



LEUPHANA
UNIVERSITÄT LÜNEBURG

Sustainability Economics Group
Annual Report 2007/2008

THE SUSTAINABILITY ECONOMICS GROUP

The imperative of *sustainability* requires sustaining nature, and its functioning and services for humans, over a long time into the future. This has implications for how human societies should organize their economic relationships and how they should act towards nature. Examples include the use or conservation of natural resources and ecosystems, the production of goods and services through various technologies, as well as the patterns of consumption and economic exchange.

Sustainability economics addresses the questions of how human economic action depends upon and affects nature, and how sustainability in the relationship between humans and nature can be achieved in an equitable and economically efficient manner. This includes the analysis of unsustainable structures and processes in currently existing economies, and the design of policies, institutions and governance for long-term sustainability.

The *Sustainability Economics Group* at Leuphana University of Lüneburg was established in 2006 with the appointment of Stefan Baumgärtner as Professor of Sustainability Economics. The Group is part of the Centre for Sustainability Management, and serves as a link between the Department of Economics and the Department of Sustainability Sciences.

Building upon the methodologically sound inter- and transdisciplinary integration of concepts and methods from economics, the natural sciences, and philosophy, members of the Sustainability Economics Group at Leuphana University of Lüneburg carry out conceptual, theoretical and empirical research, provide method- and problem-oriented higher education and foster knowledge transfer in the area of sustainability economics.

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OVERVIEW OF THE ACADEMIC YEAR 2007/2008

The academic year 2007/2008 was the second operating year for the Sustainability Economics Group. As basic structures and processes are functioning better and better, we have more time to focus on research, higher education and knowledge transfer. Among the most important events and developments were the following:

Intellectual capacity. The Sustainability Economics Group has grown intellectually, as we have recruited two outstanding junior researchers. Joachim Fünfgelt and Sebastian Strunz – both graduates of excellent universities (Freiburg and Heidelberg, respectively) – will both pursue their doctoral dissertation in the field of sustainability economics. The group also becomes more and more attractive on the international level and has hosted visiting scientists from Switzerland, Austria, Italy and the UK for seminars and short-term research visits.

Funding. A major development for extending and stabilizing our financial basis was the founding of the “Förderverein Nachhaltigkeitsökonomie e.V.” – a registered and charitable association that in the upcoming years should help raise private funds for the Sustainability Economics Group’s activities.

Inter- and transdisciplinary research. The focus of our research over the last year was on the sustainable use of ecosystem services under uncertainty. In a broad variety of research activities – including conceptual foundation, theory, modelling, and empirical analysis – we cooperated closely with ecologists and economists from the University of Kiel and the Helmholtz Center for Environmental Research – UFZ, Leipzig, as well as with stakeholders in Namibia, to better understand the role and design of risk-management institutions for sustainable grazing management under various forms of environmental, economic and political risks.

Policy impact. The international policy impact of the Sustainability Economics Group’s research became highly

visible during the United Nations’ Conference on Biodiversity in May 2008 in Bonn. The media coverage highlighted our group’s contribution to the report on The Economics of Ecosystem Services and Biodiversity, which had been commissioned by Stavros Dimas, European Commissioner for the Environment, and Sigmar Gabriel, German Federal Minister of the Environment.

International workshop. The Sustainability Economics Group, together with the Ecological Economics Group of the University of Kiel, has organized a workshop on Conceptualizing Sustainability under Uncertainty. Funded through a grant from the German Federal Ministry of Education and Research, this workshop took place in October 2008 at Camp Reinsehlen, in the heart of the Lüneburg Heath, and brought together leading international scholars.

Higher education in sustainability economics. As the new Leuphana College and Graduate School are taking shape, members of the Group have contributed to the development and implementation of curricula for Environmental Sciences (Leuphana Bachelor) and Sustainability Sciences (Master of Arts and Sciences). They have developed and taught a number of introductory and specialized courses in sustainability economics at the graduate, post-graduate and doctoral levels. These courses attracted excellent students and were evaluated far above average.

In this Annual Report, the various achievements of the past year¹ are described in more detail.

TEAM

Head

Prof. Dr. Stefan Baumgärtner

Habilitation and PhD Economics, University of Heidelberg
2006, 1999

MSc Physics, University of Heidelberg 1994

Researchers

Joachim Fünfgelt

MA Economics, University of Freiburg 2007

Lutz Göhring

MSc Physics, University of Bonn 2006

BSc Mathematics, University of Bonn 2004

Dr. Markus Groth

PhD Agricultural economics, University of Göttingen 2006

MA Economics, University of Hannover 2003

Roland Olbrich

MSc Biology, University of Heidelberg 2005

Sebastian Strunz

MA Political Science and Economics, University of Heidelberg
2007

Administrative and Research Assistance

Jana Bundschuh

Franziska Dittmer

Sonja Eikmeier

Laura Friedrich

Nikolai Hoberg

Anja Humburg

Anna-Theresa Leitenberger

Michaela Prinz

Matthias Schröter

Klara Helene Stumpf

FUNDING²

The Sustainability Economics Group's activities in research and teaching have been funded internally by the University and through external research grants.

Internal funding [in euros]	111,320
1. for personnel ³	72,088
2. from President's funds for all purposes	20,000
3. from the Department for all purposes ⁴	5,552
4. from tuition fees for teaching purposes ⁵	13,680
External funding [in euros]	151,771
1. from the German Ministry of Education and Research (BMBF), Bonn, for research project "Sustainable use of ecosystem services under uncertainty" ⁶	151,771
Total	263,091

External funding ratio⁷: 57.7 %

Leverage-factor of internal funds⁸: 2.36

Total volume of currently approved external funds [in euros]

1. from the German Ministry of Education and Research (BMBF), Bonn, for research project "Sustainable use of ecosystem services under uncertainty" in 01 February 2007–31 January 2010 ⁹	459,232
Total	459,232

RESEARCH

Research Fields

Currently, active research in the Sustainability Economics Group focuses on the following research areas:

Ecological economics of biodiversity and ecosystem services under uncertainty

Biological diversity contributes in a variety of ways to human well-being. Ecosystems and the services they generate thereby play a central role. For instance, many species have direct use value as food, fuel or pharmaceutical substance. Ecosystems also perform valuable regulating services such as pollination of crops, control of pests and diseases, or local climate stabilization.

Our research in this area focuses on the particular ecological-economic interactions that are related to the risk dimension and the management of such risk. It builds on an interdisciplinary integration of concepts and methods from ecology and economics, with ecological-economic modelling at centre-stage. Our empirical research in this area mainly relates to grazing management in semi-arid regions.

Thermodynamic analysis of economy-environment systems

Thermodynamics is the branch of physics that deals with macroscopic transformations of energy and matter. As economy-environment interactions are, in the first place, an exchange of energy and matter, the laws of thermodynamics provide a useful analytical framework within which fundamental insights into society's „metabolism“ and its embeddedness in the natural environment may be rigorously deduced in energetic and material terms.

Our research in this area is mainly at the conceptual level. It focuses on the formal integration of thermodynamic and economic concepts and models.

Joint production and environmental problems: efficiency, responsibility and sustainability

Many environmental problems are caused by substances that are jointly produced with desired goods. Examples include

anthropogenic climate change, acidification of soils and the depletion of the stratospheric ozone layer.

In this research area we study how the economic concept of joint production may be used as a foundation for the interdisciplinary analysis of the causes and sustainable solutions of environmental problems. We build on concepts and methods from philosophy of science, systems theory, thermodynamics, economics, epistemology and ethics.

Conceptual foundations of sustainability economics

As a newly emerging field sustainability economics still lacks a solid basis of concepts and methods that are suitable for the particular challenge of economic research that is inter- and transdisciplinary and oriented towards the imperative of sustainability.

In this research area, we contribute to such a conceptual basis. Starting from established concepts and methods that originated from traditional economics and various natural and social sciences, we reflect their preconditions, meaning and implications, and enhance them into interdisciplinary concepts for sustainability economics. Examples include concepts such as diversity, viability, or resilience of human-nature systems.

Philosophy of inter- and transdisciplinary environmental research

Environmental problems are complex problems at the intersection of human and natural systems. An encompassing analysis of such problems, and their sustainable solution, requires the interdisciplinary integration of the natural and social sciences and the humanities. It also requires the transdisciplinary relation with stakeholders, their knowledge and values.

Our research in this area focuses on the rationale, character, operationalization, potential and limits of inter- and transdisciplinary environmental research.

RESEARCH

Ongoing doctoral dissertation projects include the following:

- Joachim Fünfgelt: *Sustainability, justice and responsibility from an economic perspective*, since 2008
- Lutz Göhring: *Viability of ecological-economic systems*, since 2007
- Roland Olbrich: *Influence of risk management and views of sustainability on coupled ecological-economic systems under uncertainty*, since 2007
- Sebastian Strunz: *Ecological-economic resilience as insurance*, since 2008

Research Collaborations

Interdisciplinary sustainability research requires the building of bridges amongst many different academic disciplines. Collaborations with the natural sciences, the social sciences and the humanities are thus essential for the kind of research carried out in the Group. Currently, we are engaged in national and international research collaborations with the following institutions:

- Arizona State University, Tempe (USA), School of Sustainability
- National Institute of Aquatic Resources, Charlottenlund (Denmark), Department of Marine Fisheries
- DIVERSITAS — International Programme of Biodiversity Science, Paris (France)
- Entomologia Florestal
- Helmholtz Centre for Environmental Research – UFZ, Leipzig, Department of Economics and Department of Ecosystem Modelling
- International Max-Planck Research School for Maritime Affairs, Hamburg
- Keele University (UK), School of Politics, International Relations and the Environment
- RWTH Aachen, Department of Economics
- Secretariat of the Convention on Biological Diversity, Montreal (Canada), Department of Social, Economic and Legal Matters
- Swiss Federal Institute of Technology, Zurich (Switzerland), Centre for Economic Research
- Tilburg University (The Netherlands), Department of Economics
- United Nations Environment Programme (UNEP), Nairobi (Kenia), Division of Environmental Conventions
- Universidade Federal de Viçosa (Brasil), Departamento de Biologia Animal,
- University of California, Berkeley (USA), Energy and Resources Group
- University of California, Santa Barbara (USA), Bren School of the Environment, Economics and Politics
- University of Cambridge (UK), Department of Land Economy
- University of Crete, Rethymnon (Greece), Department of Economics
- University of Delhi (India), Institute of Economic Growth
- University of Göttingen, Department for Agricultural Economics and Rural Development
- University of Hamburg, Institute for Hydrobiology and Fisheries Science
- University of Heidelberg, Interdisciplinary Research Centre for Environmental Economics
- University of Kent (UK), Kent Business School
- University of Kiel, Department of Economics
- University of Manchester (UK), School of Social Sciences

RESEARCH

- University of Minnesota, St. Paul (USA), Department of Applied Economics
- University of Pretoria (South Africa), Department of Economics
- University of Wisconsin, Madison (USA), Department of Economics
- University of Wyoming, Laramie (USA), Department of Economics and Finance

Scientific Guests

Providing a platform for discourse and the lively exchange of ideas in interdisciplinary sustainability research, the Sustainability Economics Group has had the pleasure of hosting a number of scientific guests for seminars and short-term research visits.

- Dr. Thomas Bruckner (Technical University of Berlin)
- Dr. Guido Bünstorf (Max-Planck-Institute of Economics, Jena)
- Sandra Derissen (University of Natural Resources and Applied Life Sciences, Vienna, Austria)
- Dr. Salvatore di Falco (University of Kent, UK)
- Joachim Fünfgelt (University of Freiburg)
- Oliver Jakoby (Helmholtz-Center for Environmental Research, Leipzig)
- Prof. Dr. Frank Krysiak (University of Basel, Switzerland)
- Prof. Dr. Martin Quaas (University of Kiel)
- Sebastian Strunz (University of Heidelberg)
- Matteo Zavalloni (University of Bologna, Italy)

DISSEMINATION AND RECOGNITION OF RESEARCH RESULTS

Honors and Awards

Members of the Sustainability Economics Group have won prestigious prizes, stipends and awards in recognition of their achievements:

- Markus Groth: Young Researcher Travel Award (Sparkasse Lüneburg) for attendance of the 16th Annual Conference of the *European Association of Environmental and Resource Economists* (EAERE), 25-28 June 2008, Gothenburg (Sweden)
- Markus Groth: Conference Trip Funding (German Research Foundation - DFG) for attendance of the XII Congress of the *European Association of Agricultural Economists* (EAAE), 26-29 August 2008, Ghent (Belgium)
- Roland Olbrich: Young Researcher Travel Award for attendance of the *NAFO/ICES/PICES Symposium Reproductive and Recruitment Processes of Exploited Marine Fish Stocks*, 1-3 October 2007, Lisbon (Portugal)

Publications

Research results of the Sustainability Economics Group have been published in a wide range of books and academic journals – 26 publications altogether, including 2 books, 7 articles in peer-reviewed journals and 7 discussion papers. Many interdisciplinary publications have been written with co-authors from other academic disciplines and institutions.

Books

- Groth, M. (2007), *Oliver E. Williamsons Transaktionskostenökonomik – Entwicklung und Grundlagen*, Grin, Munich.
- Lanzerath, D., J. Mutke, W. Barthlott, S. Baumgärtner, C. Becker und T.M. Spranger (2008), *Biodiversität* (Reihe:

Ethik in den Biowissenschaften – Sachstandsberichte des DRZE, Band 5), Verlag Karl Alber, Freiburg and Munich.

Articles in peer-reviewed journals

- Baumgärtner, S., C. Becker, K. Frank, B. Müller and M. Quaas (2008), Relating the philosophy and practice of ecological economics. The role of concepts, models and case studies in inter- and transdisciplinary sustainability research, *Ecological Economics* 67(3), pp. 384-393.
- Baumgärtner, S., F. Jöst and R. Winkler (in press), Optimal dynamic scale and structure of a multi-pollution economy, *Ecological Economics*.
- Bertke, E. und M. Groth (in press), Angebot an und Nachfrage nach Umweltleistungen in einem marktanalogen Agrarumweltprogramm – Ergebnisse einer Projektstudie, *Zeitschrift für angewandte Umweltforschung – Journal of Environmental Research*.
- Dos Anjos, N., A. Arnhold, G. Valença Vaconcelos Correa, K. Stumpf (2008), Árvores e Formigas Cortadeiras (Hymenoptera: Formicidae) em Viçosa, Minas Gerais (Leaf cutting ants and forest cultures in Viçosa MG), *Revista Trópica – Ciências Agrárias e Biológicas* 1(2), 11.
- Groth, M. (2007), Private Transaktionskosten im Rahmen einer wiederholten Ausschreibung ökologischer Leistungen der Landwirtschaft, *Berichte über Landwirtschaft – Zeitschrift für Agrarpolitik und Landwirtschaft* 85(3), 390-405.
- Groth, M. (2007), Verpackungsabgaben und Verpackungslizenzen als Alternativen zur Pfandpflicht für ökologisch nachteilige Einweggetränkeverpackungen?, *Zeitschrift für angewandte Umweltforschung – Journal of Environmental Research* 18(2), 157-171.

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- Quaas, M. and S. Baumgärtner (2008), Natural vs. financial insurance in the management of public-good ecosystems, *Ecological Economics* 65(2), 397-406.

Other publications in books or journals

- Barbier, E.B., S. Baumgärtner, K. Chopra, C. Costello, R. Hassan, A. Kinzig, M. Lehman, U. Pascual, C. Perrings, S. Polasky (in press), The valuation of ecosystem services, in: S. Naeem, D.E. Bunker, A. Hector, M. Loreau and C. Perrings (eds), *Biodiversity and Human Impacts*, Oxford University Press, Oxford.
- Baumgärtner, S. (2007), Why the measurement of species diversity requires prior value judgments, in: A. Kontoleon, U. Pascual and T. Swanson (eds), *Biodiversity Economics. Principles, Methods and Applications*, Cambridge University Press, Cambridge, pp. 293-310.
- Baumgärtner, S. and M. F. Quaas (2008), Agro-biodiversity as natural insurance and the development of financial insurance markets, in: A. Kontoleon, U. Pascual and M. Smale (eds), *Agrobiodiversity, Conservation and Economic Development*, Routledge, London, pp. 293-317.
- Baumgärtner, S. und C. Becker (2008), Ökonomische Aspekte der Biodiversität, in: D. Lanzerath, J. Muthke, W. Barthlott, S. Baumgärtner, C. Becker und T.M. Spranger, *Biodiversität (Reihe: Ethik in den Biowissenschaften – Sachstandsberichte des DRZE, Band 5)*, Verlag Karl Alber, Freiburg and Munich, pp. 75-115.
- Baumgärtner, S., H. Dyckhoff, M. Faber, J. Proops and J. Schiller (2008), The concept of joint production and ecological economics, in: J. Martinez-Allier and I. Røpke (eds), *Recent Developments in Ecological Economics*, Edward Elgar, Cheltenham.
- Groth, M. (in press), Improving conservation procurement auctions, *EuroChoices* (Letter to the editor).
- Groth, M. (2008), Auctioning biodiversity conservation contracts: current need for research, in: Secretariat of the Convention on Biological Diversity (ed.): *Mainstreaming Biodiversity Issues into Forestry and Agriculture. Abstracts of Poster Presentations at the 13th Meeting of the Subsidiary Board on Scientific, Technical and Technological Advice of the Convention on Biological Diversity*. Rome, Italy, Technical Series no. 34, pp. 42-44.
- Groth, M. (2008), Upcoming research concerning auctions for conserving and promoting biodiversity, in: Secretariat of the Convention on Biological Diversity (ed.): *Second Meeting of the Ad Hoc Open-ended Working Group on Protected Areas. Abstracts of Poster Presentations at the 2nd Meeting of the Ad Hoc Open-ended Working Group on Protected Areas*. Rome, Italy, Technical Series no. 35, pp. 22-24.
- Perrings, C., S. Baumgärtner, W.A. Brock, K. Chopra, M. Conte, C. Costello, A.P. Kinzig, U. Pascual, S. Polasky, J. Tschirhart, A. Xepapadeas (in press), The economics of biodiversity and ecosystem services, in: S. Naeem, D.E. Bunker, A. Hector, M. Loreau and C. Perrings (eds), *Biodiversity and Human Impacts*, Oxford University Press, Oxford.
- Quaas, M., S. Baumgärtner, C. Becker, K. Frank and B. Müller (in press), Uncertainty and sustainability in the management of rangelands, in: C. Perrings (ed.), *The Origins and Development of Ecological Economics*, Sage Publications, Thousand Oaks.

Working papers and reports

- Baumgärtner, S. and M. Quaas (2007), Ecological-economic viability as a criterion of strong sustainability under uncertainty. *University of Lüneburg Working Paper Series in Economics*, Working Paper No. 67, November 2007.
- Baumgärtner, S. and M. Quaas (2008), Managing increasing environmental risks through agro-biodiversity and agri-environmental policies, *University of Lüneburg*

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Working Paper Series in Economics, Working Paper No. 80, March 2008.

- Baumgärtner, S., C. Becker, K. Frank, B. Müller and M. Quaas (2008), Relating the philosophy and practice of ecological economics. The role of concepts, models and case studies in inter- and transdisciplinary sustainability research, *University of Lüneburg Working Paper Series in Economics*, Working Paper No. 75, January 2008.
- Groth, M. (2008), A review of the German mandatory deposit for one-way drinks packaging and drinks packaging taxes in Europe, *University of Lüneburg Working Paper Series in Economics*, Working Paper No. 87, June 2008.
- Groth, M. (2008), An empirical examination of repeated auctions for biodiversity conservation contracts, *University of Lüneburg Working Paper Series in Economics*, Working Paper No. 78, March 2008.
- Groth, M. (2008), Perspektiven der Nutzung von Methanhydraten als Energieträger – Eine Bestandsaufnahme, *Leuphana Universität Lüneburg Working Paper Series in Economics*, Working Paper No. 76, February 2008.
- Groth, M. (2008), Private ex-ante transaction costs for repeated biodiversity conservation auctions: a case study, *University of Lüneburg Working Paper Series in Economics*, Working Paper No. 84, May 2008.

Presentations

Research results of the Sustainability Economics Group have been presented at international conferences, workshops and invited seminars (18 presentation altogether).

Contributions to international conferences with peer review-selection

- Baumgärtner, S. and M.F. Quaas: Ecological-economic viability as a criterion of strong sustainability under uncertainty, *Resilience, Adaptation and Transformation in Turbulent Times*, 13–16 April 2008, Stockholm (Sweden)
- Baumgärtner, S. and M.F. Quaas: Ecological-economic viability as a criterion of strong sustainability under uncertainty, *Sustainable Resource Use and Economic Dynamics*, 1–4 June 2008, Ascona (Switzerland)
- Baumgärtner, S. and M.F. Quaas: Ecological-economic viability as a criterion of strong sustainability under uncertainty, 16th Annual Conference of the *European Association of Environmental and Resource Economists* (EAERE), 25–28 June 2008, Gothenburg (Sweden)
- Baumgärtner, S. and M.F. Quaas: Managing increasing environmental risks through agro-biodiversity and agri-environmental policies, 10th BIOECON Conference on *The Effectiveness and Efficiency of Biodiversity Conservation Instruments*, 28–30 September 2008, Cambridge (UK)
- Groth, M., An empirical examination of repeated auctions for biodiversity conservation contracts and interdisciplinary decision-making: experiences, results and restrictions, XII Congress of the *European Association of Agricultural Economists* (EAAE), 26–29 August 2008, Ghent (Belgium)
- Groth, M., How to design repeated auctions to reward plant biodiversity – lessons learned from a transdisciplinary payment scheme and further need for research, Berlin Conference on the Human Dimensions of Global Environmental Change – International Conference of the *Social-Ecological Research Programme*, 22–23 February 2008, Berlin.
- Groth, M., Private ex-ante transaction costs for repeated biodiversity conservation auctions: a case study, 10th Annual BIOECON Conference on *The Effectiveness and*

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Efficiency of Biodiversity Conservation Instruments, 28-30 September 2008, Sidney Sussex College, Cambridge (UK)

- Groth, M., Repeated auctions for biodiversity conservation contracts: a survey of two field experiments and current need for research, 16th Annual Conference of the *European Association of Environmental and Resource Economists* (EAERE), 25-28 June 2008, Gothenburg (Sweden)
- Olbrich, R., Growth and abundance of larval dab, *Limanda limanda*, within a developing frontal system in the North Sea, NAFO/ICES/PICES Symposium *Reproductive and Recruitment Processes of Exploited Marine Fish Stocks*, 1-3 October 2007, Lisbon (Portugal)
- Quaas, M.F. and S. Baumgärtner, Natural vs. financial insurance in the management of public-good ecosystems, *Jahrestagung des Vereins für Socialpolitik*, 9-12 October 2007, Munich

Invited contributions to workshops and symposia

- Baumgärtner, S. and M. Quaas: Ecological-economic viability as a criterion of strong sustainability under uncertainty, *Jahrestagung des Ausschusses für Umwelt- und Ressourcenökonomie (AURÖ) im Verein für Socialpolitik*, 25-26 April 2008, Hohenheim
- Göhring, L., Conservative Livestock Grazing as Risk Management, *Nachwuchsworkshop, Ausschuss für Umwelt- und Ressourcenökonomie (AURÖ), Verein für Socialpolitik*, 18-19 February 2008, Regensburg
- Müller, B., M. Quaas, K. Frank und S. Baumgärtner: Regen-Index-Versicherungen und ihr Einfluss auf nachhaltiges Weidemanagement, *Workshop Beweidungsökologie und Management in Trockengebieten des Arbeitskreises Wüstenökologie der Gesellschaft für Ökologie (GfÖ)*, 2-3 February 2008, Leipzig
- Olbrich, R.: Impact of financial versus natural insurance on the sustainable use of ecosystem services under uncertainty - development of a survey, *Ausschuss für*

Umwelt- und Ressourcenökonomie (AURÖ), *Verein für Socialpolitik*, 18-19 February 2008, Regensburg

Invited seminar talks

- Baumgärtner, S.: Diversity as a potential for surprise – an information theoretic measure of effective product diversity, *Max-Planck-Institute of Economics Jena*, 6 February 2008
- Baumgärtner, S.: Ecological-economic viability as a criterion of strong sustainability under uncertainty, *Economics Colloquium, University of Oldenburg*, 5 November 2007
- Olbrich, R., Sustainability of commercial cattle farms and the natural environment in Namibia, *Desert Research Foundation of Namibia*, 21 August 2008

Teaching at Leuphana University of Lüneburg

Members of the Sustainability Economics Group have developed and taught both introductory and specialized courses in sustainability economics at the graduate, post-graduate and doctoral levels for various degree programs, most notably in environmental sciences (Diplom, B.Sc.) and economic and social studies (Diplom, B.Sc.). These courses attracted excellent students and were evaluated far above average:

- Baumgärtner, S. mit L. Göhring: Beitrag (2 Vorlesungsstunden + 2 Übungsstunden) zum Modul *Methoden der Umweltwissenschaften* im WS 2007/08 für den Leuphana Bachelorstudiengang, Major Umweltwissenschaften
- Baumgärtner, S. mit L. Göhring: *Volkswirtschaftliche Argumentation zur parteiischen Interessenvertretung in Nachhaltigkeitskonflikten* (2 SWS Veranstaltung) im WS 2007/08 für den Diplom- und den BSc-Studiengang Umweltwissenschaften
- Baumgärtner, S. mit N. Hoberg: *Einführung in die Nachhaltigkeitsökonomie* (2 SWS Vorlesung + 2 SWS Übung) im SS 2008 für den Leuphana Bachelorstudiengang, Major Umweltwissenschaften den Diplomstudiengänge Umweltwissenschaften
- Baumgärtner, S. mit R. Olbrich: Beitrag (4 Vorlesungsstunden) zum Modul *Einführung in die Umweltwissenschaften* im WS 2007/08 für den Leuphana Bachelorstudiengang, Major Umweltwissenschaften
- Baumgärtner, S. mit S. Strunz: *Resilienz ökologisch-ökonomischer Systeme* (2 SWS Seminar) im SS 2008 für den Diplom-Studiengang Umweltwissenschaften
- Baumgärtner, S.: *Forschungskolloquium Nachhaltigkeitsökonomie* (2 SWS Veranstaltung) im WS 2007/08 und im SS 2008 für Nachwuchswissenschaftler der Leuphana Universität Lüneburg

- Baumgärtner, S.: *Normative Grundlagen der Nachhaltigkeitsökonomie* (2 SWS Vorlesung + Übung) im WS 2007/08 für den Diplom- und den BSc-Studiengang Umweltwissenschaften
- Baumgärtner, S.: Veranstaltung (2SWS Vorlesung + 2 SWS Übung) *Biodiversity Economics* im SS 2008 für den BSc-Studiengang Umweltwissenschaften
- Göhring, L.: *Mikroökonomik für Umweltwissenschaftler* (2 SWS Vorlesung + Übung) im SS 2008 für den Leuphana Bachelorstudiengang, Major Umweltwissenschaften
- Groth, M.: *Klassiker der Umwelt- und Ressourcenökonomie* (2 SWS Veranstaltung) im Sommersemester 2008 für die Diplomstudiengänge Umweltwissenschaften, Wirtschafts- und Sozialwissenschaften und Betriebswirtschaftslehre.
- Groth, M.: *Volkswirtschaftliche Analyse aktueller Umwelt- und Nachhaltigkeitspolitik* (2 SWS Veranstaltung) im Wintersemester 2007/08 für die Diplomstudiengänge Umweltwissenschaften und Wirtschafts- und Sozialwissenschaften.
- von dem Hagen, O. [Lehrauftrag]: *Ressourcenökonomie* (2 SWS Vorlesung + Übung) im SS 2008 für die Diplomstudiengänge Umweltwissenschaften und Wirtschafts- und Sozialwissenschaften

Supervision of Student Theses

Final exams (Diplom, BSc)

Christian Baatz, Jan Busch, Laura Friedrich, Stefanie Glotzbach, Anja Humburg, Elisabeth Staritz, Atsuko Takano

Diplom, bachelor, master theses

- Anja Humburg: *Zusammenhänge zwischen den Konzepten Nachhaltigkeit und Gerechtigkeit* (bachelor thesis)

HIGHER EDUCATION

- Christian Prochel: *Nachhaltigkeitsorientierte Unternehmensführung - Anforderungen an ein effektives und effizientes Stakeholdermanagement* (diploma thesis)

Supervision of students' external internships

- Daniel Bendel, *Potsdam Institute for Climate Impact Research*
- Sochanthy Chhoeung, *The World Conservation Union (IUCN)*, Malaga (Spain)
- Franziska Dittmer, *Helmholtz-Centre for Environmental Research – UFZ*, Leipzig
- Katarzyna Klein, *Institute for Ecological Economic Research (IÖW)*, Berlin
- Jan Köbbing, *Global Marshall Plan International*, Hamburg
- Matthias Schröter, *Helmholtz-Centre for Environmental Research – UFZ*, Leipzig
- Atsuko Takano, *Wuppertal Institute for Climate, Environment and Energy*

Mentoring of Academically Gifted Students

Baumgärtner, S.: Mentor of currently 16 academically gifted students at Leuphana University of Lüneburg, sponsored by the *German National Academic Foundation (Studienstiftung des Deutschen Volkes)*

Visiting Teaching Positions

Renowned experts in their field, members of the Sustainability Economics Group have been invited to visiting teaching positions at other universities and as lecturers for international summer schools:

- Baumgärtner, S.: Course on *Biodiversity Economics* for the MSc-program *Environmental Studies*, University of Zurich

(Switzerland), 15 October 2007 and 22–26 September 2008.

- Baumgärtner, S.: Course on *Resilience of Ecological Economic Systems*, Summer Academy of the German National Academic Foundation (Studienstiftung des Deutschen Volkes), 24 August – 6 September 2008, La Villa (Italy)
- Baumgärtner, S.: Lectures on *Basic Economics for Ecologists* and on *Models in Ecological Economics*, International HIGRADE Summer School *Ecological-Economic Modelling for Biodiversity Conservation*, 7–13 September 2008, Bad Schandau

SERVICE TO THE SCIENTIFIC COMMUNITY

Organization of Conferences and Workshops

The Sustainability Economics Group, together with the Ecological Economics Group of the University of Kiel, has organized a workshop on Conceptualizing Sustainability under Uncertainty. Funded through a grant from the German Federal Ministry of Education and Research, this workshop took place 2–5 October 2008 at Camp Reinsehlen, in the heart of the Lüneburg Heath, and brought together leading international scholars, including

- Geir B. Asheim, University of Oslo, Norway
- Wolfgang Buchholz, University of Regensburg
- Luc Doyen, Muséum National d'Histoire Naturelle, Paris, France
- Richard B. Howarth, Dartmouth College, USA
- Frank Krysiak, University of Basel, Switzerland
- Andreas Lange, University of Maryland, USA
- Charles Perrings, Arizona State University, USA
- Per Sandin, Royal Institute of Technology, Stockholm, Sweden
- Johannes Schiller, Helmholtz-Centre for Environmental Research - UFZ, Leipzig
- Hans-Peter Weikard, Wageningen University, The Netherlands

The workshop has produced a critical survey of where we currently stand in the discussion of how to conceptualize sustainability under uncertainty, what the open questions and challenges are in that discussion, and what research strands are most promising for the future. This survey will be published in an international peer-reviewed economic journal.

Service as Expert and Peer Reviewer

Members of the Sustainability Economics Group have served as distinguished experts and peer reviewers for international scientific journals, funding agencies, steering committees, scholarship organizations etc:

Scientific journals

- Conservation Biology
- Ecological Economics
- Environmental and Resource Economics

Scholarship organizations

- German National Academic Foundation (Studienstiftung des Deutschen Volkes), Scholarship Review Panel

Other Universities

- External reviewer, search committee for the Junior-Professorship *Environmental and Development Economics*, University of Oldenburg

Service to Leuphana University of Lüneburg

Members of the Sustainability Economics Group (Stefan Baumgärtner) have served Leuphana University of Lüneburg in various functions:

- stv. Mitglied des Senats
- stv. Mitglied des Fakultätsrats der *Fakultät III – Umwelt und Technik*
- Mitglied der Promotionskommission *Umweltwissenschaften*
- Betreuer im Promotionskolleg *Volkswirtschaftslehre*
- Praktikumsbeauftragter, BSc und Diplom-Studiengänge *Umweltwissenschaften*

SERVICE TO THE SCIENTIFIC COMMUNITY

- Mitglied der Berufungskommission für die Junior-Professur *Nachhaltigkeitspolitik*
- Entwurf des Master-Studiengangs *Nachhaltigkeitswissenschaften* für die Leuphana Graduate School
- Struktur- und Entwicklungsplanung für die *Fakultät III – Umwelt und Technik* und für den Schwerpunkt *Nachhaltigkeitswissenschaften*

SERVICE TO THE PUBLIC AND KNOWLEDGE TRANSFER

Members of the Sustainability Economics Group have served as distinguished experts and have successfully transferred knowledge in sustainability economics to the wider public and, in particular, to stake-holders and decision-makers in the economic and political domain.

Knowledge Transfer to the Public at Large

Members of the Sustainability Economics Group have transferred their expert knowledge to the wider public through cooperation with journalists. This has led to a number of articles in the general media, radio interviews, etc.

- Biologische Vielfalt im Blick. Professor in Expertengruppe berufen, *Landeszeitung für die Lüneburger Heide*, 18 March 2008, p. 14
- Book reviews of *Biodiversität* (Reihe: *Ethik in den Biowissenschaften – Sachstandsberichte des DRZE*, Band 5, D. Lanzerath, J. Mutke, W. Barthlott, S. Baumgärtner, C. Becker and T.M. Spranger, Verlag Karl Alber, Freiburg and Munich, 2008) have appeared in *Frankfurter Allgemeine Zeitung* Nr. 117/2008, 21 May 2008, p. N2; www.rotterdam.de
- Book reviews of *Joint Production and Responsibility in Ecological Economics. On the Foundations of Environmental Policy* (S. Baumgärtner, M. Faber and J. Schiller, Edward Elgar, Cheltenham, 2006) have appeared in *Ecological Economics* 64(3): 674-675 (2008), *Environmental Values* 17(1): 111–113 (2008), *Journal of Evolutionary Economics* 18(1): 111-114 (2008)
- Das Aussterben der Arten kommt die Welt teuer zu stehen, *Stuttgarter Zeitung* 116/2008 (20 May 2008), p. 2
- Der Ausverkauf der Natur, *Tages-Anzeiger Zürich*, 31. May 2008, p. 36
- Günstiger Artenschutz – Ökonomen machen Vorschläge, *Stuttgarter Zeitung* 118/2008 (23 May 2008), p. 10

- Preisschilder fürs Leben – Globale Finanztransfers sollen das rasante Artensterben bremsen, um die ökologischen Lebensgrundlagen der Menschheit zu sichern, *Focus* 18/2008 (28 April 2008), pp. 72–76 [including picture]
- Sustainability of commercial cattle farms and the natural environment in Namibia, *Namibian Broadcasting Corporation*, 23 and 25 August 2008 [radio broadcast]
- Study on commercial cattle farming, *AgriForum* (Namibia) August 2008
- Warum Naturschutz wirtschaftlich ist – Prof. Dr. Stefan Baumgärtner von der Universität in Lüneburg analysiert Wert von Ökosystemen, *Landeszeitung für die Lüneburger Heide* 125/2008 (30 May 2008), p. 9 [including picture]
- Was ist uns die Welt wert? *Rheinischer Merkur* 20/2008 (15 May 2008), p. 7

Knowledge Exchange with Stakeholders

Members of the Sustainability Economics Group held several meetings and workshops in Windhoek, Namibia with stakeholders to exchange knowledge on the issue of sustainable risk management in cattle grazing in semi-arid regions. Representatives came from the following Namibian institutions, firms, and organizations:

- Agra Co-operative Ltd. (Flip de Bruyn, Birgit Hoffmann, Peter Hugo, Arnold Klein)
- Agribank of Namibia (Hans-Günter Stier, Justus Tjitjuka)
- Farm Hamburg (Peter Zensi)
- Farm Klein-Huis (Arne Gressmann)
- Farm La Paloma (Volker Dieckhoff)
- Farm Onjossa (Thomas Peltzer)
- Farm Vergenoeg (Peter Eichhoff)
- MeatCo (Arne Gressmann)

SERVICE TO THE PUBLIC AND KNOWLEDGE TRANSFER

- Ministry of Agriculture, Water and Forestry (Marina Coetze, Celeste Espach, Leon Lubbe)
- Namibia Agricultural Union (Harald Marggraff, Elaine Smith)
- Namibian Agricultural Trade Forum (Jürgen Hoffmann)
- Namibian Stud Breeders Association (Tobie Le Roux)
- The Namibian Economic Policy Research Unit (Klaus Schade)
- Groth, M.: Scientific advisory service to the *United Nations' Convention on Biological Diversity*. Meeting of the Subsidiary Board on Scientific, Technical and Technological Advice of the Convention on Biological Diversity, Rome, 18-22 February 2008

Knowledge Transfer to Political Decision-Makers

Members of the Group have served as expert advisors to various political actors and decision makers for public interests:

- Baumgärtner, S.: Scientific advisory service to the *Bavarian State Government* and the *Bavarian State Ministry of the Environment* (StMUGV), Munich, on the Bavarian Biodiversity Strategy: Briefing with Prime Minister Dr. Günter Beckstein and Secretary of the Environment Dr. Ottmar Bernhard, Munich, 4 April 2008
- Baumgärtner, S.: Scientific advisory service to the *European Commission*, Brussels, and the *German Federal Ministry of the Environment*, Berlin, on "The economics of ecosystem services and biodiversity": Workshop, Brussels, 5-6 March 2008
- Baumgärtner, S.: Scientific advisory service to the *German Federal Ministry of Education and Research* (BMBF), Bonn, on "Sustainable use of ecosystem services under uncertainty": Workshop with the Ministry, Bonn, 13-14 December 2007
- Groth, M.: Scientific advisory service to the *United Nations' Convention on Biological Diversity*. Second Meeting of the Ad Hoc Open-ended Working Group on Protected Areas, Rome, 11-15 February 2008

LOOKING AHEAD

Our **long-term goal** is to have an international impact through cutting-edge contributions in research, higher education and knowledge transfer in the area of sustainability economics. In view of this goal, in the **upcoming academic year** we will take the next steps and

- extend and strengthen our intellectual capacity by recruiting and developing outstanding junior researchers, and seeking funding grants for them,
- amend our agenda and portfolio in research, higher education and knowledge transfer by establishing a new research field *Payments and Markets for Ecosystem Services* with a focus on innovative economic instruments such as conservation procurement auctions,
- extend and strengthen our network of international scientific collaborations, by establishing an invited-guest program and producing co-authored research publications,
- organize and host the German Economic Association's (Verein für Socialpolitik) Junior Researcher Workshop *Environmental and Resource Economics* in February 2009.

Over the **medium-term future**, we will be actively engaged in shaping the reorientation of Leuphana University of Lüneburg. The establishment of a graduate school, a college, a professional school, research centers, new departments and new funding schemes offers many opportunities – and some challenges – for sustainability economics. In the **upcoming academic year** we will

- develop, together with colleagues from different academic disciplines, new university-wide research centers in the area of inter- and transdisciplinary sustainability research,

- develop and implement a general introductory module as well as several specialized modules in *Sustainability Economics* for the new master program *Sustainability Sciences*,
- develop a fundraising strategy for the *Förderverein Nachhaltigkeitsökonomie e.V.* and build-up a network of supporters.

And, of course, there are many things that need to be done **right now** – little things that are nonetheless very important in order to create the conditions for achieving our medium- and long-term goals. One of those will be the moving of our group to new offices, which is envisaged for fall 2008.

We are proud of what we have achieved over the past year in many dimensions, and we are motivated to pursue our goals and, on the way, address challenges and new opportunities.

NOTES

1. This report covers the time period 01 October 2007–30 September 2008.
2. Only funding sources exceeding 1,000 euros are reported.
3. Professorship of Sustainability Economics, held by S. Baumgärtner, with state-of-Niedersachsen salary scheme W2, including 30% pension funds obligation.
4. 75% of the annual endowment for 2008.
5. Doctoral scholarship: 7,800 euros; teaching assistantships: 2,520 euros; visiting lectureships: 3,360 euros
6. Grant No. 01UN0607. The figure is the total flow of funds from the funding source to the Sustainability Economics Group, including contributions that are earmarked for use by our project partners and that are transferred from us to these partners. The number less contributions for use by our project partners is the funding of 74,750 euros for use by and at the Sustainability Economics Group.
7. External funds / total funds.
8. Total funds / internal funds.
9. Grant No. 01UN0607.

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Impressum

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