Interfaculty Research Institutes

Annual Report 2011

AGCI Annual Report 2011	
University:	**VU University Amsterdam** **Vrije Universiteit**
Research Institute / departments:	Institute for Environmental Studies (IVM), Faculty of Earth and Life Sciences Cluster Earth and Climate, Department of Earth Sciences, Faculty of Earth and Life Sciences Department of Ecological Science, Faculty of Earth and Life Sciences Department of Spatial Economics, Faculty of Economics and Business Administration *(associated partner)* Department of Political Science, Faculty of Social Sciences *(associated partner)* Department of Transnational Legal Studies, Faculty of Law *(associated partner)* Division of Organic Chemistry, Faculty of Sciences *(associated partner)*
Director:	**Prof. dr. F.G.H. Berkhout**

Participating institutes/departments from **University of Amsterdam:**

- Amsterdam Business School, Faculty of Economics and Business
- Amsterdam Centre for Environmental Law and Sustainability, Faculty of Law
- Department of Political Science, Faculty of Social and Behavioural Sciences
- Van 't Hoff Institute for Molecular Sciences (HIMS), Faculty of Science

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1. Introduction

"Catalyzing interdisciplinary cooperation..."

AGCI's success will be measured by whether it generates new opportunities for researchers to do path-breaking and useful science. To achieve this, we are working on a series of 'community building' events that allow researchers to come together and explore how they might work together. I believe it is these *ontmoetingen* that will be the key to AGCI's success towards *catalyzing interdisciplinary cooperation*. We highlight these activities in this Annual Report 2011.

Working together constructively, the different participating AGCI departments defined six interdisciplinary and societally-relevant postdoc research projects – thereby actively connecting disciplines that can gain from interaction. Subsequently, six recruitment committees have been able to attract an energetic group of six promising AGCI postdoctoral researchers, whom we present in this report.

Besides starting with a distinct programme of research, we also set ourselves an objective for 2011 to deepen and expand the network that AGCI represents. One notable development has been partnership with highly relevant research groups based at *University of Amsterdam*. We can now present AGCI as a joint-venture between the VU and the UvA, and as a centre for research on environment, sustainability and global change in Amsterdam. All AGCI activities are now coordinated within this broader cross-university network.

We have also begun to develop relationships with business and government in the Amsterdam region. The AGCI is now recognised by bodies such as the Amsterdam Innovation Motor (AIM), the Amsterdam Economic Board and the Green Metropole as the 'one stop shop' for expertise on environment and sustainability. AGCI has become a member of a new working group, including members from the city administration, companies and NGOs which will be assisting the Amsterdam region to define and address key challenges in achieving transitions to sustainability.

To provide a solid basis for the future assessment of AGCI's success, we have invested special effort to the presentation of a citation analysis in this Annual Report 2011. In funding this, the AGCI has contributed to building a new competence at the VU University which should be of interest to other iOZI's and departments as well. We present this report to you with pleasure!

Frans Berkhout

2. Description

Mission of AGCI:
The Amsterdam Global Change Institute (AGCI) investigates the interactions between people, socio-economic change and the global environment. Through focused integrated research, AGCI will contribute to informing and shaping sustainable societal choices and innovations for Europe and beyond.

More than 250 researchers, covering the full spectrum of relevant disciplinary expertise, participate in AGCI. They represent the following departments and research groups from both VU University Amsterdam and the University of Amsterdam:

VU University Amsterdam:

- Institute for Environmental Studies (IVM), Faculty of Earth and Life Sciences
- Climate and Earth Cluster, Department of Earth Sciences, Faculty of Earth and Life Sciences
- Department of Ecological Science, Faculty of Earth and Life Sciences
- Department of Spatial Economics, Faculty of Economics and Business Administration
- Department of Political Science, Faculty of Social Sciences
- Department of Transnational Legal Studies, Faculty of Law
- Division of Organic Chemistry, Faculty of Sciences

University of Amsterdam:

- Amsterdam Business School, Faculty of Economics and Business
- Amsterdam Centre for Environmental Law and Sustainability, Faculty of Law
- Department of Political Science, Faculty of Social and Behavioural Sciences
- Van ‘t Hoff Institute for Molecular Sciences (HIMS), Faculty of Science

We consider it a special initial success of AGCI that we can include the above-mentioned institutes and departments from University of Amsterdam as new partners in the Amsterdam Global Change Institute. This further contributes to our objective of catalyzing interdisciplinary cooperation, and constitutes a considerable extension of available top research and expertise in AGCI.

3. Structure

In 2011, the Amsterdam Global Change Institute started the process of developing its research structure. For this purpose, the AGCI Scientific Steering Committee developed six postdoctoral research programmes for which competitive candidates were recruited and selected.

We believe this process of developing the research structure of AGCI has been successful, and it is with considerable enthusiasm that we present six new postdoctoral researchers who have joined the Amsterdam Global Change Institute.

Besides the AGCI Scientific Steering Board, we have installed an AGCI Executive Board representing the six AGCI research programmes. This allows for more efficient daily management of AGCI by the management team: prof. Frans Berkhout (director) and dr. Ad van Dommelen (executive director).

The formal structure of AGCI, headed by the Board of Deans (with the Dean of FALW-VU as Chair) remains unchanged as presented in the AGCI Baseline Report 2010.

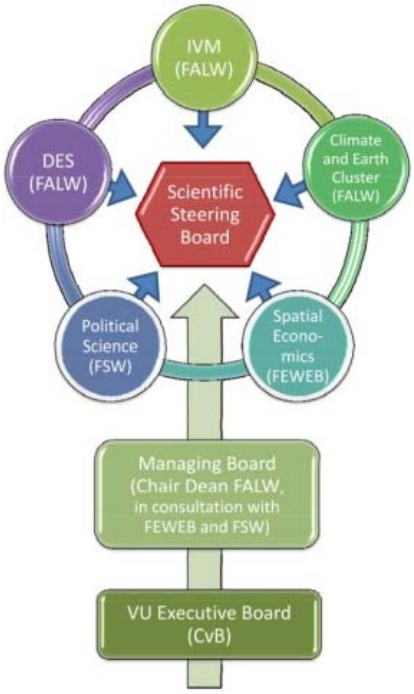


Figure 1: Organisational network tree of *Amsterdam Global Change Institute* and associated partners

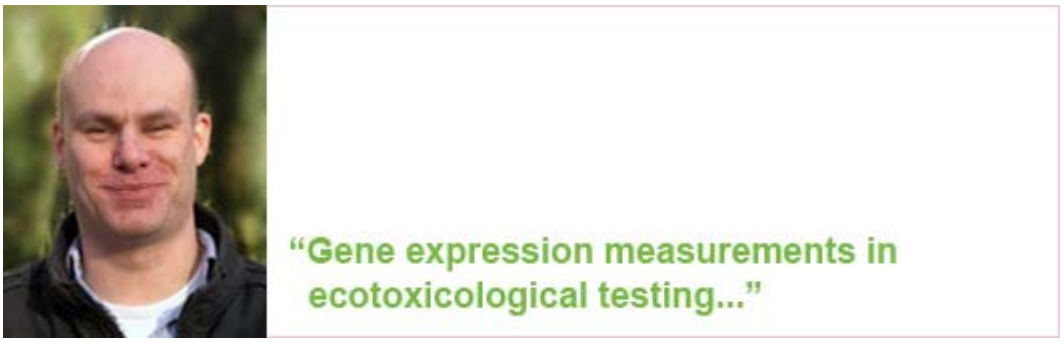
Since we consider the AGCI research programmes the primary structure of AGCI, we present these programmes with the newly appointed AGCI postdoctoral researchers in each of the programmes in *Section 3.1 to 3.6*.

3.1 Risk analysis, chemistry and genomics

People and ecosystems are increasingly exposed to a multitude of pollutants for which a new generation of integrated and effective risk assessments is urgently needed, contributing to a more sustainable chemistry.

Research leaders: Prof. Nico van Straalen, Dr. Juliette Legler, Prof. Jacob de Boer, Prof. Aart Kleijn, Prof. Koop Lammertsma

AGCI postdoc: *Tjalf de Boer*



Establishing common gene expression patterns for biomarker development in ecotoxicological research

This postdoc project aims to investigate the practical and economic feasibility of using gene expression measurements in ecotoxicological testing in general and more specifically to develop a set or panel of genes that may be used in multiple species of test animals to determine the impact of polluting chemicals on animal, human and ecosystem health. Organisms respond to abiotic stress by altering the expression of stress responsive genes. These genes may act as biomarkers to detect and determine the impact of effects caused by anthropogenic stress such as polluting chemicals. Measuring the expression patterns of thousands of genes at once, more commonly known as genomics, is a faster and more sensitive way of determining the impact of polluting chemicals than only using more traditional ecotoxicological endpoints such as survival and fecundity.

In this project we plan to establish a large database containing all gene expression profiles generated in the last years by the department of Animal Ecology and the Institute for Environmental Studies (IVM). With this database it should be possible to look for common expression patterns and filter out those genes that can act as biomarkers to detect anthropogenic stress.

3.2 Ecology and ecosystem service assessment

Ecosystem services and their responses to global change demand improved understanding of interactions between their ecological, environmental and socio-economic elements.

Research leaders: Prof. Jacintha Ellers, Prof. Jan Vermaat, Prof. Rien Aerts

AGCI postdoc: *Matthew Helmus*

A multilevel modeling approach to assess how biodiversity affects ecosystem services

This postdoc project aims to develop a statistical framework that can be used on experimental and field survey data sets to estimate the levels and aspects of biodiversity needed to maintain ecosystem services in the face of global change. The focus will be on multilevel models which are regressions where the parameters are given probability models with their own estimated parameters. Multilevel models are more informative than standard regression models because they are flexible, provide intuitive variance partitioning, and can be used to make robust predictions of complicated processes. This project proposes to develop a suite of multilevel statistical techniques, based on generalized linear mixed models, that can be used on a variety of ecosystem service data sets to: 1) estimate the biodiversity aspects that best provide an ecosystem service (e.g., which species with which trait combinations); 2) predict the effects of an understudied species on ecosystem services based on the known traits of close relatives; and 3) predict how ecosystem services will be altered as species and traits are lost or gained from ecosystems as global change proceeds.

3.3 Climate science and eco-hydrology

The complex feedback mechanisms in our earth system need to be better understood to assess the functioning of terrestrial and marine ecosystems under various drivers of global change.

Research leaders: Prof. Han Dolman, Dr. Peter van Bodegom, Prof. Hans Renssen, Dr. Gerald Ganssen

AGCI postdoc: *Marjan van de Weg*

Improving a next generation DGVM by implementing dynamic plant traits

This postdoc project aims to utilize different types of datasets (plant traits, flux data, soil moisture maps) to improve the way leaf traits and soil-plant-atmosphere interactions are represented in a currently existing dynamic global vegetation model (DGVM). The global terrestrial carbon and water cycle are intrinsically coupled through numerous feedbacks between the biosphere and atmosphere. To simulate current and future global carbon and water fluxes, as well as their interactions with the terrestrial biosphere, the best available option is the use of a DGVM.

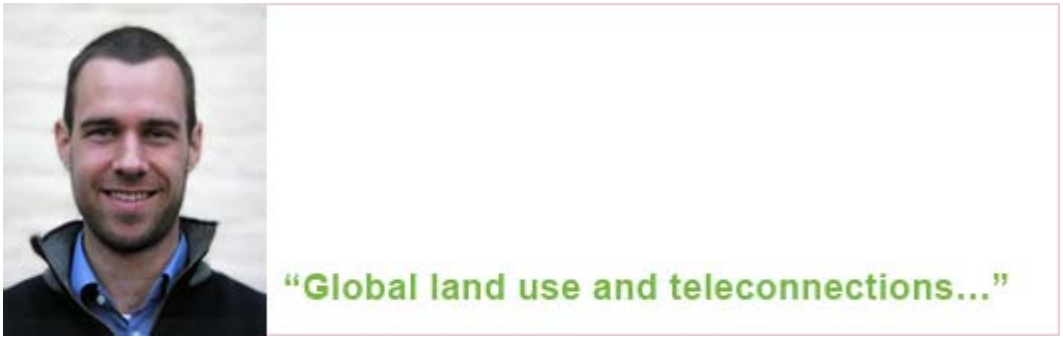
However, current DGVMs differ widely in their climate predictions and these diverging predictions limit the extent to which assessments of ecosystems services, good governance of water systems, and adaptation strategies can be implemented. Plant traits are known to determine biochemical capacity for carbon uptake of an ecosystem, and there is a growing international effort to develop a next generation DGVM in which the quantification of the dynamics and differences of vegetation characteristics ('traits') plays an important role. In recent years, an extensive amount of global plant trait data has become available for parameterization DGVMs. Furthermore, plot level tower observations of water and carbon fluxes (i.e. eddy covariance measurements) have increased, together with products from Earth Observing satellites such as global soil moisture maps.

3.4 Spatial analysis and resources management

Management of land and resource use requires improved understanding of spatial patterns and temporal dynamics of ecosystem services across multiple scales.

Research leaders: Prof. Peter Verburg, Prof. Piet Rietveld, Prof. Jeroen Aerts, Prof. Flip Witte

AGCI postdoc: *Jasper van Vliet*



Spatial analysis of global land use change processes at multiple and interdependent scales

This postdoc project aims to simulate global land use changes by including agents at multiple spatial scales in global land use change models. This will improve our understanding of land use change processes and particularly the interdependency between changes in developed and developing regions that are linked through global teleconnections. This understanding can improve the scientific basis for policy initiatives that aim to mitigate global change such as Reducing Emissions from Deforestation and forest Degradation (REDD) and allow assessment of their tradeoffs and indirect effects at different spatial scales.

Changes in land and resource use are both a cause and effect of global change. Spatial variation in changes of land use systems and natural resource use are the result of dynamics within socio-ecological systems operating across different scales. Global scale integrated assessment models and macro-economic models normally use larger, homogeneous, units for analysis. This approach largely neglects the importance of local spatial interactions and of global teleconnections. An example relates to the impacts of cultivating crops for biofuels. While this might be beneficial for local decision makers (farmers), it can have negative consequences on a global scale as the increased demand for land could lead to accelerated deforestation.

3.5 Environmental economics and responses to global change

The economic consequences of global change underline the urgency of improved analysis of the complex trade-offs society faces in the search for optimal resource management strategies.

Research leaders: Prof. Daan van Soest, Prof. Roy Brouwer, Prof. Cees Withagen

AGCI postdoc: *Tatiana Kiseleva*

Economics of natural resilience to global change

This research project aims to explore the extent to which the output of various systems (ecosystems, wild species populations, etc.) are perceived as substitutes or complements to man-made consumption goods, in order to derive a "social demand function" for resilience of the system under consideration. The research will consist of both theoretical and empirical work (including stated and revealed preference techniques focusing on risk and uncertainty and precautionary principles) at different scales, as system outputs and man-made goods are expected to be closer substitutes at a lower scale of analysis.

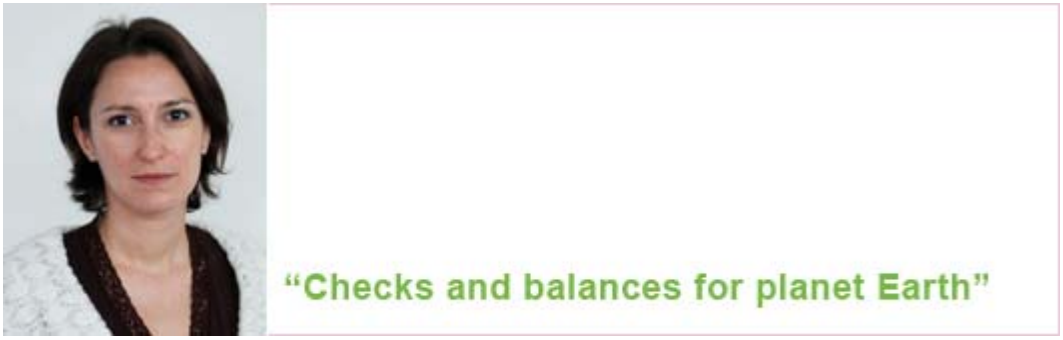
Desertification is an example of people continuing to convert forest land into agricultural land, because of the fact that even though they are dependent on the forest for their survival, their discount rates and the lack of good substitutes for agricultural production induce them to continue overexploiting forest soils. At the scale of the Earth's climate system, man-made outputs are complements to the state of the climate, suggesting that the costs of climate change are very high – but this also means that upon a system flip, system restoration may be prohibitively expensive. Hence, the demand for resilience is likely to be larger for more severe environmental problems.

3.6 Governance, transitions and policy studies

Global change demands the development of new strategies and designs for effective, legitimate and equitable earth system governance.

Research leaders: Prof. Frank Biermann, Prof. Gary Marks, Prof. Henk Overbeek, Prof. Joyeeta Gupta, Prof. Gareth Davies, Prof. Rosa Uylenburg, Prof. Ans Kolk

AGCI postdoc: *Ayşem Mert*



Conceptualising democratic accountability measures for hybrid environmental governance mechanisms

This postdoc project aims to conceptualise accountability and transparency mechanisms for the most wide-spread, most well-known, and most market-based types of hybrid governance mechanisms (HGM) on climate change and biodiversity. While hybrid governance mechanisms (HGM) are often introduced as a means to enhance the democratic quality of environmental governance by more inclusive, participatory processes, their democratic potential is found to have repeatedly been compromised by economic incentives.
In the context of neo-liberal globalization that shifts power from the political to the economic sphere, the HGM often defuse the radical potential of civic critique and start functioning as a legitimizing strategy of global capital. However, at the global level, there are very few and only fragmented mechanisms to ensure the democratic legitimacy of HGM, their accountability and transparency. Moreover, there is no legal authority to petition in case of undesired consequences or governance failures. In other words, there is little incentive for the HGM to act responsibly, as the liabilities are obscured. Hence, new mechanisms of governance require new mechanisms of checks and balances, specifically designed for *global* environmental governance.

4. SWOT

In looking forward and developing a strategy to achieve our objectives, we need a picture of our strengths and weaknesses, as well as the opportunities and threats that exist in our development context.

Strengths

Excellent scientific base: The VU and the UvA have an excellent science base in the environment, sustainability and global change domain, with core strengths in earth science, ecology, chemistry, toxicology, economics, political science and law. The two universities have complementary strengths.

Recognized international position in key fields: The strong science base is reflected in the European and international reputation of scientists and research groups at the VU and UvA. Evidence for this is in citation scores of AGCI research leaders, leadership positions in European and international programmes (ESG, GLP, ICOS…) and participation of AGCI researchers in global assessments, such as IPCC.

Track-record of multidisciplinary collaboration: The VU has a strong track-record of multi-disciplinary research on environment and sustainability. This collaboration exists within departments and between them.

Amsterdam sustainability science network: The AGCI represents environment and sustainability networks within both the VU and the UvA, but also between the two universities. This is a new development which is aligned with the greater collaboration now envisaged between the VU and the UvA. AGCI provides a new opportunity for building the profile of Amsterdam as a centre for sustainability research and teaching. AGCI also provides a clear 'entry point' for other stakeholders (including Government and business) to find relevant research at the VU and UvA.

Embedding in VU research strategy: The environment, sustainability and global change domain is one of four domains which the VU has chosen to highlight in its 2012 research strategy to the Dutch Government. The AGCI is a central feature of this strategy, which will be further developed with the 'Science for Sustainability (S4S)' cluster, due to be launched in late 2012.

AGCI postdocs: The six research themes developed for AGCI are being given a concrete identity by the AGCI postdocs. Apart from doing innovative interdisciplinary research, the AGCI postdocs will also play a role in helping to further develop the AGCI community in this early phase of development.

Weaknesses

Several of the named weaknesses can be seen as a feature of the 'growing pains' of a new institute.

Network structure of AGCI: The benefits of a network structure – and the reason this was chosen in creating AGCI – are that it avoids changes in organizational structure and is more flexible, making it easier to respond to new opportunities. The drawbacks are also clear. Incentives to participate are relatively weak – partly as a result of commitments to 'home' institutes/departments – and the resources and sanctions to encourage participation are also weak.

Weak AGCI community: The rules of participation in AGCI remain ambiguous and are inconsistently implemented. For some institutes and departments (IVM, IES) all scientific staff is deemed to be a member of AGCI, while in others only subset of scientific staff is a member. For the present, we believe that formally defined participation is less important than a sense of ownership and actual participation – the feeling that AGCI provides something that is useful and needed by researchers (and teachers). Through a variety of 'community building' activities, we are seeking to strengthen this feeling of commitment and engagement.

Weak means to enable societal impact: One of the main objectives of the AGCI was to provide a means for achieving societal impacts. We have started to develop links with local and regional government and business, but AGCI also needs to develop ways of having an impact at national, European and international levels.

Lack of a strong Amsterdam 'sustainability science' profile: One of the key objectives of AGCI is to create a recognizable and strong reputation for environment, sustainability and global change research in Amsterdam. That profile currently exists, but is highly fragmented.

Opportunities

Science for Sustainability cluster at VU: The emerging S4S cluster at the VU is a clear opportunity for anchoring AGCI more firmly in VU research strategy. In the current climate of greater specialization and differentiation in Dutch universities, this is a good position, offering further opportunities for growth in future.

Collaboration between VU and UvA: Greater research and teaching collaboration in the environment, sustainability and global change domain offers opportunities for scale and excellence for the future. It means being large enough to participate in large funding opportunities (with support from the city and the region), and to be perceived as a centre of excellence that attracts top researchers and students.

Consolidation of post-graduate teaching in environment and sustainability domain at VU: Working backwards from the consolidation of environment and sustainability research, a next step would be to consolidate PhD and Masters-level teaching at the VU (and UvA). At present, a number of quite different Masters exist in this space at the VU (ERM, A&E, STREEM, Ecology, a variety of Earth Sciences Masters) which have developed individually. New opportunities are likely by reviewing these together, in the light of a broader strategy related to AGCI Masters-level teaching. Also to be considered would be new VU-UvA Masters, including the new ECT, as well as UvA Masters in this domain.

Development of new 'flexible' bachelor in sustainability domain: A further step – probably in the context of S4S – would be to review the bachelors teaching. In particular, the VU's strategy to develop 'broad and flexible' bachelors programmes looks set to transform the landscape of bachelors teaching. A major opportunity exists to develop plans for a 'sustainability science' bachelor programme, with specializations stretching from earth science and ecology, to economics and law.

Threats

Uncertainty about VU strategy (iOZIs, clusters, VU-UvA): Like all universities, the VU and the UvA are currently under several pressures to reform (financially, organizationally, to differentiate, to internationalise…). This has caused a number of not always consistent strategic initiatives, the development of which is difficult to foresee. Although such developments appear to be supportive of AGCI at present, they may also pose challenges in future.

Emerging EU sustainability research networks (Climate KIC…): Consolidation of research is occurring not just in the Netherlands, but across the EU. In the environment domain, a number of more or less institutionalized environment and sustainability networks exist. While the VU is well-embedded in some research EU networks, it is absent from others which may be significant in future. In particular, the new EITs/KICs – in which the VU has no position – will become extremely important parts of the European research and technology landscape in coming years.

Lack of political interest in (and research money for) sustainability in The Netherlands: The current Dutch government is not interested in environment and nature policy. In general, a utilitarian view of science and contributing to national economic performance alone has become received wisdom. In these circumstances, research funding for the environment and sustainability domain will fall. Interest from (central) government for research in this field will also continue to decline.

Summary

At this early 'growth' phase for the AGCI there are still many unrealized potentials as well as uncertainties. The great challenge will be to build an effective network of collaborations which generate new impacts. In the coming year, beyond community- and network-buidling, greater attention will be paid to collaborative acquisition of projects and we will be looking forward to making significant contributions in science and society.

5. News & Highlights

In 2011, the AGCI organized its festive opening event on 16 June, with a range of guest speakers. The Mayor of Amsterdam, Eberhard van der Laan, officially launched the Amsterdam Global Change Institute and expressed his wish to see fruitful cooperation between the City of Amsterdam and AGCI. Robbert Dijkgraaf, president of the KNAW, and Diana Liverman, director of the Institute of the Environment at the University of Arizona, gave keynote lectures.

Also in 2011, we started an important AGCI 'community building' event entitled: the AGCI PhD Research Speed Seminar. The success of the preparations exceeded our expectations and more than 40 AGCI PhD students (VU and UvA) contributed their abstracts to be presented and to be reviewed by senior AGCI researchers from another AGCI department.

Since we consider clear and effective communication as essential for building a strong AGCI community, we are now developing the communicative principles that will help us reach this goal.

Starting points for AGCI communication activities:

- Developing and stabilizing AGCI's identity frame by means of effective internal and external communication.
- Underlining AGCI's catalyzing role for global change researchers.
- Enabling people to make sense of what AGCI is about and how it can be of value to them by effective and to-the-point communication.
- Providing our AGCI community and further audience with meaningful entry points into our work (e.g. highlights, keywords).
- Building bridges between the "parts" and the "whole", both content-related and collaboration-related.
- Developing a community of researchers that allows different levels of participation.
- Creating opportunities for active members to take leadership roles.
- "Building benches" for those on the sidelines, as this may keep all researchers connected.
- Keeping our "intellectual neighbours" updated on the developments of our activities.
- Recognizing that rhythms (regular updates) are vitally important for all our communications work.

In 2011 we sent out a first edition of the AGCI Newsletter, presenting the newly recruited AGCI postdoctoral researcher and highlighting upcoming meetings for catalyzing interdisciplinary cooperation.

AGCI Amsterdam Global Change Institute Newsletter

December 2011

AGCI: Starting up

Welcome to this first issue of the AGCI Newsletter. The Newsletter aims to keep you in touch with news and events connected to the Amsterdam Global Change Institute. This first issue is being distributed only to partners at the VU University Amsterdam (VU) and University of Amsterdam (UvA), and we'd like to have feedback from you about the format. Starting with the next issue, the AGCI Newsletter will be sent to our external contacts three times a year. Please make use of the Newsletter as a way of communicating your research and achievements. If you have something you'd like to post, please contact Nicolien van der Grijp.

AGCI's success will be measured by whether it generates new opportunities for researchers to do path-breaking and useful science. To achieve this, we will be working over the coming months on a series of 'community building' events that allow researchers to come together and explore how they might be able to work together. The first examples of this are highlighted in this Newsletter. I believe it is these *ontmoetingen* that will be the key to AGCI's success.

Come join the party!

Frans Berkhout

Frans Berkhout, together with Rector Magnificus Lex Bouter and Mayor of Amsterdam Eberhard van der Laan at the launching event of AGCI on 16 June 2011

Introducing AGCI postdocs and their projects

Since the summer, we have been busy recruiting six AGCI postdocs; one for each of the six research programmes. This was an open, competitive and international recruitment process, and we are very pleased with the group that has emerged to work on new interdisciplinary projects. The group has a nice balance: three women and three men; three from The Netherlands and three from abroad. Tatiana, Aysem, Matthew, Marjan, Tjalf and Jasper will all be starting work in January and February 2012 and they're introduced here.

Read more

Integrating knowledge for sustainable societal choices

Season's greetings from AGCI!

University of Amsterdam participating in AGCI

A big step forward for AGCI since the launch in June has been our discussions with colleagues at the University of Amsterdam (UvA) about their participation. The UvA does much excellent and complementary research in environment, sustainability and global change. This stretches from the Amsterdam Business School, to environmental law, political science, sustainable chemistry and ecology.

AGCI is an opportunity for greater cross-fertilisation between research and researchers across the two universities, strengthening the growing links between them. By creating a connected community of global change researchers in Amsterdam, we can also enhance our collective profile internationally, becoming more attractive to students, talented researchers and funding in the future.

Read more

VU UNIVERSITY AMSTERDAM

UNIVERSITEIT VAN AMSTERDAM

AGCI seminar on Environmental Change and Conflict in Spring 2012

An indication of the AGCI potential emerged at a seminar given in November by Prof Wolfgang Wagner (Political Science, VU University Amsterdam) on the relationship between environmental change and conflict. One of Wolfgang's conclusions was that while much previous research in the field had not yielded a clear picture of potential causal relationships, new more sub-national data on conflicts offered the potential for improved analysis, if this could be tied to data and models of environmental change at regional and local levels. Present at the seminar was Laurens Bouwer (IVM) who works on spatial modelling of the impacts of climate change. Together, Wolfgang and Laurens are now organising a further AGCI seminar with an international speaker to develop research that would couple spatially-explicit conflict and environmental change data in the search for better explanations.

Read more

AGCI PhD research "speed seminar" on 17 January 2012

AGCI will host its first AGCI PhD research speed seminar on Tuesday afternoon, 17 January 2012. We have already received enthusiastic responses from 30 AGCI PhD students, from both VU and UvA, who will be presenting their research on this occasion. These presentations will be delivered in three parallel theme groups, starting at 13.00 hrs at VU University Amsterdam. The basic idea of this "speed seminar" is that PhD students will deliver powerful 5-minutes presentations (max. 3 slides) and will get feedback from senior researchers of other departments and disciplines - reflecting constructively on the PhD work from an integrating AGCI perspective. The afternoon will be concluded in a plenary session which will start at 16.00 hrs, followed by a nice 'AGCI borrel'. Do you wish to join, either to present your PhD research or as a senior reviewer - then please go to www.agci.vu.nl/speedseminar for instructions and let us know asap!

Read more

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6. International collaboration

One example of international collaboration within AGCI was initiated in 2011 by Prof. Wolfgang Wagner and Dr. Laurens Bouwer. Following an AGCI seminar on conflict and climate change, a novel potential collaboration between political scientists and environmental scientists was identified focusing on the co-analysis of local conflict and regionally-specific environmental change data. A further seminar was organised with Prof. Halvard Buhaug of the Peace Research Institute (Oslo), attended by an interdisciplinary audience of about 40 scholars from the VU and UvA. New project ideas were discussed and a plan for collaboration developed.

Another example is the cooperation initiated by Prof. Frank Biermann, which led to the writing of a keynote publication together with 32 international authors and was accepted for publication in *SCIENCE*, pleading for a fundamental overhaul of environmental governance.

AGCI researchers Philip Ward and Brenden Jongman gave two invited lectures at the *MIT Global Change Program* in Boston and at the *World Bank* in Washington DC, discussing scientific and policy issues related to global flood risk assessment and climate variability. The lectures were part of a research mission to enhance collaboration between AGCI and top research and policy institutes in the USA. Besides at MIT and the World Bank, meetings and presentations were held at the *Columbia Water Center* of Columbia University, the *Yale School of Forestry & Environmental Studies* of Yale University, the *Civil, Architectural & Environmental Engineering Department* of Drexel University Philadelphia, the *Joint Global Change Research Institute* of the University of Maryland, and the *College of Agricultural & Environmental Sciences* of the University of Georgia. The mission was carried out in the context of the NWO research project *Climate Variability and Global Flood Risk* and the *Knowledge for Climate* project *Climate Proof Flood Risk Management*.

Besides this, it should be noted that the participating departments in the Amsterdam Global Change Institute have a considerable presence in international scientific networks, including:

- *GREENCYCLES II*: Research network on global biosphere-climate interactions (Han Dolman);
- *EPOCA*: European Project on Ocean Acidification (Gerald Ganssen);
- *PAST4FUTURE*: European project on past climate variability (Hans Renssen);
- *TRY*: Initiative on Plant Traits (Dept. of Ecological Science);
- *GLOPNET*: Global Plant Trait Network (Dept. of Ecological Science);

- *NECTAR*: on Sustainable transport (Spatial Economics);
- *ECCONET*: on Climate change & transport (Spatial Economics);
- *Earth System Governance* (Frank Biermann)
- *Global Land Project* (Peter Verburg)
- *COST Action IS0802 Transformation of Global Environmental Governance (TGEG): Risks and Opportunities* (Philipp Pattberg)

7. Input

Below is a graphic representation of the number of FTEs input into AGCI research, by type of funding: direct funding, funding by NWO (the Dutch Research Council), and contract research, respectively. Figure 2 displays overall input and Figure 3 details PhD students (also included in Figure 2). Figure 3 does not include permanent staff working towards a PhD.

Figure 2: AGCI input of research FTEs in 2010 and 2011, by type of funding (source: VU Metis).

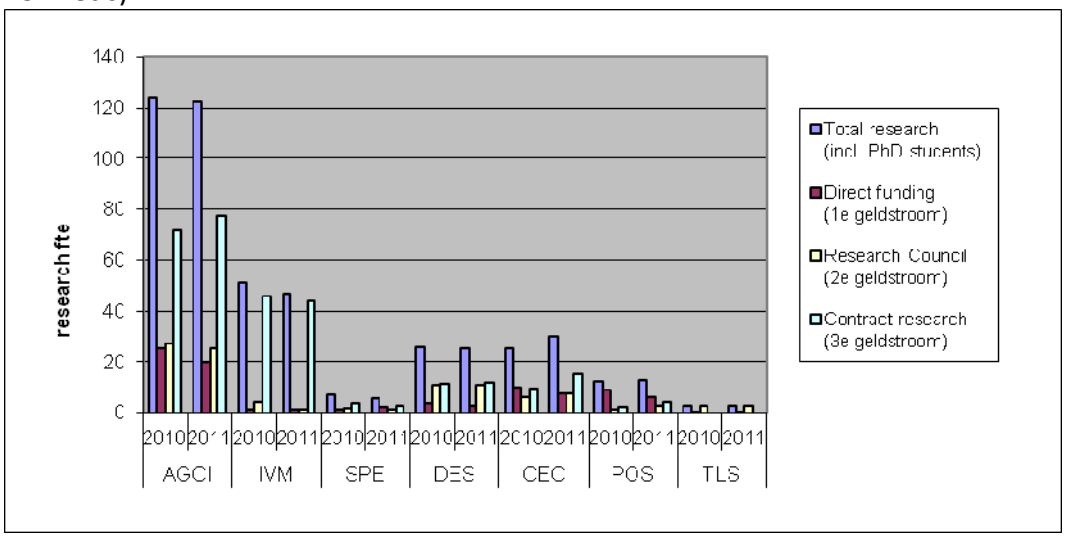
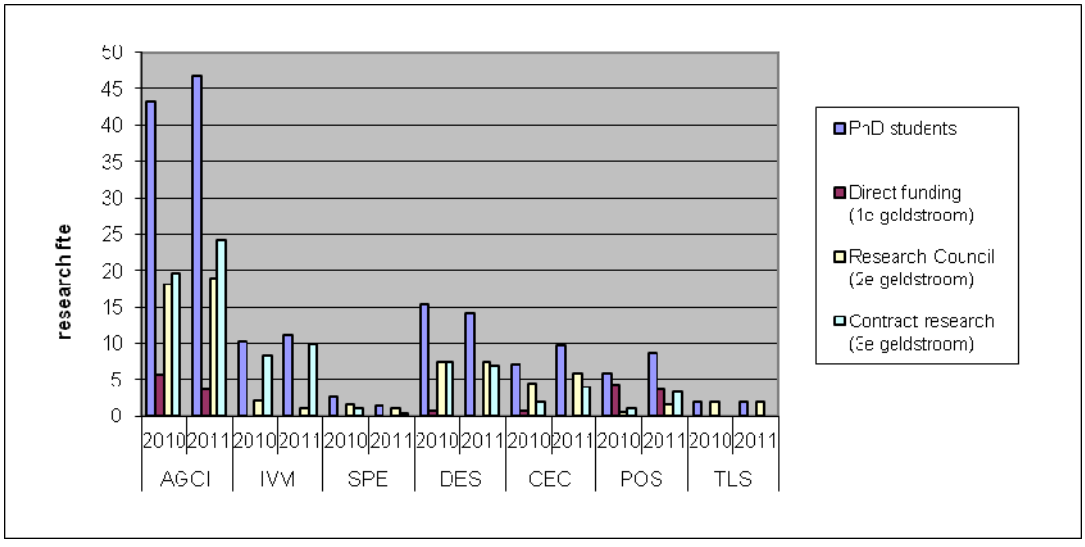


Figure 2 shows that AGCI is overwhelmingly dependent on external funding (2nd and 3rd money flows). Core funding is consistently below external funding for 4 out of 5 partners. The same holds for the funding of PhD students in Figure 3. Moreover, none of the PhD positions derive from direct funding for 3 out of 5 partners.

Figure 3: AGCI input of FTEs for PhD students in 2010 and 2011, by type of funding.



8. Output

Input-output analysis

As an appendix to this written annual report, an accompanying Excel workbook provides details on *input* (in monetary terms and staff) and *output* (with respect to publications, citations, indicators of esteem, economic and socio-cultural values).

The scientific output was taken primarily from the VU METIS database, complemented with statements by individual AGCI participants concerning non-scientific output. A similar approach was followed for staff input in FTEs. This proved necessary for SPE and TLS, in particular, because only a proportion of these groups is participating in AGCI. In future, implementing this in VU METIS may save considerable effort and improve consistency.

Monetary input constitutes a special case. In fact, template item 8a (sheets "2e 3e gs" plus "werving") asks for the funds acquired in a particular year, even though acknowledging that most of the financial departments in iOZIs will be able to provide statements of funds actually received in a particular year, exclusively. In 2010, the former had been attempted by some of the AGCI participants with varying degrees of success. In 2011, the latter has been done more systematically. Unfortunately, this makes it hard to compare those years at present, but continuing this trend will facilitate increasingly consistent monetary input figures in future years.

Citation analysis

- The bibliometric analysis covers a time period of ten years: 2002-2011.
- It involves tenured research staff employed on 1 January 2012.
- This is a pre-AGCI analysis, since it is assumed that AGCI articles had not yet been published in 2011, within one year after its foundation.
- The scientific output of the staff members was taken from VU-METIS.
- For staff not yet employed by the VU on 1 January 2002, the VU-METIS data were expanded with the journal articles from the Web of Science ®, published before their appointment date.
- The number of citations to journal articles were derived from the Web of Science ®.
- No corrections for self-citations were made.
- The world average citation rate in any specific scientific field was taken from the Essential Science Indicators, which provide data on the top 10% most cited articles in a specific scientific field in a specific year.

- If staff members are in more than one group (e.g. Biermann and Van Soest), they are counted towards each of these groups. However, they are counted only once if the groups are joined together, and with the AGCI as a whole.
- Scientific age (how long a person is active in the scientific community) is not considered.
- This analysis emphasizes citations of journal articles. In future this analysis should be expanded with other indicators, such as book (chapter) citations, and societal impact.

Citation analysis

A bibliometric analysis across the whole of AGCI was performed by René Otten (UBVU). The analysis covers the ten-year period from 2002 through 2011 and includes scientific output of the 83 tenured staff members associated with AGCI on 1 January 2012.

The scientific output was taken from the VU METIS database and cross-referenced with Web of Science (WoS) data to yield the number of citations per publication. No corrections were made for self-citations. Publications of staff members with appointments in two AGCI departments (such as Biermann and Van Soest) are counting towards both departments, but the totals display unique references exclusively.

The results are shown in *Table 1*. Of the 6768 items found in METIS, for example, 2631 concerned papers in scientific journals. Of the latter, 1898 were identified in WoS, and 1346 were actually cited in other publications. The relative impact of these cited articles is 2.85, which is nearly triple the world average (=1.0). Furthermore, 22% of the articles are among the top 10% most cited articles. Currently, about 1% of AGCI publications are authored by participants from more than one AGCI department (not counting double appointments). It seems likely that this indicator of collaboration will increase during the next few years.

In addition, 120 books and almost 1000 book chapters were published in the last ten years. The citation analysis, however, was based on journal articles, because more reliable information is available for this type of publication. Obviously, journal articles work less well for scientific fields with more emphasis on publishing in books, book chapters, reports or proceedings, such as more customary in social science. Even though this seems a bias in favour of natural science, it will diminish in future annual reports, when we will be able to illustrate AGCI progress by providing a time series.

The scientific output was taken from **Metis** at the VU. Metis is the research and registration system at the VU.

The citation data were taken from the **Web of Science ®** of Thomson Reuters. The Web of Science (formerly Science Citation Indexes) provides bibliographic and citation information in the sciences, social sciences, arts, and humanities.The content covers over 12,000 of the highest impact journals worldwide, including Open Access journals and over 150,000 conference proceedings.

The comparison of the scientific articles with world average was made on basis of the **Essential Science Indicators** of Thomson Reuters. This unique and comprehensive compilation of science performance statistics and science trends data is based on journal article publication counts and citation data from Thomson Scientific databases.

Data presented in Table 1:

- Metis data were provided for the number of scientific articles, books, book chapters, reports, articles in proceedings and dissertations. These are the main entries in Metis.
- The number of scientific articles in the Web of Science, the number of articles being cited and the number (and the percentage) not being cited .
- The relative impact of the articles compared to world average on basis of the cited articles in WoS and on basis of all articles in WoS.
- The h-index
- The number of articles in the top 10 % of most cited articles and the percentage of total number of articles.

number of department	name of department	number of tenured staff	number of items in Metis	1 scientific articles	2 books	3 book chapters	8 reports	11 proceedings	20 dissertations	rest	in Web of Science	being cited	not being cited	percentage of non-cited	relative impact (based on cited articles)	relative impact (based on all articles)	h-index	top 10 % cited articles	percentage top10%
1	Chemistry & Biology	8	703	228	1	32	98	38	13	293	186	158	28	15	2.79	2.37	37	50	27
2	Environmental Economics	8	990	289	11	87	302	10	7	284	206	156	50	24	2.33	1.77	22	44	21
3	Environmental Policy Analysis	8	1017	221	20	220	165	9	14	368	105	55	50	48	2.59	1.35	16	14	13
4	Spatial Analysis & Decision Support	11	709	221	12	51	144	45	20	216	181	130	51	28	3.01	2.16	26	56	31
	I.V.M. unique references	35	3271	917	40	373	663	99	51	1128	653	481	172	26	2.73	2.01	44	132	20
	difference (indicator for internal cooperation)		148	42	4	17	46	3	3	33									
5	Animal Ecology	8	444	331	10	42	6	4	34	17	287	237	50	17	2.37	1.96	35	60	21
6	Systems Ecology	4	193	165	1	7	0	1	19	0	159	135	24	15	3.91	3.32	32	40	25
	D.E.S. unique references	12	621	480	11	49	6	5	53	17	430	361	69	16	3.02	2.54	45	100	23
	difference (indicator for internal cooperation)		16	16	0	0	0	0	0	0									
7	Marine Biogeology	5	108	86	1	11	1	2	5	2	80	45	35	44	3.07	1.73	17	15	19
8	Geo-environmental Sc.	11	539	336	6	73	19	30	24	51	258	152	106	41	4.71	2.78	30	60	23
9	Climate Change & Landscape Dyn.	4	187	147	0	7	1	7	13	12	132	91	41	31	1.78	1.23	23	20	15
	C & E.C. unique references	20	823	561	7	91	21	37	42	64	462	283	179	39	3.56	2.18	39	94	20
	difference (indicator for internal cooperation)		11	8	0	0	0	2	0	1									
10	Spatial, Transport and Env. Economics	9	1809	599	52	389	393	64	55	257	319	204	115	36	1.68	1.07	19	41	13
11	Political Science	8	471	173	13	142	35	23	16	69	109	65	44	40	3.27	1.95	18	20	18
12	Transnational Legal Studies	1	54	15	2	6	0	2	0	29	5	2	3	60	1.37	0.55	2	0	0
	A G C I unique references	83	6768	2631	120	982	1080	225	208	1522	1898	1346	552	29	2.85	2.02	69	417	22
	difference (indicator for internal cooperation)		60	24	0	8	10	2	5	11									

Table 1: Overview of citation analysis 2002 through 2011.

METHODS

The AGCI includes 12 departments in 4 different faculties (see overview below). The 9 departments within the Faculty of Earth & Life Sciences belong to three different groups. The analysis is performed on the level of the 12 departments, the three groups and at the level of the AGCI as a whole.

Faculty of Earth and Life Sciences	Institute for Environmental Studies (IVM)	Chemistry & Biology
		Environmental Economics
		Environmental Policy Analysis
		Spatial Analysis & Decision Support
	Department of Ecological Science (DES)	Animal Ecology
		Systems Ecology
	Climate and Earth Cluster	Marine Biogeology
		Geo-environmental Science & Hydrology
		Climate Change and Landscape Dynamics
Faculty of Economics and Business Administration	-	Spatial, Transport and Environmental Economics
Faculty of Social Sciences	-	Political Science
Faculty of Law	-	Transnational Legal Studies

The people involved in this analysis were tenured staff of the AGCI and its components at 1 January 2012 who are involved in research. The list was provided through Dr. H. Aiking of IVM.

Metis

The scientific output of the tenured staff was taken from Metis at the VU. The completeness of the Metis database is dependent on the input, mainly by the researchers themselves. This analysis is mainly based on scientific articles. Especially

the scientific articles are quite completely entered in the Metis database. As such data from Metis can be considered as the most reliable and best verified data available at the VU.

The coverage was checked for a selection of the staff (3 per group except Transnational Legal Studies). The numbers were compared with Web of Science and Google Scholar. The coverage was sufficient to warrant an adequate analysis.
As far as there was no publication year stated in the Metis data the account year was presumed to be the publication year. In *Table 1*, Metis data are provided for the number of scientific articles, books, book chapters, reports, articles in proceedings and dissertations.

Web of Science
The publication data of VU Metis were ad hoc expanded with the citation data from the Web of Science. The *Web of Science* (WoS) provides numbers of citations of the articles in the database. The amount of articles in the WoS compared to not being in the WoS was sufficient (on average above 70 %) to warrant an adequate analysis.

H-index
With this data from the *Web of Science* the h-index can be calculated. The h-index means that a researcher or a research group has published *h* papers each of which has been cited in other papers at least *h* times.

Relative impact
The *Essential Science Indicators* divides science into 22 fields of research. Within each field the average rate of citation is calculated and for every year in the last 10 years. Comparing these average rates with the citation number of an given article from the Metis database produces the relative impact. If an article can be assigned to different fields the most favourable is chosen.

The top 10 % of most cited articles
The *Essential Science Indicators* also produces a list of percentiles of the number of citations in a specific field of research (1 of the 22 research fields) in a specific year. This list allows an article to be considered part of the best cited (compared to the same field and the same year) for instance in the category top 10 % cited articles.

Self-citations
No corrections for self-citations were made.

AGCI

On average 22% of the articles are in the top 10% most cited articles.
H-index of AGCI is 69, which means that 69 articles have been cited in other articles at least 69 times. Relative impact is with 2,85 far above world average (=1.0).

Table 2: AGCI output of *academic* publications in 2010 and 2011.

***Academic* publications**	**AGCI '10**	**AGCI '11**	**IVM '10**	**IVM '11**	**SPE '10**	**SPE '11**	**DES '10**	**DES '11**	**CEC '10**	**CEC '11**	**POL '10**	**POL '11**	**TLS '10**	**TLS '11**
Papers in peer-reviewed journals	365	360	138	142	25	26	87	66	98	102	15	24	2	0
Papers in non peer-reviewed journals	11	20	3	3	4	1	2	2	1	4	1	9	0	1
Edited books and monographs	16	13	8	5	1	6	1	1	2	1	4	0	0	0
Book chapters	115	70	50	35	10	14	7	1	21	8	25	12	2	0
PhD theses	16	18	7	5	1	0	5	7	3	6	0	0	0	0
Conference proceedings (> 2 pages)	33	16	6	8	15	7	0	0	0	0	8	1	4	0
Externally ordered scientific reports	59	44	43	35	11	5	0	0	0	0	5	4	0	0

9. Quality

In Table 3 an overview of the most recent research quality assessments of participating departments in AGCI is presented.

Table 3: Overview of quality assessments of AGCI departments.

AGCI partner department:	**Quality**	**Productivity**	**Relevance**	**Viability**	**Year of research evaluation**
Chemistry and Biology (IVM)	4	5	4	4	2007
Environmental Economics (IVM)	5	4	4	3	2007
Spatial Analysis (IVM)	4	4	4	4	2007
Environmental Policy Analysis (IVM)	4	5	4	5	2007
Cluster Earth and Climate –Hydrology and Geo-Environmental Sciences (FALW)	4	4	4	5	2009
Paleoclimatology and Geomorphology (FALW)	5	4	5	4	2009
Systems Ecology Group (DES)	5	5	4	5	2007
Ecotoxicology and Ecogenomics (DES)	5	4	4	5	2007
Community and Evolutionary Ecology (DES)	3	4	4	4	2007
Spatial Economics (FEWEB)	5	4	5	4.5	2009
Political Science (FSW)	5	4	4	4.5	2008
Organic Chemistry (FEW)	4	5	4	5	2011

Note: department names above may have changed since the year of review.

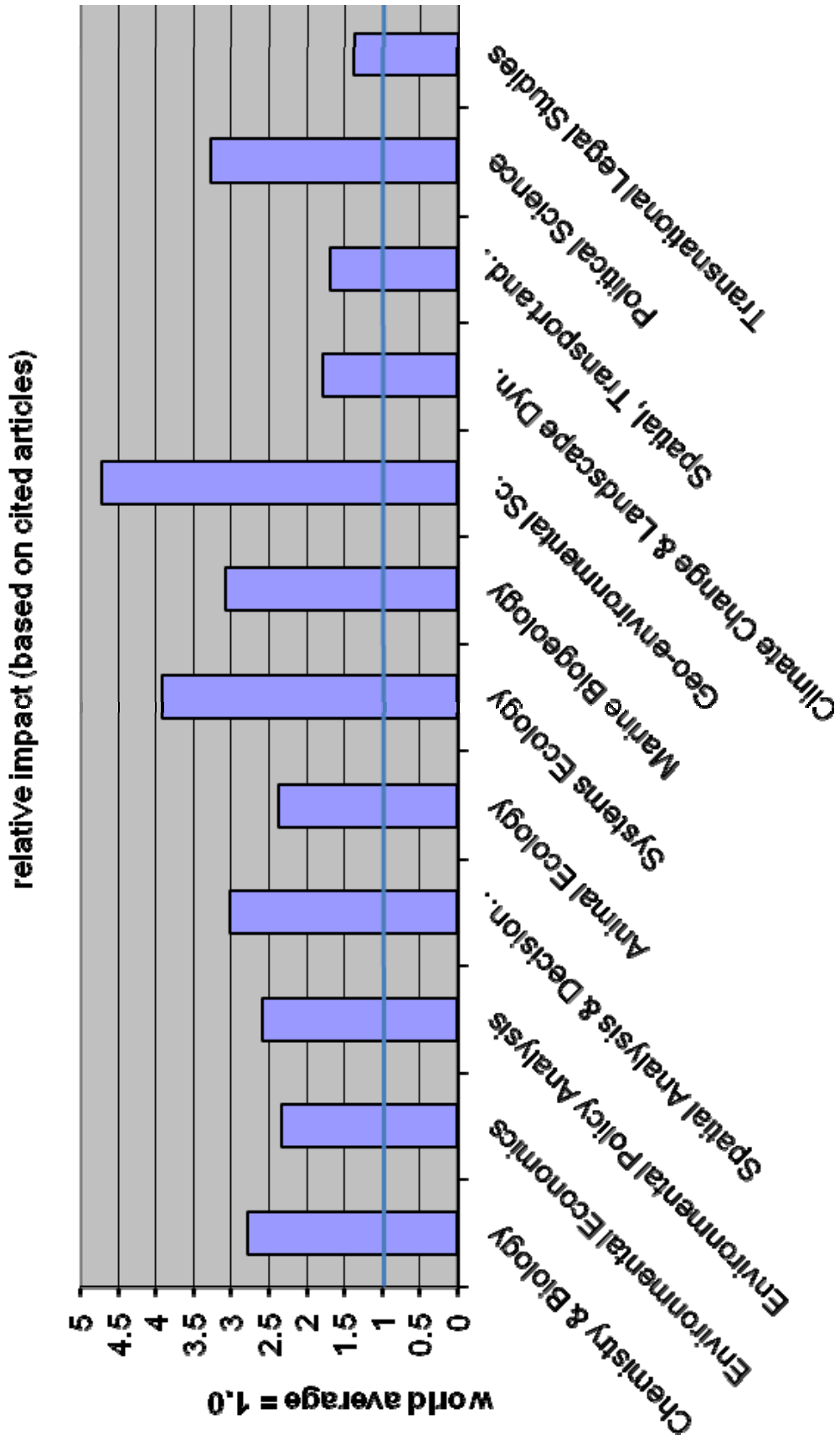


Figure 4: Overview of Relative impact (based on cited articles) for VU departments in AGCI, compared to world average in each relevant research field (= 1.0)

10. Indicators of esteem

A selection of indicators of esteem as received by AGCI research leaders in 2011:

- In May 2011 Prof. Piet Rietveld has been elected as a member of the Royal Netherlands Academy of Arts and Sciences (KNAW). The election is based on scientific performance.

- Prof. Piet Rietveld wins EIB-ERSA Prize 2011: The European Investment Bank (EIB) – European Prize in Regional Science was created to recognize the outstanding contribution of scholars to the advancement in regional science and in related spatial area studies.

- AGCI research leader Prof. Frank Biermann is awarded the Research Prize 2011 of the VU Faculty of Social Sciences.

- Prof. Gary Marks receives Humboldt Research Award 2011: this Award is granted to academics whose fundamental discoveries, new theories, or insights have had a significant impact on their own discipline and who are expected to continue producing cutting-edge achievements in future.

- AGCI research leader Prof. Joyeeta Gupta is appointed Editor-in-Chief of *Journal on International Environmental Agreements* (INEA)

- As of 25 October 2011 Prof. Jacob de Boer has been appointed as editor of *Chemosphere*.

- In 2011 Prof. Roy Brouwer is appointed Chief Editor of *Water Resources and Economics*.

- Prof. Jacintha Ellers is appointed Associate Editor for *Journal of Insect Physiology.*

- Agni Kalfagianni, Editorial Board of *Agriculture and Human Values*, published by Springer.

- Agni Kalfagianni, Managing Editor of *International Environmental Agreements: Politics, Law and Economics*, published by Springer (since 2010).

- Thijs Etty, founding Editor-in-Chief, *Transnational Environmental Law* (TEL), Cambridge University Press.

- Prof. Liesbet Hooghe is Elected Fellow of the *Flemish Royal Academy of the Arts and Sciences* (KNAW) 2011.

- Prof. Henk Overbeek is appointed as member of NWO-MaGW-committee VIDI 2010-2011, 2011-2012.

- Prof. Peter Verburg is elected chair of the 'Global Land Project' Scientific Steering Committee (http://www.globallandproject.org).

- Prof. Jacob de Boer is appointed member of *CEFIC LRI Expert Advice Group* (ESAP) (European Chemical Industry).

- Dr. Laurens Bouwer, Prof Joyeeta Gupta and Prof Frans Berkhout are appointed lead author in IPCC AR5 assessment.

- Prof. Joyeeta Gupta, vice chair of the *Commissie Ontwikkelingssamenwerking*.

- Prof. Joyeeta Gupta, member Adviesraad Internationale Samenwerking.

- Dr. Philipp Pattberg, Management Committee Chair, COST Action TGEG.

- Thijs Etty, Member of Academic Advisory Board of International Studies BA Program at Leiden University.

- Dr. Philip Ward receives NWO VENI grant for the project: "Climate variability and global flood-risk: improving understanding, methods, and applications".

- Dr. Toby Kiers receives NWO- MEERVOUD grant.

- Best Paper Award 2011 European Summer School in Resources and Environmental Economics, Venice: Okullo S., Reynès F. and Hofkes M. (2011). Modeling peak oil and the geological constraints on oil production.

11. Societal impact

A selection of societal impact of AGCI research as realized in 2011:

- AGCI research leader Prof. Jeroen Aerts coordinated book on “Climate adaptation and flood risk in Coastal Cities” together with Wouter Botzen and Philip Ward. The recent floods in Bangkok, Australia and Pakistan have shown the devastating effects of large floods on societies and the economy of countries and cities. Climate change and socio-economic trends – such as population growth – will increase the impacts of flood risk on global coastal cities if we do not invest in innovative flood risk management strategies. More than 20 international newspapers have given attention to this research.

8 Achterop | WereldKrant • Donderdag 3 november 2011 | www.wereldomroep.nl

Waterexperts helpen New York

Een watersnoodramp in New York? Wetenschappers van de Vrije Universiteit Amsterdam helpen de grotendeels op eilanden gebouwde wereldstad beschermen tegen het opkomende zeewater. Niet met een opgeheven vingertje, maar 'nederlig'.

Door: Reinout van Wagtendonk

De eerste presentatie van het Nederlandse plan voor New York was snel afgelopen. 'We kwamen toen misschien een beetje teveel met het Nederlandse opgeheven vingertje vertellen wat er hier allemaal moest gebeuren, zoals hele hoge dijken aanleggen', vertelt Jeroen Aerts, hoogleraar klimaat- en waterrisico's aan de VU. 'Toen stonden we binnen de kortste keren weer buiten, want dat was veel te duur en New York is Nederland niet. Daarna zijn we ons eerst eens gaan inleven in hoe ze hier plannen maken en maatregelen nemen.'

Jeroen Aerts (r) en Wouter Botzen van de Vrije Universiteit Amsterdam in New York

kan een volgende orkaan een stormvloed opstuwen die wel levensgevaarlijk wordt.

Wall Street

'Dan kan het mensenlevens gaan kosten', zegt oceanograaf Malcolm Bowman. 'Dan klotst het water door Wall Street. Belangrijke infrastructuur wordt getroffen: ziekenhuizen,

Adviseren in plaats van beter weten? 'Ja, een wat meer nederige opstelling', lacht Aerts. 'En ik wil benadrukken dat we ook wel wat van de Amerikanen kunnen leren. Zij zijn veel meer gericht op zelfredzaamheid, eigen verantwoordelijkheid. Overstromingsverzekeringen bijvoorbeeld. Die hebben wij in Nederland niet.

Oostenrijkers drinken gesmolten ijswater

En: Nederland stelt zich weer op als lakei van de VS, schandelijk en laf

Maandag schreven wij over een actie van Nederlandse drinkwaterbedrijven, die wilden aantonen dat Amsterdams leidingwater prima te drinken is. Ze beweerden zelfs dat het Amsterdamse water het lekkerste van Europa is, en dat kan **Ronald Bron** (what's in a name?) niet op zich laten zitten. 'Ik had twee weken terug nog mijn kinderen uit Lelystad hier in Oostenrijk op bezoek gehad en als die dan hier zijn, dan hebben ze het altijd over het goede water hier in Oostenrijk en dat ze het maar moeten doen met 'bocht' in Nederland als je dit vergelijkt met het water hier. Hier in Oostenrijk drinken we bijv in Wenen het gesmolten ijswater (Quellwasser) uit de gletschers, hier hoeven we niet het water uit de rivieren te transporteren naar de

- On the basis of this research AGCI research leaders were also appointed main international advisor to the Vision 2020 program launched by Major Bloomberg of New York City. The program is a 10-year vision for the future of the city's 520 miles of shoreline. This plan provides a sustainable framework for more water transport, increased public access to the waterfront and economic opportunities that will help make the water part of New Yorkers' everyday lives.

- Prof. Frans Berkhout and dr. Ad van Dommelen have initiated cooperation contacts with representatives of Green Metropole and the City of Amsterdam, together with representatives of Shell, Rabobank, and consultancy organisations. This work will further develop in 2012.

- Prof. Piet Rietveld and Prof. Carl Koopmans (Chair) have been part of the Audit committee for the societal cost-benefit analysis of the renewed Afsluitdijk and have thus contributed to the climate-proofing of the Netherlands.

- Prof. Henri de Groot and dr. Wouter Vermeulen have co-authored the influential report on City and Country (Stad en Land) by CPB (Centraal Plan Bureau – Netherlands Bureau for Economic Policy Analysis), and have thus

contributed to the long-term perspectives of Dutch economic centra in the context of globalisations.

- Prof. Peter Verburg organised workshop held at the World Delta Summit (WDS) on flood risk assessment, in Jakarta. In this workshop, scientists from AGCI, Wageningen University, Gadjah Mada University Jogjakarta and Bogor Agricultural University, discussed adaptation to flood risks with high level decision-makers from Jakarta's city government, and with Indonesian scientisits and NGOs.

- Prof. Jacob de Boer and other staff of the Dept. Chemistry and Biology contributed regularly to radio and television programs, documentary films and newspaper articles. A lot of effort was spent by Jacob de Boer on comments on the Moerdijk fire in January 2011, including live TV interviews in 'Nieuwsuur' and 'Journaal'. Sustainable food production and consumption (Harry Aiking) also attracted the attention of news agencies, as did the OBELIX work e.g. in an important Canadese documentary (Juliette Legler).

- Prof. Rien Aerts was one of the three leading professors that organized a massive protest among leading Dutch professors in *Ecology and Environmental Science* against the government plans for nature conservation. The petition was signed by 89 professors and the media coverage was considerable (Radio 1-4, Brandpunt, NRC, Volkskrant, press conference in Nieuwspoort).

- Dr. Joris Koene presented his research on television in 'De Wereld Draait Door' (watch online, VARA, 9 February, 2011).

- Mairon Bastos Lima, Filmed interview for the UN Research Institute for Social Development (UNRISD). Videos being released online in preparation for Rio+20. http://www.unrisd.org/80256B3C005BE6B5/httpNewsVideos?ReadForm&count=10000

- Thijs Etty, European Parliament, Committee on Agriculture and Rural Development, advisor to Vice Chair, MEP José Bové. Legal advice to MEPs on EU Commission proposals on renationalization of GM-crop cultivation policy (Sept 2010 – Apr 2011, Brussels)

- Thijs Etty, The European Voice (The Economist's weekly EU newspaper), 3 February 2011. Citation in newspaper article: 'Growing GM crops 'could pose a threat to public order', p. 4, also online at: http://www.europeanvoice.com/article/imported/growing-gm-crops-could-pose-a-threat-to-public-order-/70111.aspx.

12. Budget

In Table 4 an overview of the updated AGCI budget as calculated in April 2012 is presented.

Table 4: Overview AGCI budget (update April 2012).

Budget Amsterdam Global Change Institute (April 2012)						
Uitgaven	**2010**	**2011**	**2012**	**2013**	**2014**	**Totaal**
Formatie postdocs	**0**	**0**	**5.7**	**6**	**0.3**	
Loonkosten aan te stellen postdocs	**€ -**	**€ -**	**€ 334,079.25**	**€ 375,250.35**	**€ 21,728.44**	**€ 731,058.04**
Environmental Economics: Tatiana Kisela (1-2-2012)	€ -	€ -	€ 54,474.75	€ 62,702.46	€ 5,345.84	€ 122,523.05
Ecology and Ecos. Serv. Assess: Matthew Helmus (1-3-2012)	€ -	€ -	€ 51,382.50	€ 64,583.85	€ 11,036.77	€ 127,003.12
Climate Science and Ecohydr.: Marjan vd Weg (1-2-2012)	€ -	€ -	€ 54,474.75	€ 62,702.46	€ 5,345.84	€ 122,523.05
Spatial Analysis and Res. Man.: Jasper van Vliet (1-1-2012)	€ -	€ -	€ 57,934.35	€ 61,184.70	€ -	€ 119,119.05
Governance and Policy Studies: Aysem Mert (1-1-2012)	€ -	€ -	€ 56,385.90	€ 61,184.70	€ -	€ 117,570.60
Risk Analysis, Chemistry, Genomics: Tjalf de Boer (1-1-2012)	€ -	€ -	€ 59,427.00	€ 62,892.18	€ -	€ 122,319.18
Overige personele lasten	**€ 22,488.34**	**€ 52,858.10**	**€ 41,254.35**	**€ 42,799.26**	**€ 37,639.38**	**€ 197,039.43**
Inzet Ad van Dommelen (0,3 fte)	€ 22,488.34	€ 31,403.35	€ 30,750.00	€ 31,500.00	€ 32,250.00	€ 148,391.69
Inzet Harry Aiking	€ -	€ 3,214.81	€ -	€ -	€ -	€ 3,214.81
Inzet Nicolien van der Grijp	€ -	€ 15,059.66	€ -	€ -	€ -	€ 15,059.66
Inzet Pieter Jan Kerstens	€ -	€ 646.36	€ -	€ -	€ -	€ 646.36
Secretariële ondersteuning (0,2 fte)	€ -	€ -	€ 4,825.00	€ 4,920.00	€ 5,020.00	€ 14,765.00
Uitzendkracht	€ -	€ 126.22	€ -	€ -	€ -	€ 126.22
Personeelsadvertentie	€ -	€ 2,390.70	€ -	€ -	€ -	€ 2,390.70
Sollicitatiekosten	€ -	€ 17.00	€ -	€ -	€ -	€ 17.00
Opleidingskosten postdocs	€ -	€ -	€ 5,679.35	€ 6,379.26	€ 369.38	€ 12,427.99
Overige lasten	**€ 2,050.14**	**€ 62,084.24**	**€ 103,569.67**	**€ 96,814.00**	**€ 40,406.33**	**€ 304,924.38**
Materiele kosten businessplan	€ -	€ -	€ -	€ -	€ -	€ -
Organisatie symposia en bijeenkomsten	€ -	€ 33,675.98	€ 20,000.00	€ 20,000.00	€ 20,000.00	€ 93,675.98
Citatie-analyse (inzet René Otten)	€ -	€ -	€ 7,162.00	€ -	€ -	€ 7,162.00
Consumabels	€ -	€ -	€ 49,500.00	€ 49,500.00	€ -	€ 99,000.00
Computerkosten postdocs	€ -	€ 15.41	€ 6,907.67	€ 7,314.00	€ 406.33	€ 14,643.41
Communicatiekosten (website, drukwerk etc)	€ -	€ 100.90	€ 20,000.00	€ 20,000.00	€ 20,000.00	€ 60,100.90
Overhead	€ 2,050.14	€ 28,291.95	€ -	€ -	€ -	€ 30,342.09
Totaal 1ste geldstroom	**€ 24,538.48**	**€ 114,942.34**	**€ 478,903.27**	**€ 514,863.61**	**€ 99,774.16**	**€ 1,233,021.85**
Inkomsten	**2010**	**2011**	**2012**	**2013**	**2014**	**Totaal**
CVB	€ 150,000.00	€ 150,000.00	€ 200,000.00	€ 200,000.00	€ 150,000.00	€ 850,000.00
FB	€ -	€ 140,000.00	€ 140,000.00	€ 140,000.00	€ 140,000.00	€ 560,000.00
Totaal 1ste geldstroom	**€ 150,000.00**	**€ 290,000.00**	**€ 340,000.00**	**€ 340,000.00**	**€ 290,000.00**	**€ 1,410,000.00**
Resultaat zonder additionele externe fondsen	**€ 125,461.52**	**€ 175,057.66**	**€ 138,903.27-**	**€ 174,863.61-**	**€ 190,225.84**	**€ 176,978.15**
Reserve zonder additionele externe fondsen	**€ 125,461.52**	**€ 300,519.18**	**€ 161,615.91**	**€ 13,247.69-**	**€ 176,978.15**	

13. Literature selection 2011

In the overview below, we present a limited selection of relevant research articles that were published in 2011 by AGCI research leaders in the six respective AGCI research programmes.

Risk analysis, chemistry and genomics

De Boer, Tj., A. Birlutiu, Z. Bochdanovits, M.J.T.N. Timmermans, Tj.M.H. Dijkstra, N.M. van Straalen, B. Ylstra and D. Roelofs (2011). Transcriptional plasticity of a soil arthropod across different ecological conditions. *Molecular Ecology* 20**:** 1144-1154.

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Legler, J., Velzen, M.J.M. van, Cenijn, P.H., Houtman, C.J., Lamoree, M.H. & Wegener, J.W.M. (2011). Effect-Directed Analysis of Municipal Landfill Soil Reveals Novel Developmental Toxicants in the Zebrafish Danio rerio. *Environmental Science and Technology, 45*(19), 8552-8558.
http://pubs.acs.org/doi/abs/10.1021/es201099s

Simon, E., Bytingsvik, J., Jonker, W., Leonards, P.E.G., Boer, J. de, Jenssen, B.M., Lie, E., Aars, J., Hamers, T. & Lamoree, M.H. (2011). Blood plasma sample preparation method to determine thyroid hormone-disrupting compounds in Effect-Directed Analysis. *Environmental Science and Technology, 45*(18), 7936-7944.
http://pubs.acs.org/doi/abs/10.1021/es2016389

Weiss, J.M., Simon, E., Stroomberg, G.J., Boer, R. de, Boer, J. de, Linden, S.C. van der, Leonards, P.E.G. & Lamoree, M.H. (2011). Identification strategy for unknown pollutants using high-resolution mass spectrometry: Androgen-disrupting compounds identified through effect-directed analysis. *Analytical and Bioanalytical Chemistry, 400*(9), 3141-3149.
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Ecology and ecosystem service assessment

Ellers, J., S. Rog, C. Braam and M.P. Berg (2011). Genotype richness and phenotypic dissimilarity enhance population performance. *Ecology* 92(8): 1605-1615.

Fréschet, G.T., Dias, A.T.C., Ackerly, D.D., Aerts, R., van Bodegom, P.M., Cornwell, W.K., Dong, M., Jianping, T., Kurokawa, H., Liu, G., Onipchenko, V.G., Ordoñez, J.C., Peltzer, D.A., Richardson, S.J., Shidakov, I.I., Soudzilovskaia, N.A., Tao, J., Cornelissen, J.H.C. (2011) Global to community scale differences in the prevalence of convergent over divergent leaf trait distributions in plant assemblages. Global Ecology and Biogeography 20:755-765. doi: 10.1111/j.1466-8238.2011.00651.x

Keuper, F., Dorrepaal, E., van Bodegom, P.M., Aerts, R., van Logtestijn, R.S.P., Callaghan, T.V., Cornelissen, J.H.C. (2011) A Race for Space? How Sphagnum fuscum stabilizes vegetation composition during long-term climate manipulations. Global Change Biology 17:2162-2171. doi: 10.1111/j.1365-2486.2010.02377.x

Onoda Y. Westoby M. Adler P.B. Choong A.M.F. Clissolda F.J. Cornelissen J.H.C. Diaz S. Dominy N.J. Algart A. Enrico L. Fine P.V.A. Howard J.J. Jalili A. Kitajima K. Kurokawa H. McArthur C. LucasP.W. Markesteijn L. Perez-Harguindeguy. Poorter L. Richards L. Santiago L.S. Sosinski E.E. Van Bael S.A. Warton D.I. Wright I.J. Wright2 S.J and Yamashita N.. Global patterns of leaf mechanical properties (2011) Ecology Letters (2011) 14: 301–312

Climate science and eco-hydrology

Groenendijk M.; Dolman A. J.; van der Molen M. K.; et al., 2011. Assessing parameter variability in a photosynthesis model within and between plant functional types using global Fluxnet eddy covariance data. Agric. For Met., 151: 22-38. doi 10.1016/j.agrformet.2010.08.013

Mark A. Sutton, Oene Oenema, Jan Willem Erisman, Adrian Leip, Hans van Grinsven & Wilfried Winiwarter. 2011. Too much of a good thing Nature 472, 159–161, doi:10.1038/472159a

Van Huissteden, J., C. Berrittella, F. J. W. Parmentier, Y. Mi, T. C. Maximov & A. J. Dolman, 2011. Methane emissions from permafrost thaw lakes limited by lake drainage. Nature Climate Change 1, 119–123 doi:10.1038/nclimate1101

Spatial analysis and resource management

Aerts, J., Botzen, W., Bowman, M., Ward, P.J., Dircke, P., 2011. Climate adaptation and flood risk in coastal cities. Earthscan, Oxford, UK, 330pp.

Aerts, J.C.J.H. and Botzen, W.J. (2011) Flood-Resilient Waterfront Development in New York City: A study of flood insurance, building codes, and flood zoning. Annals of the New York Academy of Science, 1227, 1-82

Verburg PH, Ellis E, Letourneau A. 2011. A global assessment of market accessibility and market influence for global environmental change studies. Environmental Research Letters 6 034019 http://stacks.iop.org/1748-9326/6/034019

Verburg PH, Neumann K, Nol L. 2011. Challenges in using land use and land cover data for global change studies. Global Change Biology 17(2): 974-989. http://dx.doi.org/10.1111/j.1365-2486.2010.02307.x

Environmental economics and responses to global change

Arguedas, C. and van Soest, D.P. (2011). Optimal conservation programs, asymmetric information and the role of fixed costs. Environmental and Resource Economics, 50(2), 305-323.

Brouwer, R., Tesfaye, A., and Pauw, P. (2011). Meta-analysis of institutional-economic factors explaining the environmental performance of payments for watershed services. Environmental Conservation, 38(4), 380-392.

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Governance, transitions and policy studies

de Boer, J. & Aiking, H. (2011). On the merits of plant-based proteins for global food security: Marrying macro and micro perspectives. Ecological Economics, 70, 1259-1265.

Davies, G.T. (2011). Discrimination and beyond in European social and economic law. *Maastricht Journal of European and Comparative law, 18*, 17-38.

Dellas, Eleni, Philipp Pattberg and Michele Betsill (2011): Agency in Earth System Governance: Refining a Research Agenda. In *International Environmental Agreements: Politics, Law and Economics* 11(1): 85-98.

Etty, T.F.M. (2011). 'International Biotechnology Law and Policy', in Fauchald, O.K., Hunter, D. & Xi, W. (eds.), *The Yearbook of International Environmental Law, Volume 18*. (pp. 453-465). Oxford: Oxford University Press.

Fuchs, Doris, Agni Kalfagianni, and Tetty Havinga. (2011). Actors in Private Food Governance: The Legitimacy of Retail Standards and Multistakeholder Initiatives with Civil Society Participation. *Agriculture and Human Values* 28(3): 353-367.

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Kuik, O., Bastos Lima, M.G & Gupta, J. (2011). Energy Security in a Developing World. *Wiley Interdisciplinary Reviews,* 2(4), 627-634. [Online access]

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