

**Gloria L.
Gallardo
Fernández**

**Assoc. professor
in sociology**

&

**CEFO's Director
of Research
Studies at CSD**

CSD Uppsala.
Centre for sustainable development

Uppsala Centre for Sustainable Development is
an interdisciplinary Centre established at
Uppsala University.

The Centre is based on a collaboration between
Uppsala University (UU) and the Swedish
University of Agricultural Sciences (SLU).



UPPSALA
UNIVERSITET



CSD

Aims to be a catalyst for research and education on sustainable development for Uppsala's two universities. It is composed of:

- ▣ **CEMUS**
- ▣ **BUP**
- ▣ **Water Centrum**



CEMUS is a unique student initiated and primarily student-run university program with the explicit ambition to contribute to a better world.

CEMUS has three main pillars which are:

Cemus education

<http://www.csduppsala.uu.se/education/>

Cemus Forum

<http://www.csduppsala.uu.se/education/>

Cemus Research School

<http://www.csduppsala.uu.se/research/cefo/>

CEFO

CSD RESEARCH SCHOOL

CEFO is a *bottom-up or student-led*, interdisciplinary research forum for PhD students and researchers from diverse universities that since 2002 focuses on environmental and development studies

CSD Research School 2002-2014



Cefo has had:

- **ca 100 seminars under 10 year with a big amount of international lecturers.**
- **24 PhD courses organised by PhD students.**

The CEFO associated PhD candidates have the opportunity to:

- ▣ **Develop their own PhD courses, seminars & workshops, also becoming temporarily part-time employed at CSD**
- ▣ **Get a broader perspective on their research and relate it to environmental and development issues**
- ▣ **Publish in Cefo Interdisciplinary Working Paper Series**



- ▣ Invite an external opponent from another discipline to a seminar where the PhD student presents his/her work
- ▣ Take part i Cefo's field trips and excursions nationally and internationally
- ▣ Receive small funds to finance a supervisor from another discipline
- ▣ Apply for small travel grants
- ▣ Invite interesting guest speakers



Affiliated PhD students at CEFO

Affiliated	Research issue	Dept/University
Claudia Abril	Effects of 3D velocity structure on earthquake locations	Dept. of Earth Sciences, UU.
Orn Uma	Water resource futures: using scenario analysis to evaluate impacts of income inequality and food security on land use change in rural Mekong countries	Dept. of Earth Sciences, UU/CSD, UU
Marcus Wallner	Mining, neoliberalization and areas of national interest in Sweden	Social and Economic Geography, UU
Simon Davidsson	Energy transitions and natural resources	Dept. of Earth Sciences, UU
Johanna Jokinen	Reasons behind out-migration from rural societies in Bolivia	Social and Economic Geography, UU
Pian Pian Wu	Understanding methylmercury bioavailability and bioaccumulation at the base of food chain	Dept. of Water and Ecology, SLU

Johanna Jokinen	Reasons behind out-migration from rural societies in Bolivia	Social and Economic Geography, UU
Kristina Börebäck	Processing environmental communication within “posthuman” theory	Dept. of Pedagogy, SU
Suvi Kokko	Impact measurement of Peepoo-bag. A randomized control trial in Kibera slum, Nairobi	Dept. of Economics, SLU
Tong Thi Hai Hanh	How do institutions influence capacity to adapt to climate change in rural regions in Vietnam	Dept. of Earth Sciences, UU/CSD, UU
Anna Ruban	The Evolution of Instruments of Environmental Governance in Ukraine, a Country in Transition	Central European University, Hungary
Taylor Brydges	Slow/sustainable fashion	Social and Economic Geography, UU
Dominic Teodorescu	Urban geography and housing studies in Eastern Europe	Social and Economic Geography, UU

SOME CEFO PHD COURSES 2002-2013

- **Eco-philosophies to change the world? Eco-philosophies and Sustainability (2014)**
- **Methodological Approaches to Interdisciplinary Research (2013)**
- **SolEn for Sustainable Future in conjunction with (2012)**
- **Critical Studies in the Development of Capitalism (2011)**
- **Human-Animal Studies: Representations and Practices in conjunction with Gender Studies (2010)**
- **Action Research Action Learning -Social Learning in Nature-Society Relations (2010)**
- **Representing Animals, Nature and Environment in Visual Culture in conjunction with Gender Studies (2009)**
- **Climate Change, Science Power and (2008)**
- **An enquiry into environmental research and analysis (2008)**
- **Research Methodologies and Interdisciplinary (2007)**
- **Political Ecology - A Critical Introduction (2007)**

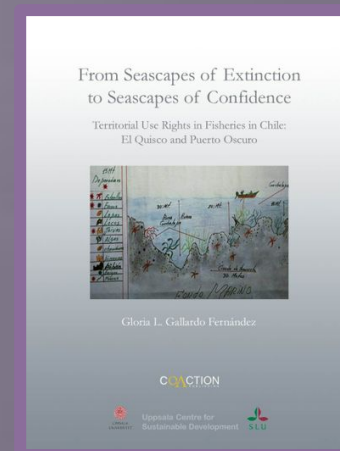


Antologier och Monografier

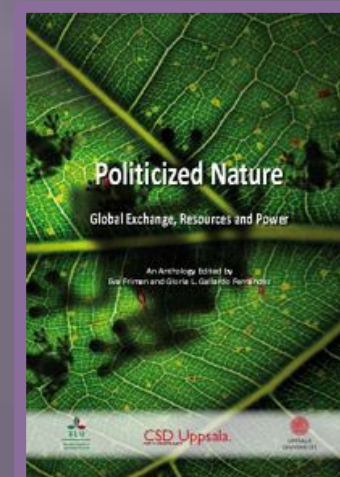
- ▣ Ekokritik (Schultz Ed.) (2007)



- ▣ From Seascapes of Extinction to Seascapes of Confidence. Territorial Use Rights in Fisheries in Chile: El Quisco and Puerto Oscuro (Gallardo) (2008)



- ▣ Politicized Nature (Friman & Gallardo Eds.) 2012)



International trips

- ▣ Chile + UNEP First Conference of Natural Resources in Viña del Mar
- ▣ Rio + 20 Miljö Konferensen + ISEE Conference - Ecological Economics and Rio +20: Challenges and Contributions for a Green Economy (2012)
- ▣ California, Berkeley University (2011)
- ▣ Fieldtrip to London (King's College), and Oxford (Centre for the Environment) (2006)
- ▣ London-Cambridge University (2004)
- ▣ Iceland (2005)



National trips

- ▣ **Abisko (Dec. 2012)**
- ▣ **Kinekulle Biosphere (2012)**
- ▣ **Grisslehamn- Laxfarm (2010)**
- ▣ **Bruno Latour i Stockholm (2010)**
- ▣ **David Harvey i Stockholm (2011)**
- ▣ **Alsike Eco-farm with Resilience researchers (2009)**



An example of a CEFO PhD interdisciplinary
course with focus on a natural science topic
highlighted interdisciplinary

SolEn for a Sustainable Future: Developing and Teaching a Multidisciplinary Course on Solar Energy To Further Sustainable Education in Chemistry

Sonja Pullen[†] and Katharina Brinkert^{*,‡}

[†]Department of Chemistry, Ångström Laboratories, Uppsala University, Box 523, 751 20 Uppsala, Sweden

[‡]Department of Life Sciences, Molecular Biosciences, Imperial College, London SW7 2AZ, United Kingdom

Supporting Information

ABSTRACT: The high demand for the integration of sustainable topics into university curricula presents new challenges for the way chemistry is traditionally taught. New teaching concepts are required that consider and connect different disciplines to achieve a higher student awareness of the importance of these topics for humanity, the environment, and the future of our planet. This article describes a uniquely multidisciplinary graduate course on solar energy; the course may serve as an example of how to incorporate sustainable topics into

chemistry programs, and as a starting point from which to build for others. It combines different scientific, industrial, political, and humanitarian approaches to the topic and provides a broad overview of one of the main future energy resources. New teaching methods are introduced, combined, and evaluated with respect to their effectiveness for a sustainable education within science and, in particular, chemistry. The success of this new course concept is demonstrated by high student satisfaction in a trial course evaluation and impressive exam results.

KEYWORDS: Graduate Education/Research, General Public, Continuing Education, Interdisciplinary/Multidisciplinary, Environmental Chemistry, Collaborative/Cooperative Learning, Problem Solving/Decision Making, Curriculum, Learning Theories



- An *introduction module*, consisting of organizational aspects of the course, such as the hand out of the final exam questions and a general motivation for dealing with the course topic
- A *political module*, focusing on international renewable energy policies and emphasizing especially the role of solar energy
- A *humanitarian module*, dealing with economical and ethical aspects of energy consumption
- A module broaching the issue of *applied solar energy research*, focusing on solar cells
- An *industrial module*, including a field trip to a local company manufacturing solar cells and introducing an economic perspective on the replacement of conventional energy sources by renewable energies
- A module on *current research topics* within the field of solar energy, reaching from natural to artificial photosynthesis research and algal hydrogen production
- A *global perspective* on solar energy, aiming for a summary and a connection of the different course modules.

The *introduction module* was devoted to providing a broad overview of the course topic with an introduction lecture giving

solar cells using various technical grounding for a solar cell company gathering thin-film solar cells.

The topic represented different solar energy: natural and artificial photosynthesis strengthened the importance of the environment as a unit converting it into chemical energy. The lecture and based on the natural photosynthesis lecture focused on an alternative way of fuel production. In a seminar, a fake quiz on scientific concepts and

The last part was devoted to solar energy as a future alternative. The solar energy research introduced in video lectures were discussed.

The last day focused on an evaluation. This was

Example of an effort of interdisciplinary research, illuminated from the perspective of PE and SES.

- Challenge: do research from approaches with different ontologies on the nature of society and what is a social phenomenon (agency versus structure approach).

Exploring the Implications of Different Assumptions about the World: An experiment to investigate the socio-ecological relations of reindeer herding in the Sub-Arctic region of Sweden

We explore how key concepts and assumptions used within political ecology (PE) and social-ecological systems (SES) approaches converge and diverge when trying to understand the socio-economic relations of reindeer herding.

Our purpose is twofold:

- 1) Describe the situation of Sami reindeer herding through the lenses of PE and SES, exploring how these two approaches, operating from different premises and analytic frameworks, lead to different interpretations of the same socio-ecological phenomenon.**
- 2) Present a meta-analysis that explores the nature of the differences and commonalities of PE and SES ontologically and epistemologically as well as their social implications.**

G. L. Gallardo F. (CSD, Uppsala University), F. Saunders (Södertörn University, School of Life Science, T. Sokolova, K. Börebäck (Dep. of Education, Stockholm University), Frank van Laerhoven (Utrecht University, Environmental Studies and Policy Section), S. Kokko (SLU, Dept. of Economics), L. Eunice, M. Tuvendal (Stockholm University, Systems Ecology Dept.).

THANKS

Gloria L. Gallardo Fernández
Assoc. professor in sociology
CEFO's Director of Research Studies,
CSD (Centre for Sustainable Development)
Uppsala University
Villavägen 16, 752 36 Uppsala, Sweden
Fax: 46-(0)18-471 27 96, Phone: 46-(0)18-471 72 13
Gloria Gallardo <gloria.gallardo@csduppsala.uu.se>
<http://www.csduppsala.uu.se/cemus>