), a society for professionals and researchers involved in landscape research.

Our staff and PhD students have given numerous presentations on their work in the Netherlands and abroad. In the Netherlands we gave presentations in Amsterdam, Ede, Westervoort, Apeldoorn, Utrecht, Delft, Groningen, Dordrecht, Langeraar, Arnhem, Heerlen and Venlo. The purpose of these presentations was to share our knowledge and experience with Dutch professionals and to interact with landscape architecture practice in the Netherlands. Our presentations abroad took us to New York, Manchester (UK), Dresden, Munich, Hamburg, Florence, Venice, Trento and Brussels. These presentations focused mainly on interacting with our academic peers at conferences, PhD workshops and in other academic settings.

We invite academics and practitioners to give guest lectures in several of our BSc and MSc courses. During the period covered by this guide, we invited representatives from various Dutch landscape architecture practices, including H+N+S, Landlab, LOLA Landscape Architects and Vista, as well as designers working for municipalities, provinces and other government bodies to share their views and experiences with our students. In addition, several foreign researchers and professors visited the Group to share and exchange knowledge, but also to work collaboratively on joint research projects and research papers. In 2012 Professor Diedrich Bruns of the University of Kassel and Dr Riccardo Pulselli of the University of Siena visited for a few weeks. Professor Robert D. Brown of the University of Guelph visited in spring 2013. Silvia Minichino, a PhD candidate from Florence University, joined the Group from January to July 2013 to work with Renée de Waal and Sven Stremke on her PhD research on sustainable energy landscapes.

NRG lab
The NRGlab is a laboratory on energy landscapes initiated by Sven Stremke and Renée de Waal and linked to the Landscape Architecture Group. The website is an online platform for sharing knowledge and experiences and bringing together people who work on Sustainable Energy Landscapes. One of the aims of the NRGlab is to help form coalitions for future research, design and teaching projects on energy landscapes.

The website contains information on the recent activities of the members of the NRGlab, research and design projects, and related teaching and publications. The website also hosts a blog by the members of the NRGlab.

www.NRGlab.net

Landscape Machines - Design Laboratory
Design of productivity by living landscapes.

This website was set up in 2012 by Paul Roncken in response to continuous student interest in designing and conceptualising living landscapes with productive qualities. Products range from new energy harvesting, pollution solutions and improved human engagement in the landscape. The team has regular meetings with visiting critics to discuss the design aspects of the landscape and the scientific aspects of the living machine. The students work with other disciplines, such as fish breeding, renewable energy, aquatic ecology, climate studies, environmental psychological and sociology. As designers they also cooperate with artists, product designers and entrepreneurs who dare to invest in future environments and want to inspire future generations and generate new biotopes. The blog acts as an open source database to allow spontaneous and worldwide interactions.

www.landscapemachines.com

Maasvlakte 2 (M. Jansen)

Research content:

Research

Introduction

Our research falls into three main themes. The first theme is analysing and finding solutions to pressing global landscape challenges, especially relating to climate change, the transition to renewable energy, water management, sustainable development, ecosystem services and urbanisation processes. Since this research is strongly interdisciplinary, we work closely with other research groups, both within and outside Wageningen UR.

The second theme is about advancing landscape architecture as an academic discipline. As a relatively young academic discipline, landscape architecture does not yet have a strong research tradition and research culture, and theory and methodology are not well developed. Our aim is to develop theories, methods and criteria for two main purposes: 1) to analyse the social, economic, political, cultural and historical meanings of landscapes that influence landscape architecture as a contextual design discipline, and 2) to judge the aesthetic and other qualities of designs.

The third theme is about whether design can satisfy all the criteria of research. Our current research into the methodology of landscape architecture indicates that design (conceptualised as the search for new spatial forms) can be interpreted as a form of research. This assessment is supported by the work of other researchers. However, in our view, not all design processes can be considered to be research, at least not academic research aimed at increasing knowledge and shaping theory. Design can become a scientific research method by creating the capacity to validate evidence of specific principles of reasoning. We aim to further develop the concept of 'research by design', both as a design method and as a research method, focusing on research methods that are specific to landscape architecture.

Our research activities are part of the Wageningen Institute for Environment and Climate Research (WIMEK), one of the six graduate schools at Wageningen UR. WIMEK is a member of the Dutch Research School of the Socio-Economic and Natural Sciences of the Environment (SENSE).

Sustainable Energy Landscapes

Energy Transition from a Landscape Architecture Point of View

Building with solar boiler at the edge of Urbersdorf Austria (S. Stremke)

Samsø energy academy. (S. Stremke)

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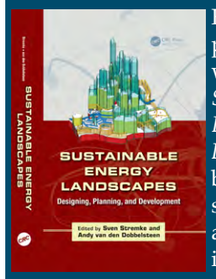
A key issue in the discussion about combating climate change is switching to alternative, cleaner and more sustainable forms of energy supply. The need for this energy transition is reflected in European policies, which include specific energy saving and renewable energy targets for each member state. Implementing these policies will have an impact on the landscape. Research on sustainable energy landscapes shows that approaching energy transition from a spatial point of view has definite benefits. Besides more reactive activities like siting wind parks, landscape architects can take a more proactive attitude by producing concepts that are innovative, more effective, more sustainable and more sensitive to the visual quality of the landscape.

The research on energy landscapes in the Landscape Architecture Group started in 2006 with the SREX research project (Synergy between Regional planning and EXergy). This resulted in the publication of Sven Stremke's PhD thesis in 2010. Sven continued to work on sustainable energy landscapes as an Assistant Professor and in 2010 Renée de Waal began another PhD research project on this subject, which is expected to be completed in 2014. A milestone in the Group's contribution to this challenging topic was the publication in 2013 of the book *Sustainable Energy Landscapes, Designing Planning and Development*, edited by Sven Stremke and Andy van den Dobbelsteen (TU Delft).

In 2012, to better communicate and support their research, design and teaching activities on sustainable energy landscapes, Sven Stremke and Renée de Waal launched an online 'laboratory' for research and design on sustainable energy landscapes called NRGlab. The NRGlab facilitates our sustainable energy studies by providing a platform within Wageningen UR for collecting knowledge, sharing experiences and bringing together people working on sustainable energy landscapes. The NRGlab website has had more than 2,500 unique visitors and more than 10,000 unique page views.

One of the objectives of the NRGlab is to generate greater interplay between research and education. Strong bonds between research and education not only improve the quality of both, but are a vital characteristic of an academic institution such as Wageningen UR. Many students are attracted by the prospect of collaborating with the members of the NRGlab in an integrated MSc design studio (Atelier Landscape Architecture and Planning), thesis project or *capita selecta* (extracurricular project). In recent years, we have tutored more than 30 student projects relating to energy landscapes, both in the Netherlands and abroad.

Book: Sustainable Energy Landscapes



From the publisher's website: *"The Sustainable Energy Landscapes* book presents state-of-the-art knowledge in the exciting new field of sustainable energy landscapes. It bridges the gap between theory and fundamental research on the one hand, and practice and education on the other. The chapters—written by experts in their fields—present a selection of interdisciplinary, cutting-edge projects from across the world, illustrating the inspiring challenge of developing sustainable energy landscapes. They include unique case studies from Germany, Taiwan, the United Kingdom, Canada, Denmark, Austria, Italy, and the United States. The text infuses readers with enthusiasm to promote further research and action toward the important goal of building energy landscapes for a sustainable future."

www.crcpress.com/product/isbn/9781439894040
Stremke, S. and Dobbelsteen, A. van den (eds.) (2013), Sustainable Energy Landscapes: Designing, Planning and Development (Boca Raton: CRC: Taylor & Francis Group) 510 pages.

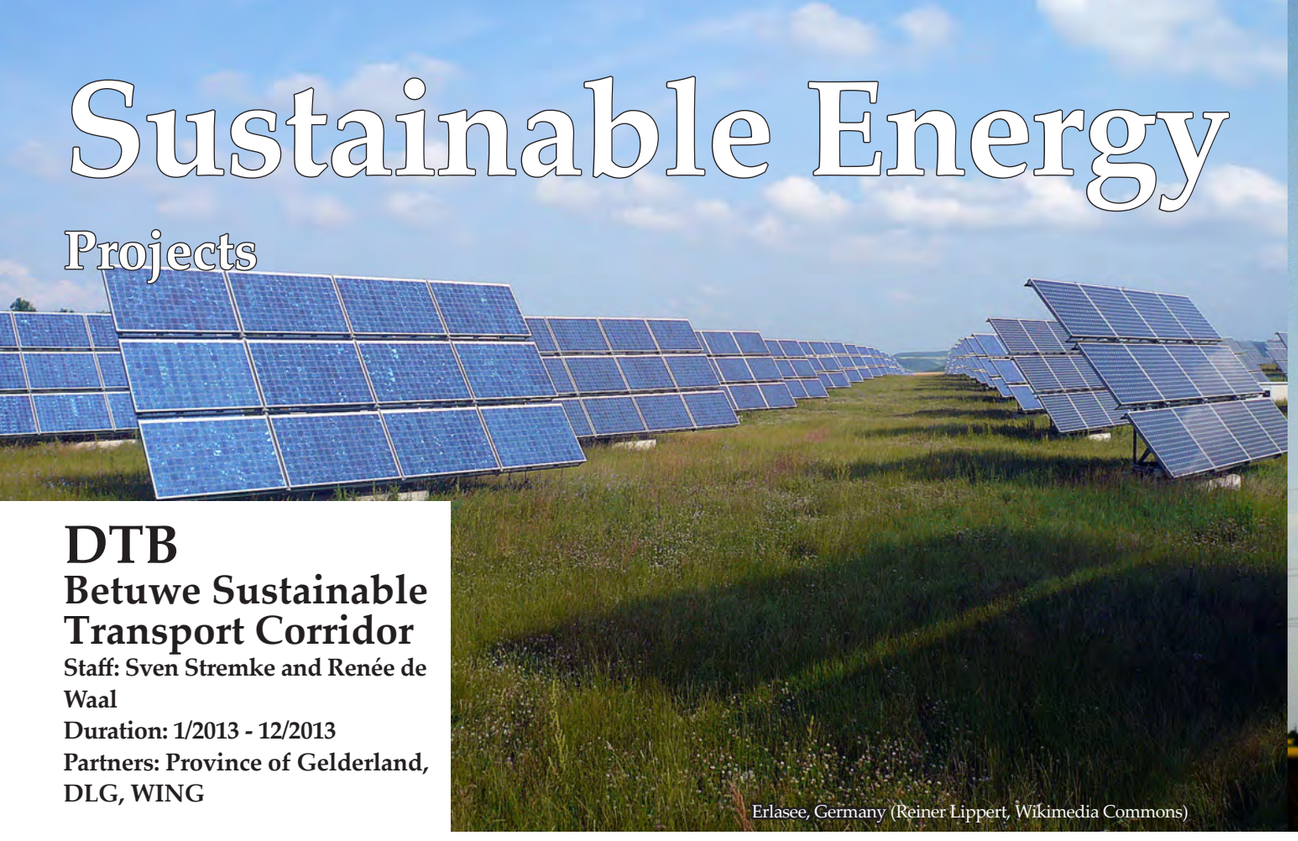
Another key objective is to test theoretical concepts, conceptual frameworks and methods in commissioned research and design assignments. Recent projects include the DTB project on renewable energy and infrastructure for the Province of Gelderland, the DEESD project on renewable energy and ecosystem services conducted in close collaboration with Alterra, and the PALET project commissioned by the Parkstad Limburg region, which will host an Internationale Bau-Ausstellung (International Building Exhibition, IBA) for the first time in the Netherlands during the study period. The IBA will run until 2020 and will seek to attract innovative spatial projects to revitalise the entire region. Energy is one of the three key topics to be addressed.

Sven Stremke is also a member of the project reference group of the NDOMATES project. The basic idea of the NDOMATES project is to develop tools to assess the sustainability level of a society in a given territory. Two tools have been developed, one to account for work energy and one to model carbon flows, and are currently being tested in a case study of the island of Samsø in Denmark. The project is run by Dr Sören Nors Nielsen and Professor Sven Erik Jørgensen from Copenhagen University, with assistance from Sören Hermansen from the Samsø Energy Academy, and supported by the Villum Fund.

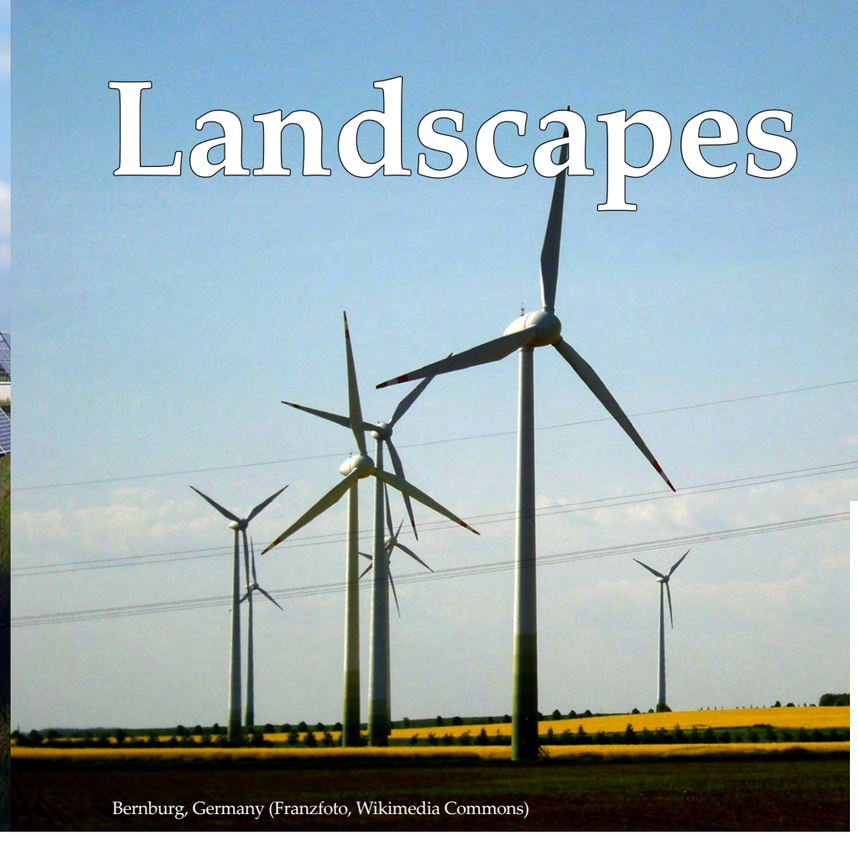
The NRGlab core team consists of Renée de Waal, Dirk Oudes, Marjo van Lierop and Sven Stremke from the Landscape Architecture Group, with contributions to selected projects from other LAG colleagues. Two Italian researchers are members of the NRGlab: Silvia Minichino from Florence University and Riccardo Pulselli from Siena University. Currently, the NRGlab is negotiating with several authorities about possible research and design projects for 2014 and beyond. Suggestion for future topics and collaboration are always welcome.

Sustainable Energy Landscapes

Projects



Erlasee, Germany (Reiner Lippert, Wikimedia Commons)



Bernburg, Germany (Franzfoto, Wikimedia Commons)

DTB
Betuwe Sustainable Transport Corridor

Staff: Sven Stremke and Renée de Waal
Duration: 1/2013 - 12/2013
Partners: Province of Gelderland, DLG, WING

Betuwe Sustainable Transport Corridor (DTB in Dutch) is a project initiated by the Province of Gelderland to investigate the potential for energy savings and renewable energy provision in the Betuwe region, the area between the Lower Rhine and Waal rivers in the central part of the Netherlands. The region contains a dense infrastructure network consisting of motorways, railway lines, rivers and canals, and many stakeholders in the area are looking for ways to save energy and generate renewable energy. The project seeks to combine energy transition and sustainable transport and aims to produce a comprehensive strategy supported by local stakeholders.

A smart spatial organisation can reduce transport volumes and thus save energy. Combining this with a mix of renewable energy sources can provide an impetus for the development of a sustainable energy landscape in the region. The study included the design of a package of short- and long-term robust measures to deal with critical uncertainties. Due to the extent and spatial complexity of the region, the emphasis in DTB is on identifying key energy landscape typologies and the development of robust transition measures.

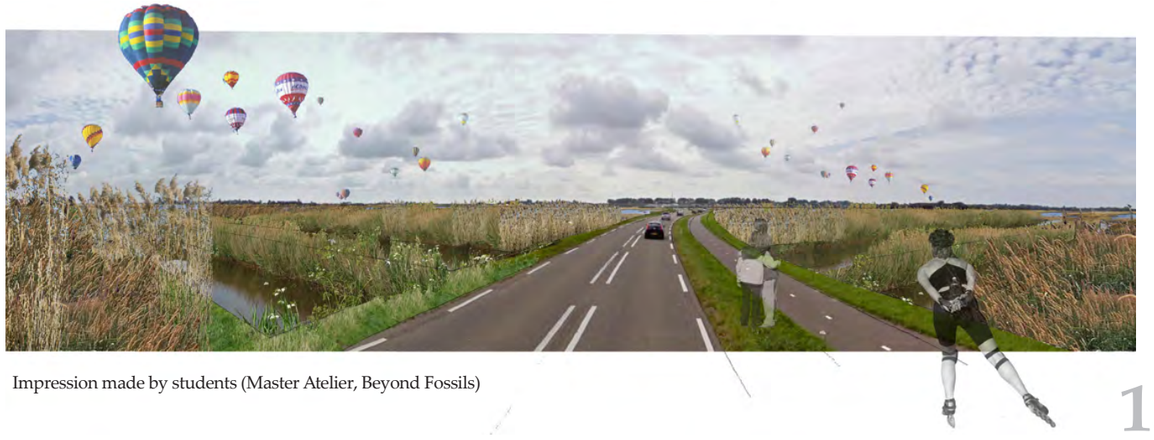
Several Landscape Architecture students are writing their BSc theses on topics relating to the DTB project. These 'BETUWE+ students' have the challenging task of developing visions for a sustainable energy landscape in Overbetuwe, an ambitious municipality in the heart of the DTB region. Each student has been allocated a share of the current energy demand, but is free to focus on either energy savings or renewable provision. With a population density of 400 inhabitants per square kilometre and quite extensive infrastructure networks, Overbetuwe serves as a useful model for most areas of the Netherlands.

DTB aims to become a demonstration project for sustainable transport and renewable energy at the regional scale, in which stakeholders are supported in realising their ambitions while at the same time the existing spatial qualities are maintained and improved.

DEESD
Sustainable Energy Landscapes and Ecosystem Services

Staff: Sven Stremke and Marjo van Lierop
Duration: 2/2013 - 12/2014
Partners: Alterra

DEESD is a joint project between NRGlab, Alterra and various partners from other expertise centres, government agencies and the private sector. The DEESD project investigates the ecosystem services dimension of sustainable energy landscapes through a case study of the Dutch island of Schouwen-Duiveland in the south-western province of Zeeland. The research has begun with analyses of landscapes, the present-day energy system, energy potentials/constraints and a selection of ecosystem services.



Impression made by students (Master Atelier, Beyond Fossils)

Urban Climate

A New Theme in the Netherlands

Impression shopping district (Y.P. Chang, Y. Ji)

City climate measurement-team with the measurement-trycicles.

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Have you ever been blown almost off your feet by a gust of wind in a public square or city street, or lain awake at night unable to fall asleep because of the sweltering heat? These are just two examples of the urban climate effect. Wind patterns in the city are different from those in the countryside and because cities act like massive heat stores they are hotter than the surrounding areas – often more than 5 °C warmer than the air temperature predicted in the weather forecast. Many studies have shown that such differences are caused by the built environment of the city.

For a long time there was no awareness of urban climate effects in the Netherlands, whereas in some European countries the urban climate has long been an issue and the subject of much research. Some foreign cities are starting to adopt climate-responsive urban planning and design strategies, because the design of a city can significantly improve the urban climate.

Sanda Lenzholzer was one of the first people to put the urban climate on the agenda in the Netherlands. In 2005, she started her PhD research on the microclimate of Dutch city squares – long before others started working on urban climate in the major national climate adaptation research programmes. She even had to borrow her measuring equipment from Germany, because it was not available in the Netherlands at that time. Her research attracted considerable media attention and the urban climate became an important issue in the Netherlands.

Sanda Lenzholzer was consultant to the EU Interreg Future Cities Project on climate adaptation and urban design and worked with her MSc students on urban climate analysis and design projects in several cities, including Arnhem, Nijmegen and Tiel. Stakeholders in these cities were fascinated by the possibilities for designing with the urban climate in mind. The municipality of Arnhem subsequently commissioned further studies on integrating urban climate issues into its policy processes.

Dutch meteorologists began to show more interest in the urban climate and larger research projects were started, at first within the national Klimaat voor Ruimte [Climate changes Spatial Planning] programme.

Book: The Weather in the City – How Urban Design Determines Urban Climate

The way we experience climate in the city depends on physical and psychological environment factors. On the basis of these factors, Sanda explains in her new book how the basic processes of urban climate work. She then shows how urban climate and people's perceptions of it can be analysed for use in urban planning at the city and neighbourhood scales. She also explains how to analyse microclimate and determine which small-scale design interventions can be used to influence it, and provides a catalogue of many examples. The book is richly illustrated with photographs, drawings and good practice examples. It is both a reference and an inspiration book for anyone working on liveable cities, including professionals and students in urban planning, landscape architecture and planning, and policymakers. The book is easy to navigate and the material is clearly structured under the three main factors – thermal environment, wind and psychological factors – and contains a broad array of urban design techniques to improve the urban climate.

Het weer in de stad – hoe ontwerp het stadsklimaat bepaalt [Dutch only], ISBN 978-94-6208-095-9, paperback, 226 p.

In this programme Sanda established close working relations with Dutch meteorologists and took part in climate workshops and knowledge dissemination projects. In 2010 Sanda acquired a PhD project in the Climate Proof Cities package of the Kennis voor Klimaat [Knowledge for Climate research programme] with our colleagues from the Meteorology and Air Quality Group. Our PhD student Wiebke Klemm is now investigating the impact of green infrastructure, such as street trees and urban parks, on the urban climate, in particular for the mitigation of urban heat phenomena. This project has attracted much media attention. Wiebke also contributed to the winning competition entry for the redesign of the central part of the city of Athens (*Rethink Athens*). In 2013, Sanda and Wiebke tutored BSc theses on urban climate adaptation in the Rivierenwijk neighbourhood in Utrecht and MSc theses on adaptation of urban spaces in Rotterdam. For spring 2014, they have prepared an integrated design studio for MSc students (Atelier Landscape Architecture and Planning) on urban climate adaptation in cooperation with the province and municipality of Utrecht.

Sanda and Wiebke have responded to the growing interest in the urban climate by offering various workshop, master classes, webinars and lectures on climate-responsive urban design. In April 2013, Sanda organised an international expert seminar in Wageningen on climate-responsive urban design in collaboration with Professor Robert Brown (University of Guelph, Canada). Sanda's book *Het weer in de stad – hoe ontwerp het stadsklimaat bepaalt* [Weather in the City – How Urban Design Determines Urban Climate] was published in November 2013.

Urban Climate Project

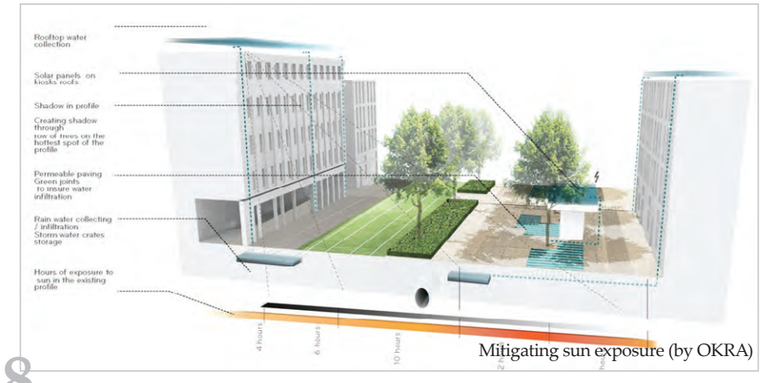
View from the Acropolis
(M. Cyron, Wikimedia Commons)

Rethink Athens
New Thermally Comfortable and Attractive Public Spaces for Athens' City Centre

Staff: Wiebke Klemm
Duration: 7/2012 - 11/2013
Partners: OKRA, Onassis-Foundation

Landscape architect and PhD researcher Wiebke Klemm was the bioclimatic advisor in the design team that won the *Rethink Athens* international architectural competition for the redesign of an existing street into a new pedestrian zone, including adjacent squares in Athens city centre. At the end of February 2013 it was announced that the Dutch design team consisting of OKRA landscape architects, MIXST urbanism and Wageningen University had won the competition with their entry One Step Beyond. The team then worked on the detailed designs under the authority of the Onassis Foundation, which also organised the competition. In this new phase of the project, the team was supported by Athens based architects Studio 75 and the German company WS Green Technologies, specialists in the field of microclimate simulations.

New in the competition was the quantitative demand in the brief on improving the urban microclimate in existing public spaces. In summer Athens gets very hot, the heat being caused by a combination of high radiation and anthropogenic heat in large paved areas with a shortage of vegetation, shading and ventilation. To create thermally comfortable and attractive public spaces, the design sets out to create suitable local climatic conditions, for example by generating shade under large tree crowns and/or green surfaces in open spaces with high radiation, creating underground water storage in places where additional irrigation for urban vegetation is needed, and opening up spaces to allow wind circulation for cooling. As design for a better microclimate was included in the project from the very beginning, measures mitigating heat became one of the main components of the design philosophy, making it possible for the design to meet the demands on improving the local microclimate.



Mitigating sun exposure (by OKRA)

CARE Programme

Hoofdweg Achterhoek (Niels en Nienke)

CARE
Climate Adaptation for Rural Areas

Staff: Adri van den Brink, Sven Stremke
Duration: 2010 - 2014
Partners: Wageningen UR, University of Edinburgh, Utrecht University, VU Amsterdam, KWR Watercycle Research Institute, Deltares

Adri van den Brink is consortium leader of the Climate Adaptation for Rural Areas (CARE) research programme, which is one of the thematic programmes in the national Kennis voor Klimaat [Knowledge for Climate Research Programme]. The aim of CARE is to assess the effects of climate change and adaptation strategies (i.e. sets of concrete adaptation measures) in the rural landscape of the Netherlands. These strategies aim to create a climate-proof ecological structure that will enable the realisation of high quality nature conservation targets and optimise the overall functionality of the landscape. The consortium is investigating the feasibility and effectiveness of these strategies in the Baakse Beek and Tungelroyse Beek case study areas in close cooperation with regional stakeholders.

Other Research

Projects

Clermont, Pays de Herve (A. Kempenaar)

LP3LP
Landscape Policy for the 3 Countries Park

Staff: Annet Kempenaar, Marlies Brinkhuijsen, Fiona Morris and Marjo van Lierop
Duration: 2/2012 - 12/2013
Partners: ESPON, RWTH-Aachen (lead partner), Free University of Brussels (IGEAT)

The 3 Countries Park is a polycentric cross-border region (BE-NL-DE) situated in the heart of the Meuse-Rhine Euregion between the cities of Maastricht, Aachen, Hasselt, Heerlen and Liège. It is a communal garden for the two million people living in and around it and it possesses a number of strong landscape assets. Nevertheless, effective landscape policies are required to manage, develop and enhance the core qualities of the landscape and to accommodate the pressures of urbanisation, demographic and economic change and agricultural development within a coherent process of landscape transformation.

The Landscape Policies for the Three Countries Park (LP3LP) project is an EU-ESPON funded project on the development of the 3LP landscape. The first part of the project focuses on the European dimensions of the 3LP area, the second part develops a shared regional 3LP landscape perspective and the third part relates the goals and ambitions of the regional landscape perspective to EU policy, instruments and funding opportunities. The project group consists of RWTH-Aachen Department of Landscape Architecture (lead partner), Wageningen UR Landscape Architecture Group and the Free University of Brussels (IGEAT).

The Landscape Architecture Group's main input to the project was on the Landscape Perspective for the 3 Countries Park. A set of thirteen guiding principles were developed to shape future landscape development in the region. A green-blue network will emerge to serve as a framework for the cultural landscape and will at the same time develop and enhance the core qualities of the 3 Countries Park.

AESUS
Solution Strategies in a Changing Planning Context

Staff: Annet Kempenaar, Marjo van Lierop and Adri van den Brink
Duration: 4/2012 - 6/2014
Partners: A. van der Valk (Land Use Planning Group, Wageningen University), J. Westerink (Alterra)

AESUS (Analysing and Exploring Sustainable Urban Strategies) is a collaborative research project within the NWO Urban Regions in the Delta Programme. In collaboration with VU University Amsterdam, we are exploring the characteristics of 'doctrinal change' in spatial planning and design in the Netherlands and its consequences for planning and design. As the region is currently seen as the most appropriate scale for comprehensive planning, the research is based around two regional case studies: Brainport Eindhoven, an economic growth region, and Parkstad Limburg, a region with a declining population and urban restructuring.

(photo from ECLAS website)

Le:Notre
Thematic Network in Landscape Architecture

Staff: Marlies Brinkhuijsen
Duration: 2002 - 2013
Partners: many Landscape Architecture Schools in Europe

The Landscape Architecture Group is a partner in the Le:Notre projects (8 in total), an ECLAS project co-funded by the European Union since 2002. The most prominent result of the project is the Le:Notre website, which contains a series of databases on educational programmes of landscape architecture schools in Europe, research projects and institutions, design projects, literature, and a landscape thesaurus with landscape architecture concepts in almost 40 languages. The Le:Notre project also includes events like the Landscape Forum, a discussion platform for a wider range of landscape issues at the European level. In 2012 we participated in several Le:Notre activities, including the Landscape Forum in Antalya, the proceedings of which were published in 2013.
www.le-notre.org

9th Eo Weijers Plan Analysis
Analysis of a Regional Design Competition

Staff: Annet Kempenaar, Renée de Waal and Adri van den Brink
Duration: 1/2012 - 11/2012
Partners: Eo Wijers Foundation

The 9th Eo Wijers regional design competition, *Nieuwe Energie voor de Veenkoloniën, op zoek naar regionale comfortzones* [New Energy for the Veenkoloniën: The Search for Regional Comfort Zones] was held in 2011–2012. The Landscape Architecture Group was asked to analyse the competition entries and reflect on the outcomes. The competition focused on population shrinkage, renewable energy transition and spatial quality in the Veenkoloniën, a peat region in the north of the Netherlands. The analysis of the competition entries revealed that a remarkable number of entries were about the design of a transition process rather than coming up with a physical design for the region. The analysis also revealed that the entrants, mainly planning and design professionals, made little use of state-of-the art knowledge on energy transition in their plans and designs. The report on the analysis can be downloaded from the Eo Wijers website. www.eowijers.nl

PhD Research


Route from Veere to Middelburg (R. van Etteger)


(R. de Waal)

The Aesthetics of Landscape Architecture and Designed Landscapes

Rudi van Etteger

This PhD research addresses the lack of knowledge about the aesthetic evaluation of designed landscapes. Landscape architects design landscapes with the specific intent of making them attractive as well as functional. There are, however, different ways of looking at landscape and this confuses discussions about landscape beauty. The study takes a philosophical approach and tries to establish what is needed to make an appropriate aesthetic evaluation of a designed landscape as a designed landscape. What must you know to have a meaningful discussion about the beauty of designed landscapes?

The designed landscape of Walcheren is studied and described by means of a literature study and by walking through the landscape to assess its aesthetic qualities. A framework for evaluation is constructed based on the Walcheren case and through further literature research. The main focus of the study is on the way designed landscapes come into being in a drawing process that lies somewhere between art and science, and on the way designed landscapes are experienced by the different senses and by observers in motion.

Contact: rudi.vanetteger@wur.nl

Design in the Planning Arena

Annet Kempenaar

The aim of this PhD research is to investigate the uptake and usefulness of regional design in strategic spatial planning. Regional design envisions the possible, desirable and future physical form of a region and aims to guide changes in spatial arrangements. Strategic spatial planning is concerned with long-term spatial developments and is typical for the regional and national scale. As traditional government-led planning has shifted towards shared governance, non-governmental actors have entered the planning arena, introducing lay, local, and tacit forms of knowledge and opening up the dilemma of integrating different knowledge claims into transdisciplinary knowledge. This research explores how and why regional design is taken up, how it functions as an arena for transdisciplinary knowledge building, and what the benefits and drawbacks of regional design are as part of strategic spatial planning.

Contact: annet.kempenaar@wur.nl


Workshop (A.Kempenaar)

Shaping Sustainable Energy Landscapes: The Need for and Elaboration of a Narrative Design Approach

Renée de Waal

This PhD research looks at sustainable energy transition from a landscape architecture perspective. Sustainable energy transition is defined as the shift from fossil to sustainable energy systems, with a prominent role for renewable energy sources and efficient energy use. The transition process has spatial implications and requires changes in land uses, which have an impact on the landscape.

Sustainable energy landscapes are defined by Stremke and Van den Dobbelsteen as 'physical environments that can evolve on the basis of locally available renewable energy sources without compromising landscape quality, biodiversity, food production and other life-supporting ecosystem services.' However, there is public resistance to renewable energy technologies, an important reason being the implications for the landscape. The research explores the part landscape architecture can play in sustainable energy transition, especially how a narrative approach can help to create meaningful sustainable energy landscapes.

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PhD Research

Madrid (R. van Seumeren)

North Carolina (R. van Etteger)

Green Infrastructure for Climate Proof Cities

Wiebke Klemm

This PhD research investigates the ability of urban vegetation and green spaces, such as street trees and parks, to improve the urban microclimate and the thermal comfort of inhabitants during warm summer periods. The actual effects of urban vegetation on the urban climate and inhabitants are investigated by means of micrometeorological measurements (in collaboration with the Meteorology and Air Quality Group) and interviews with pedestrians in three cities. The results of this empirical study will be translated into applicable design principles for landscape architects and urban planners.

The research is part of the Climate Proof Cities (CPC) theme of the Knowledge for Climate research programme being carried out by a consortium of universities and research institutes. It generates knowledge on how Dutch cities can become more sustainable and resilient in the context of a changing climate. To make the results as applicable as possible so that Dutch cities can benefit, the researchers are working closely with Dutch municipalities.

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Ranking European Cities: Opportunities and Challenges in Measuring City Greenness

Jurian Meijering (Research Methodology Group, WUR)

The European Union is committed to making its cities more sustainable. Various city rankings have been developed that focus on measuring the environmental sustainability of European cities, but research into the methodological quality of European green city rankings is lacking. The objective of this PhD research is to improve the methodological quality of European green city rankings by identifying challenges in the development of these rankings and identifying how the Delphi method can be used to address these challenges.

An initial study examined the methodological characteristics of six European green city rankings. It showed that all six rankings have important methodological weaknesses and that the Delphi method offers possibilities to solve some of these weaknesses. However, the Delphi method has some methodological issues of its own. A second study examined one of these issues: how to measure the level of agreement among experts.

A Delphi study has been conducted to allow landscape architects to achieve agreement on the most relevant research domains in landscape architecture. A subsequent study might apply the Delphi method to allow urban sustainability experts to achieve agreement on the most important indicators to measure the environmental sustainability of European cities.

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Serious Landscaping and the Future Sublime: an Analytical Study on the Aesthetic Structure of Sublime Landscape Experiences

Paul Roncken

A well-known photograph by Edward Burtynski shows a beautiful red river running through a barren blackish landscape. The colourful contrasts in the image and the recognisable organic form of a toxic river present a paradox: what is the truth of this photograph? The dramatic effect of a heavily polluted artery of planet earth is rivalled by the sheer visual beauty of such an imaginative landscape. Images of devastation and malfunction can be appealing, not so much out of a sense of devilish delight, but because of the inescapable stimulus that can arouse a sense of realism, authenticity or even humour. It is a type of imagery that is symbolic of the duality inherent in the complexity of real life: at once generously pleasant and simply or bizarrely desolate. This paradoxical capacity of human experience was explicitly named and articulated in the eighteenth century by the idea of 'the sublime'. It was not, however, a unique invention of that time. Rather, the eighteenth century idea of the sublime was a hybrid of a third century Greek treatise about an elevating type of rhetoric (Hypsous) and a renewed interest in the natural wildernesses in reaction to the increasing urban introversion of human society. For landscape design, the sublime is much more relevant than current theory, practice and teaching would suggest. Reference to the concept of the sublime will make aesthetic theory more useful to designers.

Contact: paul.roncken@wur.nl

PhD Research

Google Earth

Ecozone (M. van Lierop)

Understanding Adaptive Planning Approaches

Mark Zandvoort

The objective of this research is to scientifically reflect on the uncertainties surrounding conditions in delta areas and refine methods to incorporate the unpredictability and variability of conditions and the uncertainty about the future into adaptive planning approaches. The Rhine-Meuse-Scheldt delta and other delta areas around the world are affected by the consequences of climate change, soil subsidence and more intensive use of land and environmental resources, such as declining liveability and increasing risk of flooding. In addition, the unpredictability and variability of physical and socio-economic conditions creates uncertainty for policymaking. Policy makers can better take this uncertainty into account through adaptive planning approaches. One such approach, Adaptive Delta Management (ADM), is used in the Dutch Delta Programme. ADM claims to be a novel approach to developing flood risk management and spatial planning strategies on different spatial scales. However, the knowledge required to incorporate this variability and the related uncertainties into policymaking is still in its infancy. The results of this research will help to better integrate uncertainties regarding changes in the physical environment and the relevant socio-economic conditions into policymaking processes.fresh water supply, and future liveability will be elaborated.

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Future Landscape Transitions in Multifunctional Flood Defence Zones

Kevin Raaphorst

This PhD research investigates the design and planning challenges of adapting the Dutch flood defence landscapes to meet future flood safety standards. The project is embedded in a research programme on Integral and Sustainable Design of Multifunctional Flood Defences, in which Wageningen UR collaborates with TU Delft, the University of Twente and Deltares, a research institute. The research focuses on the role of digital 3D visualisation techniques in the design and planning of the new generation of Multifunctional Flood Defence landscapes, which involves a wide range of stakeholders and the reallocation of different landscape functions. Interactive landscape visualisation techniques can be used to facilitate a more open and transparent design and planning process. However, landscape visualisations are rarely without bias and their representational quality is seldom questioned, leaving them open for use as a potentially persuasive political tool to promote the interests of particular stakeholders. The transparency of the design process would therefore be served by having a more realistic and interactive 3D visualisation method. A critical study of the potential of realistic 3D visualisations of Multifunctional Flood Defence designs will be made to improve communication between scientists, planners and designers and the stakeholders involved.

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Application of the Concept of Ecosystem Services within the Discipline of Landscape Architecture

Marjo van Lierop

This PhD research investigates the terms and definitions by which ecosystem services are described and how substantive and procedural knowledge of ecosystem services can be used in landscape architecture, both as an academic discipline and as a profession.

If landscape architects are to plan and design more sustainable landscapes and find effective solutions to the many demands on the landscape, they need more systematic access to ecological knowledge. The use of ecological knowledge in landscape design and planning has been promoted since the 1960s, but only became accepted by the discipline in the 1990s. The ecosystems concept, which emerged at this time, attempts to connect ecological, social and economic values, based on the idea that ecosystems provide services that are directly and indirectly beneficial to people. These values should also be taken into account in landscape design and planning.

Ecosystem services research shares many values and common goals with landscape architecture and collaboration between the two fields is expected to generate more sustainable and effective solutions. However, the concept of ecosystem services is not yet well established in landscape architecture. Although some studies on ecosystem services and landscape planning have been conducted, especially in German-speaking countries, little evidence can yet be found of the explicit use of ecosystem services in landscape architectural practice, discourse and education.

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Teaching

Introduction

Wageningen University offers a three-year Bachelor's programme and a two-year Master's programme in Landscape Architecture and Planning. During these programmes the students with a major in Landscape Architecture receive a thorough grounding in the natural and social sciences, arts and humanities, and are taught to come up with sustainable design solutions at different scales.

The Bachelor's programme encompasses a diversity of courses in the physical and social sciences to provide students with a sound theoretical underpinning and a comprehensive set of analytical competences. In addition, students are trained in landscape design in a series of four design studios: 1) design basics, 2) site design, 3) urban design and 4) regional design. This programme provides students with the basic skills needed to produce designs that are sensitive to and make the most of the cultural, historical and ecological qualities and potentials of sites and regions. In the third year, the students do a Bachelor's thesis project and take a semester-long minor, which allows them to explore a topic in greater depth, or study at a foreign institution for six months.

The Master's programme offers students more advanced and specialised knowledge and trains them in academic and professional skills. They are expected to take an independent, critical and reflective attitude. Extracurricular master classes by Adriaan Geuze offer a challenging environment to explore the state of the art in landscape design. During the MSc courses the students get acquainted with different design approaches, design theory and advanced design and research methods. They also gain professional experience during an internship of at least four months. Their skills, knowledge and interests all come together in their final thesis (36 ECTS) at the end of their studies.

Over the past eighteen months our Master's programme has become increasingly international in character. Not only are about a third of our Master's students from abroad, but the content of the courses and thesis topics are internationally oriented and many of our Dutch students select a study topic abroad.


(T. Roncken)


(R. van Seumeren)


(M. van Lierop)

Education content:

BSc Programme
Studio Site Design


Model by F. de Bruijn.

2nd year BSc students
December 2012 to February 2013

Study area: the secondary channel of the river Waal at Nijmegen-Lent, the Netherlands
Scale of study: 1:500 to 1:2000

The assignment was to design a semi-urban estate that responds to the landscape context. The new estate, centred on a selected building from the book *Twenty Buildings Every Architect Should Understand* (Unwin, 2012), had to optimise the spatial experience and give expression to the dynamics of the river in an exceptional way. The students tried to achieve this goal by making a smart design for the new vegetation and relief on the island. They worked with several professional landscape architects, an ecologist and a soil scientist to explore the characteristics and potentials for the future development of the study area.

Results: 39 designs, all visualised in a model. These were presented at the *Ruimtedenken* [Spatial Thinking] conference in March 2013.

The students went on a four day excursion to Madrid to study reference cases and gain inspiration.


Model by N. Kooijmans


'Barre tijden' (J. de Water) (Madrid excursion)

BSc Programme
Studio Urban Design


Model by L. Jenniskens

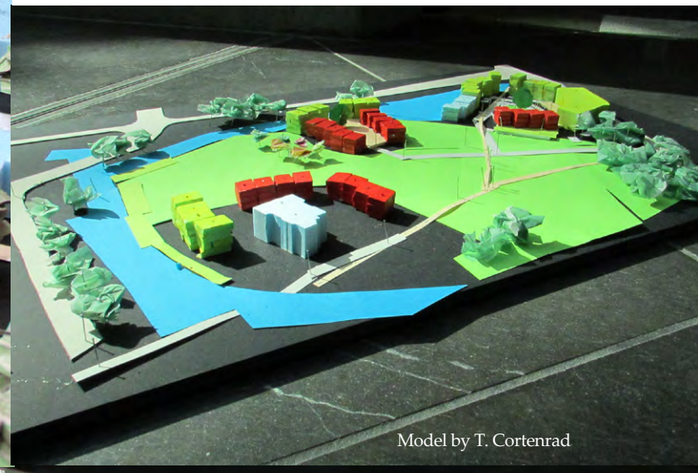
2nd year BSc students
May and June 2013

Study area: Duivendaal, Wageningen, the Netherlands
Scale of study: 1:500 with details at 1:200 and 1:100

Wageningen University's old office building near the town centre has great potential for a new housing and mixed-use development. The students worked on a design based on one of four concepts. Each concept approaches the new residential area in a different way: 1) as an extension of Wageningen town centre, 2) as an urban estate, 3) as a courtyard development, and 4) as a park. The final designs show differences in density, mix of uses, the division between private, semi-public and public areas, and, of course, in layout and design style.

Results: 38 designs, all illustrated using (3D) digital visualisation techniques


Model by L. van der Wal


Model by T. Cortenrad


Model by P. Severijnen

BSc Programme

Studio Regional Design

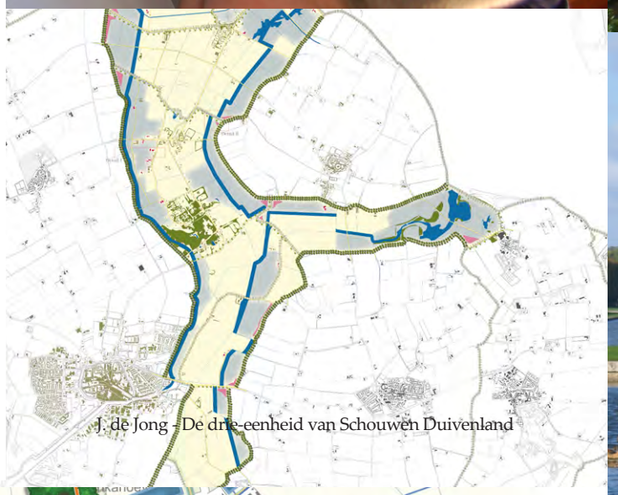
3rd year BSc students
September and October 2012

Study area: the island of Schouwen-Duiveland in the province of Zeeland, the Netherlands
Scale of study: a landscape plan at scale 1:25,000 with additional details of 1:10,000 to 1:2000

The core objective of this design studio was innovative problem solving through good design. The students worked on a design for the island of Schouwen-Duiveland in the southwest of the Netherlands. They analysed the study area and came up with what they perceived to be the core challenge. All the students had to consider the need for secure coastal flood defences in the light of climate change and rising sea levels. The different interests of the students led to a diversity of designs. Besides the spatial organisation of the physical environment, the tools and methods at the students' disposal were all landscape-based, such as tree planting, water management and habitat restoration.

Results: 52 designs, each presented on three A1 posters.

(E. Floris)



J. de Jong - De drie-eenheid van Schouwen Duivenland

T. Cortenraede - Verbonden door het water

T. van Heeswijk - Waterbeleving als nieuwe impuls

BSc Programme

Garden and Landscape Architecture: A Design and Cultural History

3rd year BSc students
September and October 2013

This six week course gives the students an overview and understanding of the long history of landscape architecture, from the ancient Romans to modern times. The course finishes with an intensive, but extremely valuable five-day excursion to Paris. The students visit a variety of parks and gardens laid out in styles dating from the Renaissance to modern times to see the differences and similarities between different eras and acquire an understanding of the trends in the landscape profession.

Paris is the perfect city to visit because of its many interesting parks, its rich history and the pleasant atmosphere. The students walk many kilometres to see every aspect of each park, but also have time to see the sights and enjoy Paris at night. They visit not only typical French gardens like the Tuileries and the gardens of Versailles, but also modern parks like Parc de la Villette and Parc Andre Citroen. As a student said, 'This course and the excursion to Paris are eye-openers. You get so much information and it is really interesting to see how long landscape architecture has actually existed and how it has evolved.'

(All photos on this page by G. Bartelse)

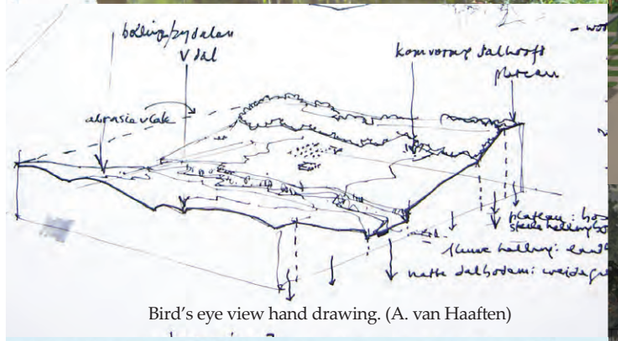
BSc Programme

Freehand and Digital Visualisation

2nd year BSc students

In these courses, design drawings are primarily language and craft, and only thereafter an artistic experiment. Drawings communicate the experiment of the design. They should illustrate in a precise manner the various aspects and qualities of propositions. Sketches, diagrams, plan and section drawings, impressions and technical details describe the background, the structure, the visual experience and the realisation aspects of the design experiment. Both freehand and digital techniques serve particular aims in the design process and all need to be attractive to hold people's attention. Schematic freehand sketching is specifically useful for analysis, conceptualisation, form development sketching and schematic explanation drawings. Atmospheric impressions in modelling software with manipulated photographic material require more visual experience and these skill have to develop over the years. Technical details and graphic layout are of course also mostly digital activities.

The final element in the instruction in drawing in the BSc programme consists of a week of training in landscape analysis by explanatory drawings and quick sketches, using various orthographic and spatial projections. For this we go to a relatively unknown landscape in South Limburg with clearly visible geomorphological and ecological features and adapted land uses.



Bird's eye view hand drawing. (A. van Haaften)

(all photo's on this page by R. van Seumeren)

BSc Programme

BSc Thesis

Visualisation by R. Weijers

The BSc thesis (12 ECTS) in the final year of the BSc programme is a taxing individual project that includes both a research and a design component. Each year the students choose a topic from a list presented to them. In 2013 the following BSc thesis topics were offered to the students:

- Urban Climate in the Rivierenwijk neighbourhood in Utrecht, supervised by Sanda Lenzholzer and Wiebke Klemm
- 3 Countries Park – 3LP (3 Landenpark), supervised by Annet Kempenaar and Marlies Brinkhuijsen
- A New Estate (in Roermond) using the concept of the Landscape Machine, supervised by Paul Roncken and Ruud Tak
- Towards a Climate Neutral Overbetuwe, supervised by Sven Stremke and René van Seumeren

Visualisation by L. Elsinga

Visualisation by R. de Louw

BSc Programme

Examples BSc theses

Impression by L. Elsinga

Utrecht Groen Verbonden
Linde Elsinga
Supervised by S. Lenzholzer, W. Klemm

This thesis examines ways to reduce the urban heat island (UHI) effect and improve thermal comfort in the Rivierenwijk neighbourhood in Utrecht, which currently has little vegetation and green space and a high proportion of paved surfacing. Proven design techniques for reducing the UHI effect from the literature were applied to designs for a new light rail connection through the neighbourhood on several scales: (1) a design for the environment of the track; (2) the environment of the tram station; (3) the design of the public transport stop.

Resounding Overbetuwe
Rosanne Weijers
Supervised by S. Stremke, R. van Seumeren

The Overbetuwe region contains a major rail and road transport corridor. Existing noise and landscape impacts will be compounded by the planned widening of the A15 motorway and new noise sensitive development. The thesis is a research-based design for the development of a sustainable transport corridor with renewable energy technologies and reduced noise levels. It takes a zoning approach based on historical linear structures in the landscape, giving each zone a unique soundscape by identifying possible sound sources in the area. The design decreases the acoustic experience of mechanical sounds and increases the occurrence of human and natural sounds across the zones.

Sound impressions on location. (R. Weijers)

MSc Programme

Atelier Landscape Architecture and Planning

1st and 2nd year MSc students
March to June 2013

Study area: the Province of Brabant and the municipality of Alphen-Chaam, the Netherlands
Theme: Values in Motion: Towards Slow Landscapes

The Atelier provides students with the opportunity to work individually and in a team on a 'real world' project. The Atelier theme for 2013 was about understanding the contrasting dynamics of speed and slowness in the metropolitan landscape and how such dynamics influence spatial organisation and design, from the macro to the micro realities of the regional, urban and rural landscapes.

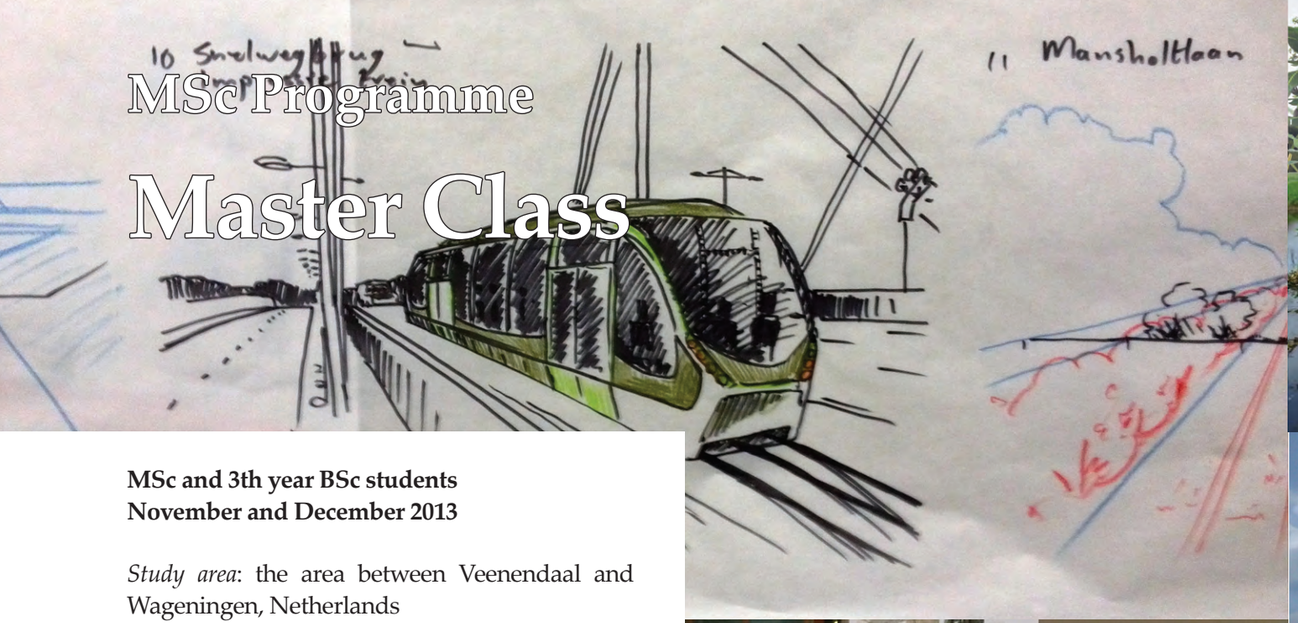
The study area recently joined the Cittaslow international network. The question for the students was whether the two different 'velocities' of development that can be identified in the Province of Brabant – where the major cities are voluntarily 'fast' and villages like Alphen-Chaam are 'slow' – can be part of the same harmonious reality, or whether there is a risk of conflicting dynamics between urban and rural centres.

Results: The groups worked on a detailed analysis of the economic drivers, infrastructure developments, environmental issues and landscape trends that reflect the opposition between the 'fast' development dynamic of Brabant as a region and the 'slow' dynamic of villages like Alphen-Chaam as part of the regional mosaic. The students then translated the group ideas into individual designs.

(All photos on this page by R. van Etteger)

MSc Programme

Master Class



MSc and 3th year BSc students
November and December 2013

Study area: the area between Veenendaal and Wageningen, Netherlands
Theme: The Grebbe Railway Line
Scale of study: alignment, implementation and mitigation 1:200; cross sections 1:50

In this master class given by Adriaan Geuze, Master's students and third year Bachelor's students were challenged to design an extension to the railway line from Veenendaal to Wageningen. The aim was a conduct a collective study of the landscape features and qualities along the potential Utrecht–Wageningen rail link. The designs illustrate the large-scale landscape/urban intervention and the relevant landmark details of the railway. Professor Geuze delivered four inspiring lectures on the subject of infrastructure and landscape design.

Results: The students assessed the existing landscape and urban morphology and developed prototypes for the sections of the railway. They made 3D/axonometric details of challenging crossings and designs for integrating a station within the urban grid of Wageningen. The study clearly demonstrates the benefits of such a development for the town and the university. The results of the study and the designs will be collected in a book and presented to the mayor of Wageningen and the board of Wageningen University.

(All photos on this page by M. van Lierop)

MSc Programme

MSc Thesis


Impression by E. Bergstra and R. Hornman


Impression by J. Papenborg and R. van der Togt

The Master's thesis is the crowning achievement of the work of the Master's student. Although current research by the staff gives direction to the thesis topics, the students are free to determine the specific topics they investigate.

The Master's thesis must demonstrate that the student has acquired a profound theoretical understanding to underpin his or her chosen design and research approach. The topics chosen by the students in recent years bear witness to a considerable social engagement and interest in global transformations, without losing sight of the aesthetic aspects. A number of students have investigated issues related to climate change, such as flooding, sea level rise and climate comfort, often linked with improving people's livelihoods, for example by safeguarding food production and fresh water reservoirs in both rural and urban areas. Some explored the unifying powers of public space to pacify the war-torn Green Line in Beirut or to honour and commemorate the loss of life and possessions in an earthquake-stricken village in China.


Impression by J. Papenborg and R. van der Togt

MSc Programme

Examples MSc Theses

Impression by J.Borsje and R. Tak

Impression by D. Harden and J. Castricum

The Regional Local Nexus
Jesper Borsje and Ruud Tak
Supervised by M. Brinkhuijsen, I. Ateljevic (visting professor)

This thesis explores how landscape qualities and characteristics can be used to develop sustainable tourism, in which different landscape types are linked to the needs of different forms of tourism to produce a diverse tourist product. The research by design method was used to develop an integrated design strategy for the case study area of Dubrovnik Riviera in Croatia. The study also made use of participation techniques, the layer approach and the landscape approach. The local landscape and culture was used as a sustainable framework for a working tourism system led by local communities in the region. Each village can benefit from the network and create a specific position within it.

Cyclone Resilient Landscape
Esther Bergstra and Roxanne Hornman
Supervised by I. Duchhart

This thesis explores how to mitigate the effects of tropical cyclones in Madagascar, taking the city of Vatomandry as a case study. It uses a landscape-based design approach to identify methodological and physical actions to increase resilience to cyclones. As long-term resilience depends on empowering the inhabitants, participative methods were used as well as a landscape analysis to form the basis for a landscape plan containing recommended design principles and actions. Interventions include a drainage system, shelterbelts, a sand fence, purifying wetlands and vegetation for shelter, health and income.

Steering Protective Growth
Dirk Harden and Jeroen Castricim
Supervised by I. Duchhart

The chaotic and unplanned growth of Istanbul is threatening the surrounding water basins that provide clean water for the city. This thesis examines how the water resource can be protected while permitting urban growth in the forested Alibey basin. Considering the city as a complex adaptive system, its unplanned growth can be described in terms of 'magnets': spatial elements that guide and organise urban growth. A vision for the Alibey basin is presented in which projected urban developments in a former mining area support the construction of a landscape that improves water quality and steers urban development. The study shows how landscape design can help to find the right balance between 'attractors' and 'repellers' of development in the resource landscape to control unplanned urban development.

Urban Green Waterscape at the Street Level
Ya-Ping Chang and Yinan Yi
Supervised by S. Lenzholzer, W. Klemm

To relieve the problems of flooding and heat stress in many Dutch cities, due in part to the disruption and shortening of the natural hydrological cycle, this study set out to integrate the artificial storm water system into the natural hydrological cycle. Storm water stored during wet periods to prevent flooding is used during dry periods to increase evapotranspiration and thus reduce heat stress. Alternative management regimes are proposed for managing water excesses and deficits, based on different soil types. Design principles were generated for each soil region and tested in Rotterdam (peat soil) and Nijmegen (sandy soil). The differences between the green waterscapes in the soil regions are reflected in the streetscapes.

Impression by E. Bergstra and R. Hornman

Impression by Y.P. Chang and Y. Ji

Doorstep Landscape
Renze van Och
Supervised by P. Roncken, P.J.A.M Smeets (Alterra)

Most of the livestock farms in the Venray region will eventually close and production will be concentrated in a small number of megafarms. The development of a metropolitan food cluster will avoid the landscape impact of scattered industrial-scale buildings and leave behind many redundant farm buildings and fields, a phenomenon referred to as the space-pump effect. This MSc thesis analyses possibilities for optimising the space-pump effect through a strategic landscape design for the development of a coherent landscape structure. Restoring stream valleys as an ecological and recreational attractive framework will create opportunities for a range of social and ecological land uses to counterbalance the metropolitan food cluster. Venray could be the first region with an intentionally designed 'Doorstep Landscape' and the first metropolitan food cluster with livestock in the Netherlands.

The Ems Full Hybrid
Jonas Papenborg and Remco van der Togt
Supervised by P. Roncken, H. de Jong (Buro Harro)

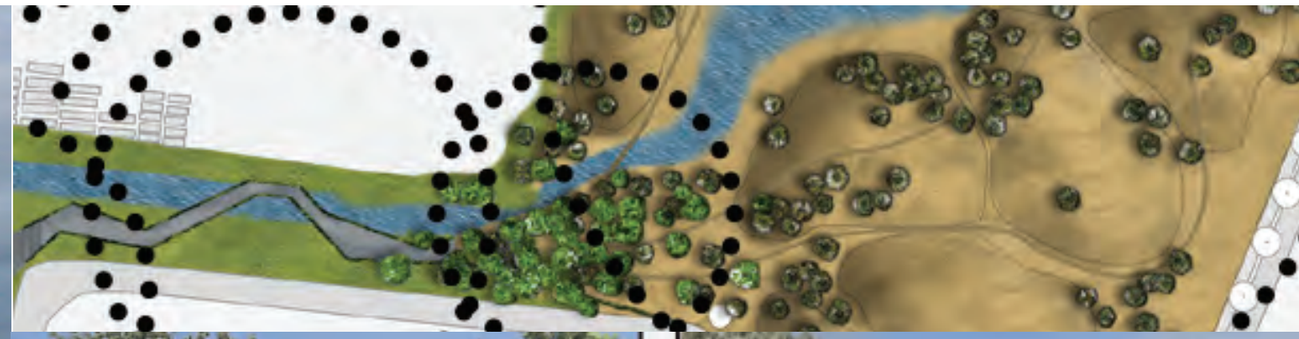
The deepening of the river channel and other engineering works in the Ems estuary to support the industrial and port activities have led to an increased tidal effect, increased sedimentation and turbidity. Further dredging is periodically required, which is not only costly, but also responsible for the destruction of natural habitat. This conflict between economic activities and nature conservation can be resolved through the concept of the 'hybrid landscape': the engineering solutions – coastal breakwaters and new saline polders – are designed to solve the turbidity problem while creating new habitat, increasing safety and supporting food production. The result is a restored ecosystem with new economic potential.

Urban Stormwater Landscapes
Xin Hua and Ziyi Liu
Supervised by R. van Etteger

This thesis investigates ways to improve and integrate storm water management facilities into the urban landscape, drawing heavily on the concept of Sustainable Urban Drainage Systems (SUDS). Rotterdam is used as a case study. An analysis of current conditions and climate change impacts on Rotterdam's water systems reveals the problems, opportunities and constraints. A 'city organism' concept, based on rhizome systems, urban fabric and SUDS strategies and facilities, is developed in which the city is viewed as an organism consisting of thousands of cells (blocks) and vessels (roads) that manage storm water and surface water. Detailed designs for a residential neighbourhood and a commercial district in central Rotterdam demonstrate how the concept can be adapted to site conditions, how it affects storm water quantity and quality, and how it creates urban landscapes in which people interact with rain and storm water.

Sketchbook
Loes van Schie and Jessie Wolters
Supervised by R. van Etteger, P. Roncken

In response to the increasing disconnection between people and the landscape, this thesis investigates a way to create a new and/or stronger connection between people and their local landscape, drawing on Anne Whiston Spin's 'language of landscape'. The study area is the town of Coevorden, focusing on the industrial area on the edge of the town. The connection is created by creating a walking route towards and through the area, and through the use of figures of speech to create eye-catching features and stimulate a broad range of design ideas.



MSc Programme

Examples MSc Theses

Consequences map by F. Bijker and L. Kasper

Hamburg (R. van Etteger)

Community Supported Landscape Regeneration
Flore Bijker and Lian Kasper
Supervised by P. Roncken, H. Maat (WUR)

This research addresses the lack of public support for large-scale landscape regeneration efforts. A Social Feedback Model is developed to analyse complex social-ecological systems. The model is used in a multidisciplinary literature review, three case studies of regeneration projects and an analysis of the Vechtplassen region to identify the conditions required for critical support for landscape regeneration. These conditions imply the need for new social contracts for sharing responsibility between governments and local parties, the creation of local capacity through communal networking and agreements, and bringing local people into closer contact with the natural environment. The conditions are applied in a strategy for socially supported landscape regeneration and a spatial design for the Vechtplassen region.

A Systematic Analysis of Urban Green Types in Three Dutch Cities
Merel Enserink
Supervised by W. Klemm

This minor thesis seeks to define large urban green typologies and analyse their diverse forms in different case cities to answer the research question 'In what way can urban green types be compared between cities at both the city level and the type level?' The meaning of urban green is explored through a literature study and urban green typologies and criteria for analysis are defined. The urban green types in Arnhem, Rotterdam and Utrecht are analysed at the city and type scales as the basis for a database on urban green types in Dutch cities.

Waterworks
Lisa Verbon
Supervised by S. Lenzholzer

This thesis investigates alternative ways to develop American coastal cities already experiencing environmental problems and susceptible to the effects of climate change. Landscape processes form the basis for designs that make nature an integral part of the city and seek to inspire further discussion of sustainable city development. The Nature and Urban Storm water Synergy (NUSS) model, based on Tjallingii's infiltration model and the 'storm water treatment train', is developed to prevent flooding and improve water quality. The model can respond to different economic scenarios with different uses of the green structure to benefit the local community and the environment. The urban green structure also enhances the city's identity and acts as a catalyst for a range of development projects, from industrial heritage to aquaponic farms. Finally, the constructed wildlife corridors and fish and bird habitats improve biodiversity on a regional scale.

Park analyse map by M. Enserink

Impression by L. Verbon

People

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List of Publications

Refereed articles

2013

'Research through designing' in landscape architecture
Lenzholzer, S. ; Duchhart, I. ; Koh, J. (2013)
Landscape and Urban Planning 113 . - p. 120 - 127.

Climate-responsive landscape architecture design education
Lenzholzer, S. ; Brown, R.D. (2013)
Journal of Cleaner Production 61 . - p. 89 - 99.

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Roncken, P.A. (2013)
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Environment and Planning C. Government and Policy 31 .

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Assche, K.A.M. van; Beunen, R. ; Duineveld, M. ; Jong, H.C. de (2013)
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Bélanger, P. (2013)
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2013

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Stremke, S.: Dobbelsteen, A. van den (2012)
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In: Ruimtevolk

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Urban Climate in Tiel
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In: Haarlems Dagblad - p. 2.

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Acknowledgements photos

p.6-7 Bee Hive September 2007 (Rebecca Leaman)
http://www.flickr.com/photos/rjleaman/2363568777/

p.8-9 Ant Nest (Ace Alejandre)
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p.23 Hoofdweg Achterhoek (Niels en Nienke)
http://hetsaaielevenvannielsennienke.blogspot.nl/2013/06/weekendje-kamperen-in-het-oosten-van.html

Colophon

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