



Stockholm Resilience Centre Annual Report 2013



Stockholm Resilience Centre
Sustainability Science for Biosphere Stewardship



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Stockholm Resilience Centre Annual Report 2013

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Chair's preface

In institutional terms, 2013 was probably the most critical year for the Stockholm Resilience Centre (SRC). The Centre reached several important junctures in its evolution, which it navigated successfully, placing it on a resilient pathway to the future



Professor Arild Underdal,
Chair of the Board

ONE OF THE MOST IMPORTANT JUNCTURES

was the first full-scale international evaluation by Mistra, SRC's core funding agency. As 2013 constituted the end of this first ordinary phase (2009-2013), Mistra organised an international panel of researchers to scrutinize SRC's achievements since the start in 2007. The Centre prepared a Progress Report for the period 2007-2012, and an Action Plan for 2014-2018. The Progress Report, which can be downloaded at www.stockholmresilience.se/progress, provides detailed documentation of the Centre's performances within science, education, communication and administration. It is an impressive and all-encompassing report on the SRC's achievements during its first six years. It demonstrates how SRC researchers publish in both natural and social science journals and advance novel thinking on approaches to sustainability science. A bibliometric analysis shows that SRC's publications have high citation rates and that interdisciplinary approaches and methodologies, in addition to empirical research, are advocated. The report also demonstrates the Centre's ambition of linking science, business and practice through dialogue, and experimentation with the arts. Over the years, this approach has generated a significant impact within policy and practice, from the local to the global level.

Great progress has also been made in the Centre's education programme. The Resilience Research School attracts an increasing number of young scholars, as do SRC's MSc programme and PhD programme. Overall, the Centre is now a well-functioning organization.

Since its inception in 2007 the Stockholm Resilience Centre has become a world leading research centre advancing interdisciplinary research on the dynamics of interconnected social ecological systems. SRC's research focus is tremendously relevant for understanding social-ecological relationships and interactions from the local to the global-level, issues critical for the future of both the earth's ecosystems and human wellbeing.

CONCLUSION FROM THE 2013 MISTRA EXTERNAL REVIEW PANEL

A second strategic development during 2013 was the firm establishment of the Centre as a permanent institution at Stockholm University. The Centre is now placed within the Natural Science Faculty, while still operating across all faculties, and running its own PhD programme in sustainability science (now with almost 40 PhD students).

As the chairman of the SRC board, I am impressed and proud of the Centre's achievements. The positive outcome of the Mistra evaluation panel comes as no surprise and is indeed very encouraging. We are all very grateful to Mistra for pledging continued support for the coming five years.

Vision & Mission

The vision of the Stockholm Resilience Centre is a world where socialecological systems are understood, governed and managed, to enhance human well-being and the capacity to deal with complexity and change, for the sustainable co-evolution of human civilizations with the biosphere.

The mission of Stockholm Resilience Centre is to advance research

for governance and management of social-ecological systems to secure ecosystem services for human well-being and resilience for long-term sustainability. We apply and further develop the scientific advancements of this research within practice, policy and academic training.

Directors' view

IN ADDITION TO CONTINUOUS REFLECTIONS on our advancements within science, education and outreach, 2013 offered an important opportunity to look ahead. What will the SRC accomplish in the coming five years? Through a strategic planning process, the Centre prepared an Action plan for 2014-2018, which was scrutinized by the Mistra international evaluation team, and will form a guiding framework for the years to come. The leadership of the Centre is very excited about the opportunity to continue refining and amplifying our contributions to science and our insights on social-ecological systems. We will continue to study interactions from local to global scales, advance approaches to sustainable biosphere stewardship, and explore transformative pathways and sustainable innovations contributing to global sustainability and a resilient future for people and planet.

Key strategies for the future include an increased emphasis on our place-based research, investing further in our cross-scale dynamics research, and the exploration of emerging areas, such as social-ecological innovation and the interface between resilience, behaviour and belief systems. All of these are placed in the context of a human shaped biosphere

and the global challenges ahead. As a complement to these efforts, we will place an even stronger emphasis on forward looking scientific syntheses, where our research connects even better to the larger world of sustainability science.

Some broad areas of research that may be relevant for such integrated syntheses are:

- Social-ecological resilience perspective on ecosystem services
- The role of cognition and belief systems in reconnecting to the biosphere
- Behaviour, economics and nature networks
- The role of global dynamics and cross-scale interactions
- Transformations and social-ecological innovation

Such areas of emerging integrated knowledge will also form the basis for future research at the Centre. We will continue to engage with researchers around the world in our joint effort of advancing sustainability science, and contribute with insights that support sustainable and resilient pathways to human well-being and prosperity.



Johan Rockström,
Executive director



Carl Folke,
Science director



Olof Olsson,
Deputy director

Centre receives continued funding from MISTRA

Based on an independent, international evaluation of the centre, Mistra, the Swedish Foundation for Strategic Environmental Research has decided to continue its core funding of the centre. This means a further 93 million SEK between 2014-2018.

"The centre has exceeded our expectations and established itself as a world leading institution on resilience research", says Mistra director Lars-Erik Liljelund.



FIRST TO THE FINISH

Introducing Cibele Queiroz, our first PhD student to graduate in sustainability science

THE SENSE OF PRIDE AND RELIEF was obvious when Cibele Queiroz finally nailed her PHD dissertation to the wall in the Centre's lobby 8 May 2013: pride because her study constituted a landmark in the Centre's research history, and relief because the work was exhausting. Not that anyone doubted she would get there eventually. Her supervisor, Regina Lindborg, describes her as a "brilliant and enthusiastic" researcher who always comes up with new and interesting ideas.

That said, Cibele's interest in natural resources management is not a particularly new one. Not to say she was born to do research on managing landscapes undergoing farmland abandonment, but her field work was conducted not too far off Vieira do Minho, a small village in the northern part of Portugal where she spent the first six years of her life.

Maintain or abandon?

In her research, Cibele combined her own work with similar studies on a global scale and found that the perceptions of abandonment impacts differ across world regions. European and Asian studies report mainly negative impacts, while in many North and South American studies, abandonment trends are described as positive. So what to do? Keep the agricultural practices or promote forest regeneration after abandonment? There is no black and white answer, says Cibele. "In some areas maintaining a moderate level of agricultural disturbance can maximize species richness with benefits for biodiversity. But in other cases, when the social structure of farming communities has been eroded and low-intensity farming is no longer socially or economically viable, abandonment followed by re-wilding can be the best option."

The same dilemma applies to whether or not keep small, rural communities alive, something she has been forced to reflect upon on several occasions during her research. "On the one hand we want to maintain a strong connection to these countryside landscapes, where the direct relation between people and ecosystems is still visible. They carry the history of our childhood or our parents' and grandparents' childhood. On the other hand, cities are strong attractors for young people who strive for a different and more convenient life."

As for ending up in Stockholm, she has mainly science director Carl Folke to "blame". While working on the sub-global assessments of the Millennium Ecosystem Assessment, she got in contact with Folke, who encouraged her to pursue a

Ph.D at the Centre. "It was wonderful when Cibele decided to do her PhD with us. Her work on land abandonment, biodiversity and ecosystem services is path-breaking in how it shows the dynamics of social-ecological systems," says Carl Folke. With a scholarship secured, Cibele started her studies in 2007, the same year the Centre was launched.

A luxury

Some six years of hard work, and a four year old son later, Cibele wants to stay in the world of sustainability research. She will now embark on the adventures of being a post-doc at the Centre, working on projects more connected to ecosystem services assessments in Sweden. "Now that I am working here it is difficult to think of another place where I could learn so much and constantly renew myself," she says. As for the future, she hopes to build her own small research group. "I am genuinely interested and curious about the systems I study. I want to understand how they work and deal with the many questions they raise about our society. It is a luxury to actually be able to study the things you burn for."



Her work on land abandonment, biodiversity and ecosystem services is path-breaking in how it shows the dynamics of social-ecological systems.

CARL FOLKE centre scientific director

Our research framework

The research framework developed at the Stockholm Resilience Centre has been highlighted by MISTRA as one of the core fundamentals for the success of the Centre

THIS FRAMEWORK EMPHASIZES that all people are dependent on the collective work of the Earth's ecosystems, the biosphere, and its generation of critical ecosystem services.

Centre research is regarded as part of the larger research area of Sustainability Science, a broad interdisciplinary field defined by the problems it addresses rather than by the disciplines it employs. In particular, the field seeks to facilitate a transition toward sustainability by improving society's capacity to use the earth in ways that simultaneously meet the needs of a much larger but stabilizing human population, sustain the life support systems of the planet, and substantially reduce hunger and poverty.

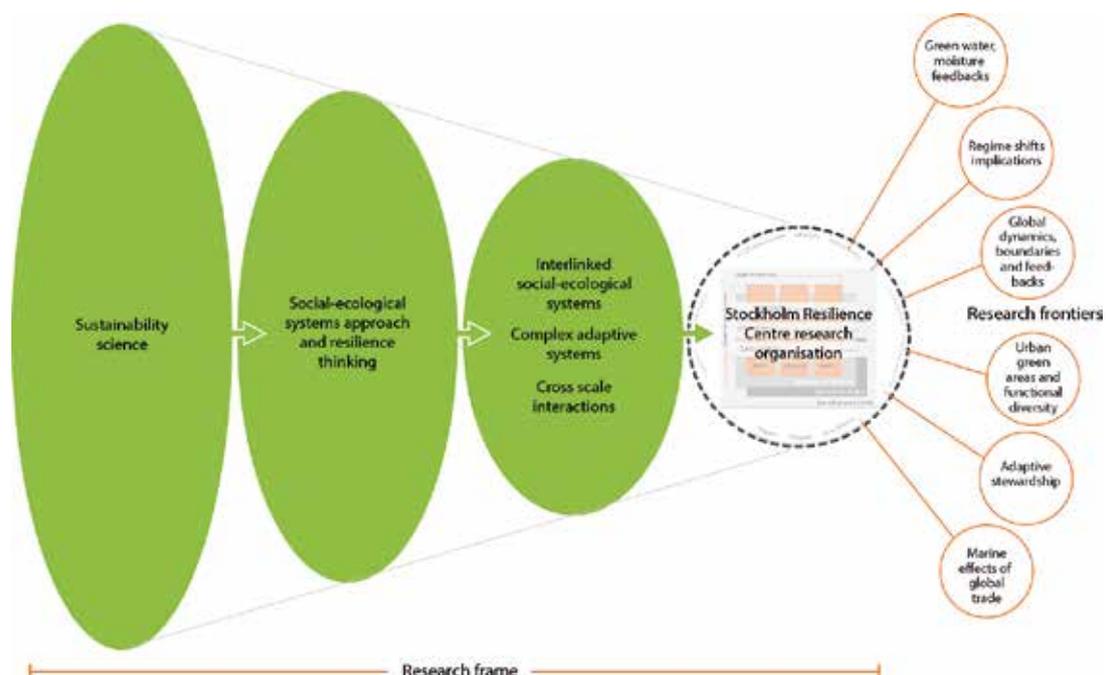
SRC's focus is on social-ecological research, resilience thinking and biosphere stewardship, which recognize that human actions are embedded in and shaping the biosphere and its resilience from local to global levels. Efforts

aimed at understanding interrelated social-ecological systems and the cross-scale dynamics of the Anthropocene, by using a complex systems perspective, are at the core of SRC research and in interactions with practice and policy.

Currently, research is divided into six themes (see illustration) with ample collaboration across them. There are several emerging research initiatives that cross these areas. Some have been up and running for a while, but others are more recent. These initiatives include: Transformations and Social-Ecological System Innovation; A Social-Ecological Systems Perspective on Ecosystem Services with PECS (Programme on Ecosystem Change and Society) as central; Cross-scale Interactions and Global Dynamics, having strong interactions with the Planetary Boundaries Lab, The Beijer Institute's global programme, The Global Economic Dynamics and the Biosphere Programme of the Royal

Swedish Academy of Sciences; Behaviour, Economics, and Nature Networks with the Beijer Institute; and Sources and Sinks of Psychological and Cultural Resilience, this being the most recent.

SRC research is problem oriented as well as inter- and transdisciplinary. Within the SRC framework, Centre researchers are using a diversity of theories, approaches, methods and perspectives, including the co-production of knowledge together with practitioners and other stakeholders. The ambitious research level at the Centre requires in-depth collaboration, not only among the researchers in Stockholm, but also with our international networks of collaborators and diverse stakeholders. Without such collaboration, the complexity of a wide range of issues would be too difficult to grasp.



Publications

It has been a productive year with as many as 107 articles published, plus another 17 reported online in 2013 (officially published in 2014)

There were publications in 56 different scientific journals in 2013 from diverse disciplines and several interdisciplinary journals. Centre researchers have also been successful this year in publishing their scientific work in journals like *Nature*, along with sister journals *Nature Climate Change* and *Nature Communications*, *Frontiers in Ecology and the Environment*, *Trends in Ecology & Evolution*, *BioScience*, *Philosophical Transactions of the Royal Society*, *Global Environmental Change*, *Ecological Applications*, *Ecological Economics*, *Environment and Development Economics*, *Ecology and Society*, *Sustainability*, *Current Opinion in Environmental Sustainability*, *Ambio*, *PLoS ONE*, *Climatic Change*, *Conservation Biology*, *Global Change Biology*, *Hydrological Processes*, *Marine Ecology Progress Series*, *Marine Policy*, *Environmental Science & Policy*, and others. For the first time in the history of SRC publications, articles have appeared in 29 “new journals”, which include *Landscape and Urban Planning*, *Agriculture, Ecosystems & Environment*, *Reviews in Fisheries Science*, *Review of Policy Research*, *Global and Planetary Change*, *Theoretical Ecology*, *Environmental Values*, *Food Systems*, and the *Journal of Artificial Societies and Social Simulation*. A major book on urbanization, biodiversity, and ecosystem services, edited by Thomas Elmqvist and colleagues, has been published with Springer. Moreover, 18 book chapters, plus some 35 policy reports, as well as popular science and media publications, have been produced.

There have been many workshops organized during the year, both in-house workshops and international ones, and



all themes have been actively engaged. SRC researchers have given keynotes and presentations at conferences and meetings worldwide. Many have been engaged in science, practice, and policy processes in Sweden and internationally.

In addition, there have been interactions and experiments in the art-science interface.

Introducing a new research management structure

As a response to the rapidly growing organization, researchers Line Gordon and Henrik Österblom were in 2013 appointed “Deputy Science Directors” at the Centre



THEIR PRIME TASKS will be to ensure that Centre research fits within the overall research framework, help provide comprehensive overview and strategic direction, and facilitate collaboration across the research themes.

“Developing research syntheses that cut across individual research projects is one of the core mechanisms in which we can ensure that research fits within the research framework of the Centre while it also contributes to advancing the science in our research field,” says Line Gordon.

Speed lunches

However, being able to effectively work with syntheses, together with other researchers, requires an in-depth understanding of what the other colleagues are working on. One popular method of ensuring this are the weekly, one-hour long Monday “Speed Lunches” that started in August 2013 (pictured above). Here, researchers present their most recent papers, their new research ideas, or new insights they have drawn recently. Each presentation is restricted to four minutes, which gives room for approximately ten presentations every time and allows each person to present several times during a semester. The speed lunches have been extremely well attended (around 60-70 people per week), and have already substantially increased the in-house knowledge about ongoing research and events. In the spring 2013, the Centre also ran a “Marathon Day”, where all research themes presented their most “cutting edge” work for the rest of the Centre.

“These shared activities have great potential for stimulating collaboration and create in-depth insights on the dynamics of social-ecological systems,” says Henrik Österblom.

New research syntheses

Several research syntheses have also been published during 2013, in line with the research direction outlined in the Action Plan developed for Mistra in early 2013. Two examples of such syntheses published during 2013 address the usefulness of a social-ecological perspective on both ecosystem services and regime shifts. The first one, written by Centre colleagues Belinda Reyers, Oonsie Biggs and Thomas Elmqvist, was published in *Frontiers in Ecology and the Environment*. It investigates how to use a more social-ecological approach in the measurement and analysis of ecosystem services. The second paper by Steve Lade, Maja Schlüter and others was published in *Theoretical Ecology* and advances the theories around social-ecological regime shifts.

The Urban research theme has been very productive when it comes to synthesis papers. Stephan Barthel, Johan Colding and colleagues highlighted the role of “urban green commons” in city development, and Barthel, together with Uno Svedin and Carol Crumley, illustrated the role of bio-cultural refugia for food security and biodiversity in papers in *Ecological Economics*, *Global Environmental Change*, *Ecology and Society*, and *Landscape and Urban Planning*. Other papers that combine and provide new findings include the SRC multi-authored paper on modeling of social-ecological scenarios in marine systems published in *BioScience*, an effort led by Henrik Österblom. Another is the paper on transformative agency in linked social-ecological systems published in *Ecology and Society* with Frances Westley as lead and five SRC colleagues as co-authors.

During 2013, research theme leaders at the Centre also engaged in continued collaboration to develop research insights and started to work on making research synthesis a priority, as identified in the Action plan. Several research theme and cross theme workshops were carried out, including topic specific workshops on Cross-Scale interactions, with participation by more than 20 Centre researchers, and a two-day theme leader retreat at Ekskåret outside Stockholm.



New Deputy Science Directors Line Gordon and Henrik Österblom.

Research highlights

Scientific assessment behind *Cities and Biodiversity Outlook* launched on World Habitat Day

Increasing urbanization over the next decades presents not only unprecedented challenges for humanity, but also opportunities to curb climate change, reduce water scarcity and improve food security. That is the main message from the *Cities and Biodiversity Outlook* (CBO), the world's first global assessment on the relationship between urbanization and biodiversity loss.

An action and policy summary was officially launched during the UN CBD COP11 meeting in October 2012, but a year later, the more detailed scientific foundation behind the CBO was launched in New York as part of the World Habitat Day. The book *Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities — A Global Assessment* draws on contributions from more than 120 scientists worldwide and is scientifically edited by Centre researcher Thomas Elmqvist.

A video narrated by Hollywood actor Edward Norton was produced in relation to the launch in New York and provides a spectacular insight into the challenges and opportunities that come with an increasingly urbanising planet.

To watch the video and to read more about the *Cities and Biodiversity Outlook*, go to www.cbobook.org



Beatrice Crona

Global Economic Dynamics and the Biosphere – The Erling-Persson Family Academy Programme

A new five-year research programme was established in 2013 with the vision to be a platform for collaboration and enable synergies between the Royal Swedish Academy of Sciences, the Stockholm Resilience Centre (SRC), the Beijer Institute and other partners. The programme, entitled *Global Economic Dynamics and the Biosphere* (GEDB), is funded by the Erling-Persson Family Foundation and is led by Centre researcher Beatrice Crona (pictured) with Carl Folke, Anne-Sophie Crépin and Victor Galaz in the steering group. The programme will be a platform for interdisciplinary collaboration on the challenges of global change and sustainability. Early-career economists

will be able to collaborate with researchers from both natural and social sciences.

Current core areas of research are the effects on marine social-ecological systems by marine resources trade and consumption, interactions between financial markets and the biosphere, and macroeconomic modeling based on the premise that the economic system is embedded in the biosphere.

Economists Johan Gars and Mark Sanctuary, recruited from the Beijer Institute, and fisheries ecologist Eny Buchary from the SRC form a core research group with James Watson from Princeton University and the Nereus Program joining in 2015. Tracy van Holt, an interdisciplinary ecologist from East Carolina University, will spend six months within GEDB starting January 2014.

Gretchen Daily, an SRC board member and a highly respected professor in Environmental Science at Stanford University, will spend two years in Stockholm partly funded by GEDB. Deeply engaged in research around the value of ecosystem services, she will be instrumental in the planning of a high-level research policy event in Stockholm in 2015 where actors in the GEDB network will join forces. Jim Wilen, renowned environmental and natural research economist from University of California Davis, is affiliated as guest professor. He will visit regularly and mentor junior scientists in addition to participating in research activities and providing scientific guidance to the development of the research themes.



Emily Boyd

Centre-led project aimed at empowering local communities in Mozambique, wins UN award

Centre researcher Emily Boyd has co-led a project aimed at helping people in Mozambique “green” their urban neighbourhood and make it more resilient to climate change.

On 6 November 2013 the project, which is based in Maputo, Mozambique, was announced to be among 17 inspiring projects selected as 2013 Lighthouse Activities under the Momentum for Change initiative of the United Nations.

The project’s aim was to help the community have more of a

say in government and business plans for urban development. Since being implemented, local people have started a new community recycling centre, cutting down on litter; helped clean and maintain drainage channels to prevent potential flooding problems; and now have a stronger voice in urban planning and development decisions.

“An exciting finding from this work is the evidence that local residents, including those with relatively low education, want and are capable of handling information about the climate, when it relates to their own experiences of problems

such as flooding,” says Boyd.

The project was jointly undertaken with involvement from Stockholm Resilience Centre, the University of Reading, University College London, University of York, FUNAB and Aalto University. Lighthouse Activities and the Momentum for Change initiative are led by the UN Climate Change Secretariat, to bring attention to activities across the globe working towards a low-carbon, resource-efficient world.

Read more about the project online, at www.stockholmresilience.su.se search word “Lighthouse”



Per Olsson

Centre contributes to new Rockefeller programme on social innovation

The Rockefeller Foundation Global Fellowship Program on Social Innovation brings together a diverse group of 18 leaders committed to integrating social innovation into their work and interested in addressing the root causes of problems affecting poor or vulnerable populations by transforming the systems we live in – political, economic, legal, educational, environmental, and social.

The programme was designed

by the Stockholm Resilience Centre and the Waterloo Institute for Social Innovation and Resilience at the University of Waterloo in Canada.

Beginning in May 2013, the fellows will participate in four intensive workshops, each held in a different international location over the next year.

Through a series of presentations, small group exercises, site visits, and guidance from mentors, fellows will gain new perspectives and skills to apply in real time to the challenges facing their own organizations and networks.

Per Olsson, researcher at Stockholm Resilience Centre, helped design the programme.

“We want to contribute with insights from our research and particularly the importance of linking humans and the environment when dealing with innovation. We need innovations that take social as well as environmental aspects into account, and that are able to scale up without negative impacts”, says Olsson.

Read more about the programme on www.stockholmresilience.su.se: search term “Rockefeller”



Tim Daw

Centre awarded £1.9 million for new project on ecosystems and human well-being

A new project led jointly by the Stockholm Resilience Centre and the University of Exeter has been awarded £1.9 million by Ecosystem Services for Poverty Alleviation (ESPA).

The project, entitled Sustainable Poverty Alleviation from Coastal Ecosystem Services (SPACES), will investigate the

relationships between ecosystems and human well-being with the goal of alleviating poverty and improving sustainable resource use in the poor coastal communities of Mozambique and Kenya.

“There is an assumed link between ecosystem services and poverty alleviation, but what we know from previous research is that the actual impact of ecosystems on people’s

lives varies depending on their needs and their ability to access the benefits. This project will allow us to really explore that link for a number of ecosystem services in a range of settings,” says Centre researcher Tim Daw, who will lead the project.

Read more about the project on www.stockholmresilience.su.se: search term “SPACES project”

Scientific publications



PHOTO: EU HUMANITARIAN AID AND CIVIL PROTECTION

Shelter from the storm

Mangroves provide important protection from wind damage during storms.
 Das, S., Crépin, A.-S. 2013. *Mangroves can provide protection against wind damage during storms. Estuarine, Coastal and Shelf Science*, 134, 98–107

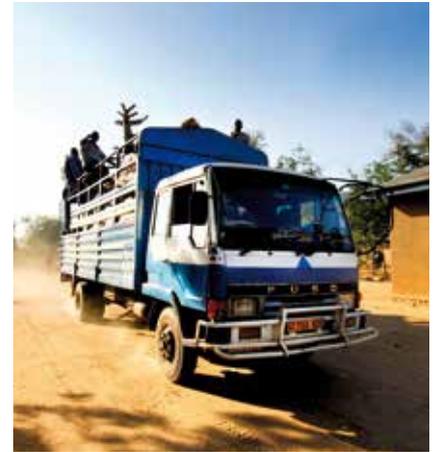


PHOTO: J. LOKRANTZ/AZOTE

Making it in Makanya

Holistic approaches to sub-Saharan farming can unlock poverty traps.
 Enfors, E., 2013. *Social-ecological traps and transformations in dryland agro-ecosystems: Using water system innovations to change the trajectory of development. Global Environmental Change*, 23, 51–60

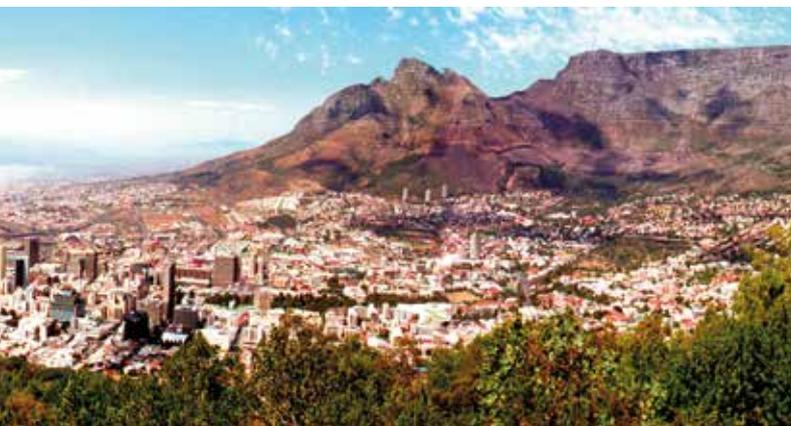


PHOTO: A. MASENNIKOV/AZOTE

Rich biodiversity CAN exist in and around cities

How biodiversity conservation can greatly improve sustainable development.
 Elmqvist, T., Fragkias, M., Goodness, J., Güneralp, B., Marcotullio, P.J., McDonald, R.I., Parnell, S., Schwenius, M., Sendstad, M., Seto, K.C., Wilkinson, C. (eds.) 2013. *Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities: A Global Assessment. Springer, New York. 755 p*

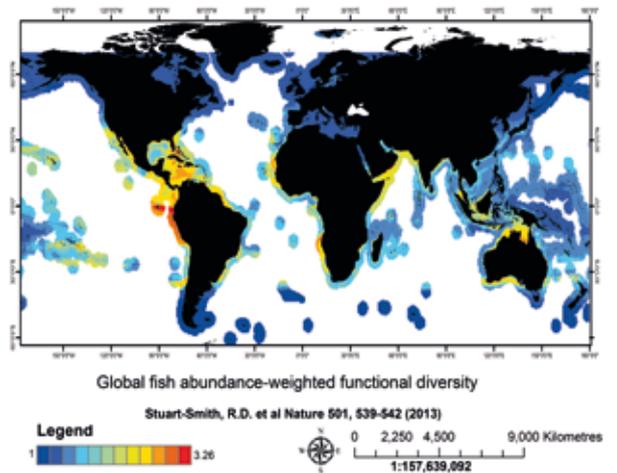


PHOTO: S. KININMONTH

Rethinking biodiversity

Specific species with specific functions more important than sheer number of species.

Stuart-Smith, R.D., Bates, A.E., Lefcheck, J.S., Duffy, J.E., Baker, S.C., Thomson, R.J., Stuart-Smith, J.F., Hill, N.A., Kininmonth, S.J., Airoidi, L., Becerro, M.A., Campbell, S.J., Dawson, T.P., Navarrete, S.A., Soler, G.A., Strain, E.M.A., Willis, T.J., Edgar, G.J. 2013. *Integrating abundance and functional traits reveals new global hotspots of fish diversity. Nature*, 501, 539-542



PHOTO R. MALINGA

There's a reason why they are called experts

Scenario planning yielding no different results than those of expert opinions. Malinga, R., Gordon, L.J., Lindborg, R., Jewitt, G. 2013. *Using Participatory Scenario Planning to Identify Ecosystem Services in Changing Landscapes. Ecology and Society*, 18(4):10



PHOTO A. MASENNIKOV/AZOTE

Avoid tipping over

Human activity could give rise to planetary-scale ecological regime shifts. Hughes, T.P., Carpenter, S., Rockström, J., Scheffer, M., Walker, B. 2013. *Multiscale regime shifts and planetary boundaries. Trends in Ecology & Evolution*, 28, 389-395



PHOTO J. MALONER/FICKR

Among agents and transformers

New theory on the roles of individuals for transformative change.

Westley, F. R., O. Tjornbo, L. Schultz, P. Olsson, C. Folke, B. Crona and Ö. Bodin. 2013. *A theory of transformative agency in linked social-ecological systems. Ecology and Society* 18(3): 27. <http://dx.doi.org/10.5751/ES-05072-180327>



PHOTO M. ANDERSSON/AZOTE

It takes more than an action plan

Institutions are slow in adopting new management approaches.

Valman, M. 2013. *Institutional stability and change in the Baltic Sea: 30 years of issues, crises and solutions. Marine Policy*, 38, 54-64



PHOTO G. ALMQVIST/AZOTE

Get the management right

Regardless of climate change, quality of management likely to determine Baltic Sea future.

Niiranen, S., Yletyinen, J., Tomczak, M.T., Blenckner, T., Hjerne, O., MacKenzie, B.R., Müller-Karulis, B., Neumann, T., Meier H.E.M. 2013. *Combined effects of global climate change and regional ecosystem drivers on an exploited marine food web. Global Change Biology*, 19, 3327-3342



PHOTO STOCKHOLMS STAD

Dealing with deadlocks and dichotomies

How resilience thinking can be useful in urban planning.

Erixon, H., Borgström, S., Andersson, E. 2013. *Challenging dichotomies: Exploring resilience as an integrative and operative conceptual framework for large-scale urban green structures. Planning Theory and Practice*, 14, 349-372



PHOTO N. KRIVYS/AZOTE

Caring is protecting

Farmers' interest in nature contributes to higher levels of biodiversity.

Ahnström, J., Bengtsson, J., Berg, Å., Hallgren, L., Boonstra, W.J., Björklund, J. 2013. Farmers' interest in nature and its relation to biodiversity in arable fields. International Journal of Ecology, 617352, 1-9



PHOTO J. LOKRANTZ/AZOTE

Back from the brink

Shocks and natural variability can help restore coral cover on degraded reefs.

Graham, N.A.J., Bellwood, D.R., Cinner, J.E., Hughes, T.P., Norström, A.V., Nyström, M. 2013. Managing resilience to reverse phase shifts in coral reefs. Frontiers in Ecology and the Environment, 11, 541-548



PHOTO N. DEISCHER/AZOTE

Insights from the Shire for the future Earth

Social memory of agricultural practices important for biodiversity and food security.

Barthel, S., Crumley, C., Svedin, U. 2013. Biocultural refugia: Safeguarding diversity of practices for food security and biodiversity. Global Environmental Change, 23, 1142-1152



PHOTO L. DEUTSCH

Beefed up

Smarter water management crucial for Uruguay's growing livestock production.

Ran, Y., Deutsch, L., Lannerstad, M., Heinke, J. 2013. Rapidly intensified beef production in Uruguay: Impacts on water-related ecosystem services. Aquatic Procedia, 1, 77-87



PHOTO T. SVENSSON/AZOTE

Human nature

Better understanding of the coupling between human behavior and ecological dynamics key to predicting ecological regime shifts.

Lade, S.J., Tavoni, A., Levin, S.A., Schlüter, M. 2013. Regime shifts in a social-ecological system. Theoretical Ecology, 6, 359-372



PHOTO: GEORGI/THE BOTTOM ROAD SANCTUARY

This land is your land...

Urban green areas managed by citizens can reduce ecosystem management costs and help people reconnect to nature.

Colding, J., Barthel, S. 2013. The potential of 'Urban Green Commons' in the resilience building of cities. Ecological Economics, 86, 156–166



PHOTO: A. MASLJENIKOVA/AZOTE

Measuring the immeasurable

New approach can make target on protecting crucial ecosystem services easier to assess.

Reyers, B., Biggs, R., Cumming, G.S., Elmquist, T., Hejnowicz, A.P. 2013. Getting the measure of ecosystem services: A social-ecological approach. Frontiers in Ecology and the Environment, 11, 268–273



PHOTO: E. WISNIEWSKA/AZOTE

Eliminating complex confusion

How sustainability, resilience, and robustness together can clarify, not confuse complex challenges.

Anderies, J., Folke, C., Ostrom, E., Walker, B.H. 2013. Aligning key concepts for global change policy: Robustness, Resilience, and Sustainability. Ecology and Society, 18(2), 8



PHOTO: K. JONSSON/AZOTE

Look beyond the rare plant

Establishment of protected areas should be based on strategic plans for sustenance rather than protection of threatened single species.

Borgström, S., Lindborg, R., Elmquist, T. 2013. Nature conservation for what? Analyses of urban and rural nature reserves in southern Sweden 1909–2006. Landscape and Urban Planning, 117, 66–80



PHOTO N. DESGHERAZOTE

Fall seven times, stand up eight

Applying principles of resilience in face of recurring environmental crises in African Sahel.

Boyd, E., Cornforth, R. J., Lamb, P. J., Tarhule, A., Lélé, M.I., Brouder, A. 2013. *Building resilience in the face of recurring environmental crisis in African Sahel. Nature Climate Change*, 3, 631-637.



PHOTO S. ZEPFAZOTE

Peekaboo

Ecosystem services have historically appeared and disappeared in strategic spatial plans for Melbourne and Stockholm.

Wilkinson, C., Saarne, T., Peterson, G.D., Colding, J. 2013. *Strategic spatial planning and the ecosystem services concept: A historical exploration. Ecology and Society*, 18(1), 37



PHOTO J. LOKRANTZAZOTE

Don't blame the fishers

Market agents wield great influence over fishers' activities. Thyresson, M., Crona, B., Nyström, M., de la Torre-Castro, M., Jiddawi, N. 2013. *Tracing value chains to understand effects of trade on coral reef fish in Zanzibar, Tanzania. Marine Policy*, 38, 246-256



PHOTO M. TROELL

Get it right in the right place

Eco-certification of aquaculture products has potential, but should focus more on a growing Asian market rather than Europe and the US.

Jonell, M., Phillips, M., Rönnbäck, P., Troell, M. 2013. *Ecocertification of framed seafood. Will it make a difference. Ambio*, 42, 659-647



PHOTO AUSTRALIAN CUSTOMS AND BORDER PROTECTION SERVICE

A southern comfort

How adaptive governance helped pull back illegal fishing in the Southern Ocean.

Österblom, H., Folke, C. 2013. *Emergence of global adaptive governance for stewardship of regional marine resources. Ecology and Society*, 18(2), 4

Not dried up

Why water harvesting remains a promising option for sustainable agricultural intensification in the water scarce tropics.

Dile, Y.T., Karlberg, L., Temesgen, T., Rockström, J. 2013. The role of water harvesting to achieve sustainable agricultural intensification and resilience against water related shocks in sub-Saharan Africa. Agriculture, Ecosystems & Environment, 181, 69-79



PHOTO R. KAUTSKY/AZOTE

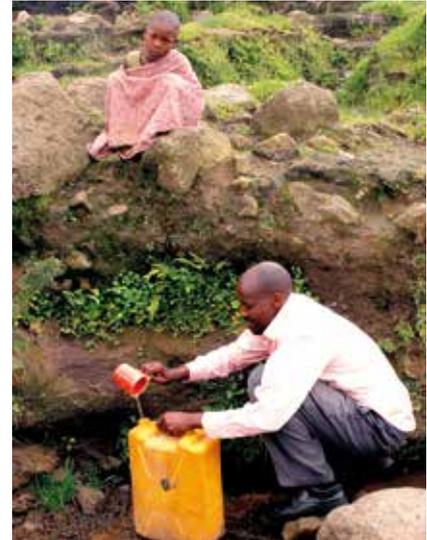


PHOTO S. EDMAN/AZOTE



PHOTO A. PEARCE/BIOSFÄRANSTÖRET

Time to tap it

A step closer to defining a more accurate boundary for freshwater consumption.

Gerten, D., Hoff, H., Rockström, J., Jägermeyr, J., Kummu M., Pastor A.V. 2013. Towards a revised planetary boundary for consumptive freshwater use: Role of environmental flow requirements. Current Opinion in Environmental Sustainability, 5, 551-558

Then came the flood

Improved learning strategy and a more active national coordination can help flood-prone municipalities in Sweden.

Johannesson, Å., Hahn, T. 2013. Social learning towards a more adaptive paradigm? Reducing flood risk in Kristianstad municipality, Sweden. Global Environmental Change, 23, 372-381



PHOTO J. LOKRANTZ/AZOTE

That human behaviour

Enhancing role of natural capital and ecosystem services is important, but social change is equally vital to sustainability goals.

Norström, A.V., Metian, M., Schlüter, M., Schultz, L., Dannenberg, A., McCarney, G., Milkoreit, M., Diekert, F., Engström, G., Gars, J., Sanctuary, M., Fishman, R., Kyriakopoulou, E., Sjöstedt, M., Manoussi, V., Meng, K., Schoon, M. 2013. Policy: Social change vital to sustainability goals. Nature, 498, 299



PHOTO O. HENRIKSSON/AZOTE

The future-looking man and the sea

Policy-relevant scenarios based on insights from both the natural and the social sciences can support a more adaptive stewardship of marine social-ecological systems.

Österblom, H., Merrie, A., Metian, M., Boonstra, W.J., Blenckner, T., Watson, J.R., Rykaczewski, R.R., Ota, Y., Sarmiento, J.L., Christensen, V., Schlüter, M., Birnbaum, S., Gustafsson, B.G., Humborg, C., Mörth, C.-M., Müller-Karulis, B., Tomczak, M.T., Troell, M., Folke, C. 2013. Modeling Social-Ecological Scenarios in Marine Systems. BioScience, 63, 735-744



PHOTO A. MASLJENIKOV/AZOTIE

The degrowth paradox

Degrowth diverges from capitalist economies, but is also dependent on them.

Boonstra, W.J., Joose, S. 2013. *The social dynamics of degrowth. Environmental Values*, 22, 171-189



PHOTO ARCHERD/FLICKR

Re-discovering the Maya way

How Maya civilization can inspire contemporary urban food security.

Barthel, S., Isendahl, C. 2013. *Urban gardens, agricultures and waters: Sources of resilience for long-term food security in cities. Ecological Economics*, 86, 224-234



PHOTO ARABTI KUMAR SAO (FLICKR)

Delta blues

Amid vulnerability to climate change impacts, the potential and implications of incorporating environmental flows into management of the Amudarya River delta must be considered.

Schlüter, M., Khasankhanova, G., Talskikh, V., Taryannikova, R., Agaltseva, N., Joldasova, I., Ibragimov, R., Abdullaev, U. 2013. *Enhancing resilience to water flow uncertainty by integrating environmental flows into water management in the Amudarya River, Central Asia. Global and Planetary Change*, 110, 114-129



PHOTO O. HENRIKSSON/AZOTIE

Feeling good with freedom and choice

More participatory governance processes can enhance well-being and strengthen fisheries management in Kenya.

Abunge, C., Coulthard, S., Daw, T. 2013. *Connecting marine ecosystem services to human well-being: Insights from participatory well-being assessment in Kenya. AMBIO*, 42, 1010-1021

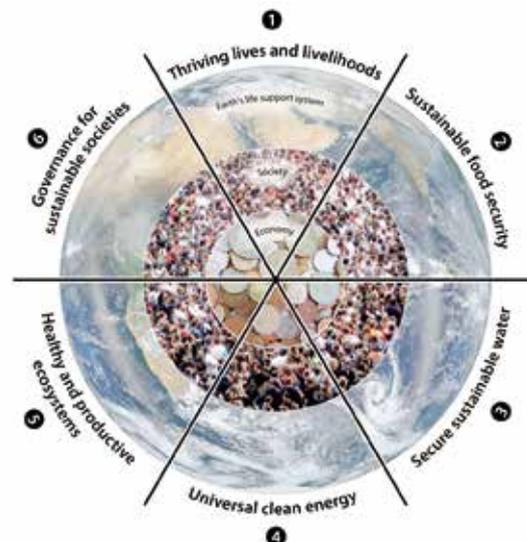


PHOTO SUSTAINABLE DEVELOPMENT GOALS FOR PEOPLE AND PLANET. NATURE, GRIGGS ET AL. (2013)

Redefining sustainable development

Ending poverty and safeguarding Earth's life support system must be twin priorities.

Griggs, D., Stafford-Smith, M., Gaffney, O., Rockström, J., Öhman, M.C., Shyamsundar, P., Steffen, W., Glaser, G., Kanie, N., Noble, I. 2013. *Sustainable development for people and planet. Nature*, 495, 305-307



PHOTO P. TURANDER/AZOTE

Seeing the forest for more trees

Forestry and nature conservation can benefit from higher tree species diversity. Gamfeldt, L., Snäll, T., Bagchi, R., Jonsson, M., Gustafsson, L., Kjellander, P., Ruiz-Jaen, M.C., Fröberg, M., Stendahl, J., Philipson, M.C., Mikusinski, G., Andersson, E., Westerlund, B., Andrén, H., Moberg, F., Moen, J., Bengtsson, J. 2013. Higher levels of multiple ecosystem services are found in forests with more tree species. *Nature Communications*, 4, 1340



PHOTO J. LOKRANTZ/AZOTE

Towards a sustainable water future

Time to implement a reality-based, multi-perspective, and multi-scale knowledge-to-action water agenda.

Pahl-Wostl, C., Vörösmarty, C., Bhaduri, A., Bogardi, J., Rockström J., Alcamo J. 2013. Towards a sustainable water future: Shaping the next decade of global water research. *Current Opinion in Environmental Sustainability*, 5, 708–714



PHOTO J. LOKRANTZ/AZOTE

Making informed choices

Some useful methods when conducting multi-scale and cross-scale assessments.

Scholes, R.J., Reyers, B., Biggs, R., Spierenburg, M.J., Duriappah, A. 2013. Multi-scale and cross-scale assessments of social-ecological systems and their ecosystem services. *Current Opinion in Environmental Sustainability*, 5, 16–25



PHOTO N. DESCHER/AZOTE

It's complicated

A review of adaptive comanagement literature reveals both specific contributions to key environmental governance concerns and confusion about how they relate.

Plummer, R., Armitage, D.R., de Loë, R.C. 2013. Adaptive comanagement and its relationship to environmental governance. *Ecology and Society*, 18(1), 21



Joined by a common cause

The success story of how a network of influential organizations helped curb illegal fishing in the Southern Ocean.

Bodin, Ö., Österblom, H. 2013. International fisheries regime effectiveness: Activities and resources of key actors in the Southern Ocean. *Global Environmental Change*, 23, 948-956



A unique man in a unique area

Sven-Erik Magnusson, the visionary behind Sweden's first biosphere reserve and central to Centre research on social-ecological stewardship, retires after 25 years

Magnusson is the man behind Kristianstads Vattenrike Biosphere Reserve, a cultural landscape in the southern part of Sweden hailed by the United Nations as an outstanding example of how biodiversity conservation and sustainable development can go hand in hand. The Kristianstads Vattenrike Biosphere Reserve, stretching some 105,000 hectares, lies within a densely populated area of Skåne and represents a unique aspect of Swedish nature conservation. It is considered to be

a wetland area of such value that Sweden has taken special international steps to preserve it through the Ramsar Convention on Wetlands. In 2005, the UN, through UNESCO's "Man and Biosphere Programme", recognized it as one of the world's best examples of how relationships between people and nature can work.

Researchers from the Stockholm Resilience Centre have, in a dozen scientific papers, highlighted the development of the



area as an outstanding example of how informal governance networks can be effective.

“Kristianstads Vattenrike is a result of a bottom-up initiative that since the start in 1989 has revolutionised ecosystem management not only in Kristianstad but in Sweden overall. The area was formerly a ‘waterlogged swamp’ but is now considered a prime example of how countryside and natural resources are used in a sustainable manner. Conflicts have been turned into an adaptive co-management where farmers collaborate with bird-watchers and eco-tourism has become a part of the local economy and identity. That is, to a large extent, thanks to the strategic thinking and relentless work by Sven-Erik,” says Centre researcher Thomas Hahn.

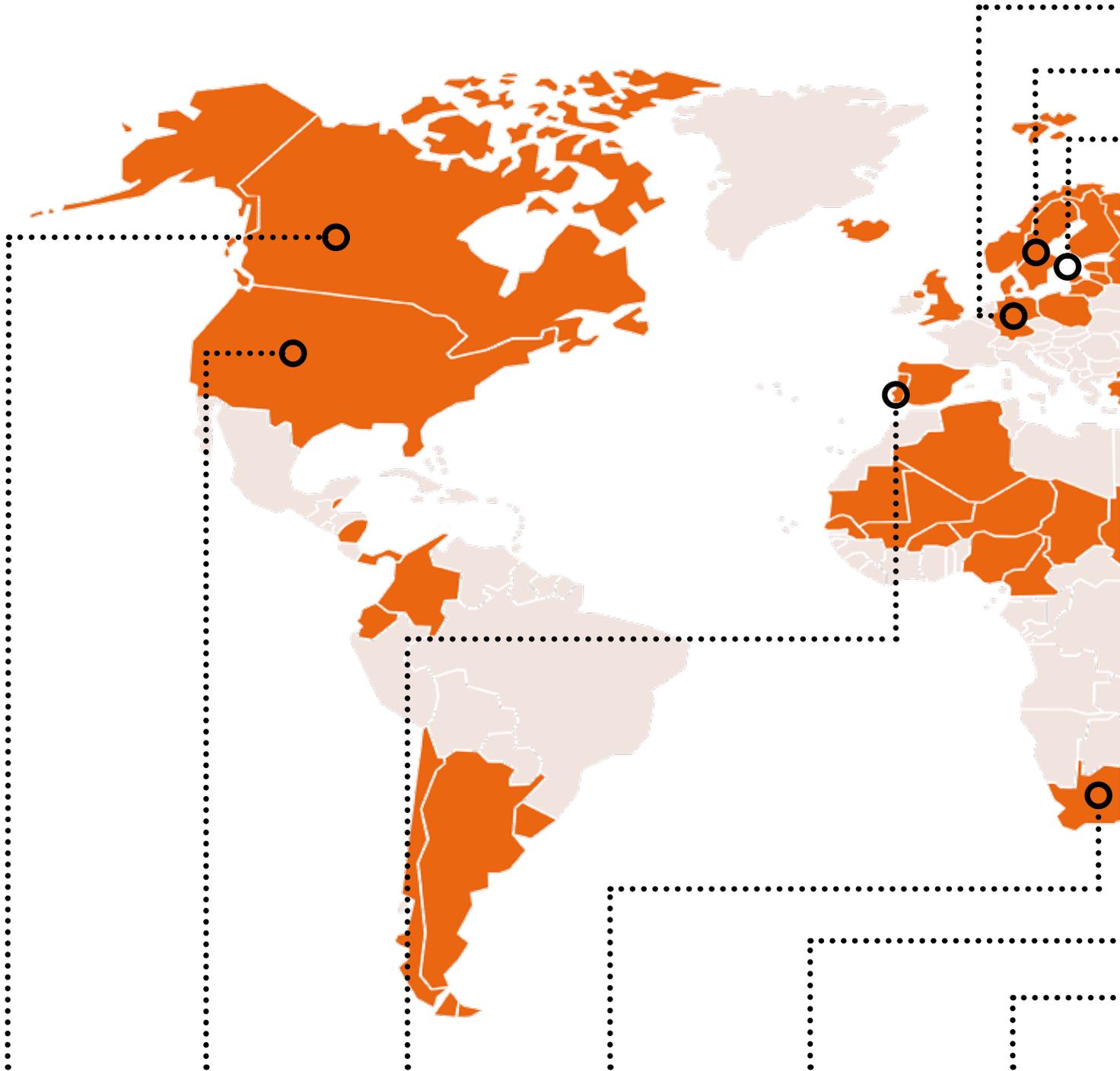
Centre colleague Lisen Schultz used the reserve as a case study in 2009 in her doctoral thesis on bridging organisations and how ecosystem managers who are strong on networking skills (but short on resources) can make a difference.

“Sven-Erik Magnusson has managed to combine a firm vision with a flexible and learning-oriented approach to build something unique in Sweden. He is a fantastic example of passionate but humble individuals who have a strong drive to improve conditions for both people and nature,” says Schultz.

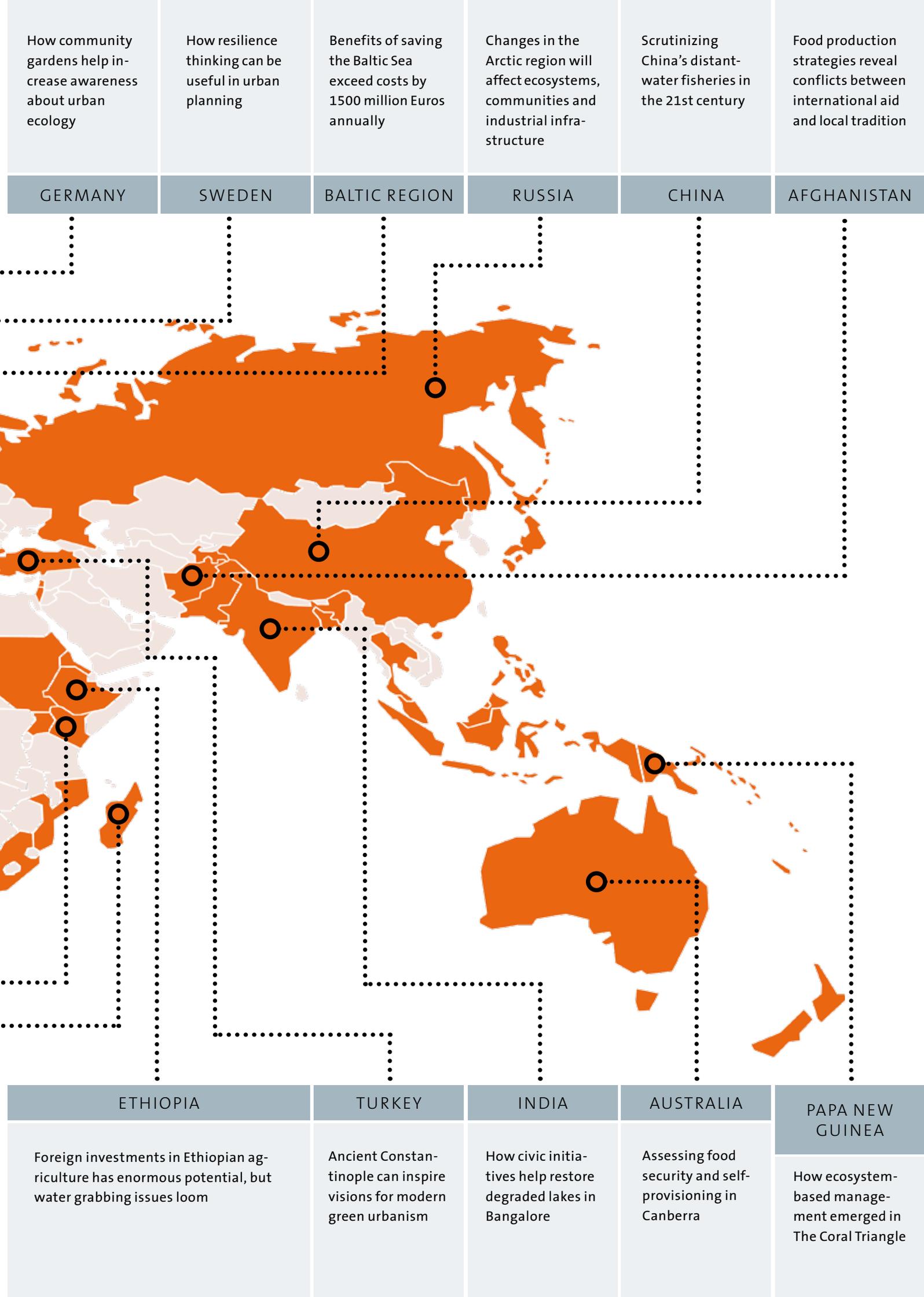
Where in the world?

Examples of where centre research is conducted around the world.

See more examples via our online research map, www.stockholmresilience.su.se/map



| CANADA | U.S.A. | PORTUGAL | SOUTH AFRICA | KENYA | MADAGASCAR |
|---|--|---|---|--|--|
| Studies from the Great Bear Rain-forest reveal the roles of individuals for transformative change | Study shows that perspectives on climate change are consistent across nations and cultures | Experiences from northern Portugal shed light on the controversial outcomes of farmland abandonment | Scenario planning yielding no different results than those of expert opinions | Fishermen keep fishing despite dwindling catches | New management approaches help change ideas about human—environment interactions |



How community gardens help increase awareness about urban ecology

How resilience thinking can be useful in urban planning

Benefits of saving the Baltic Sea exceed costs by 1500 million Euros annually

Changes in the Arctic region will affect ecosystems, communities and industrial infrastructure

Scrutinizing China's distant-water fisheries in the 21st century

Food production strategies reveal conflicts between international aid and local tradition

GERMANY

SWEDEN

BALTIC REGION

RUSSIA

CHINA

AFGHANISTAN

ETHIOPIA

TURKEY

INDIA

AUSTRALIA

PAPA NEW GUINEA

Foreign investments in Ethiopian agriculture has enormous potential, but water grabbing issues loom

Ancient Constantinople can inspire visions for modern green urbanism

How civic initiatives help restore degraded lakes in Bangalore

Assessing food security and self-provisioning in Canberra

How ecosystem-based management emerged in The Coral Triangle

Practice and policy

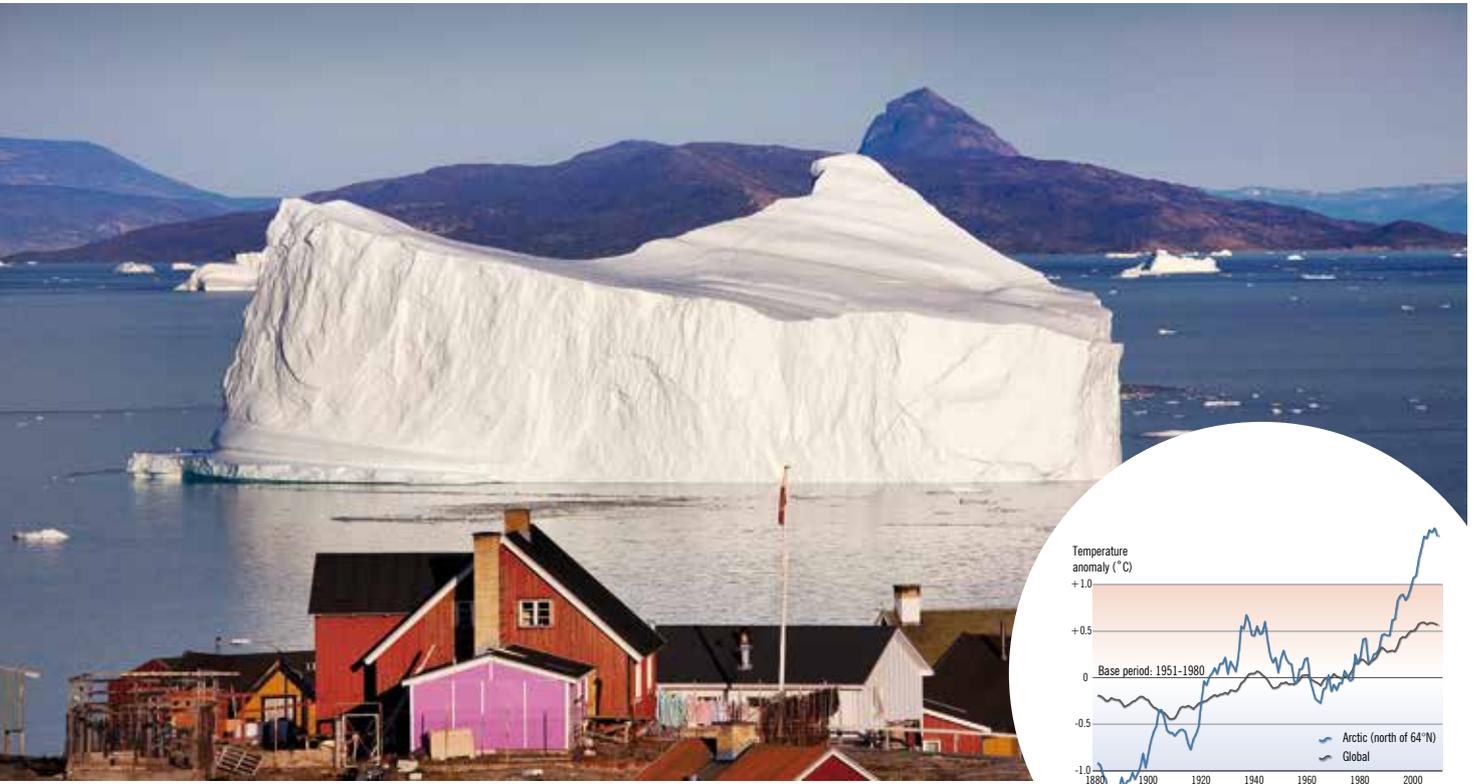


PHOTO: S. E. ARNDT/AZOTE

ILLUSTRATION: ARCTIC TEMPERATURE RISE IN THE LAST CENTURY (RELATIVE TO THE 1951-1980 AVERAGE)

Pushed to the limits

The Arctic Resilience Report demonstrates how changes in the Arctic will affect ecosystems, communities and industrial infrastructure

The Arctic Resilience Report demonstrates how changes in the Arctic will affect ecosystems, communities and industrial infrastructure.

The Arctic is in the spotlight like never before. Scientists and environmentalists watch it as a bellwether of global climate change, while nations and corporations seek to exploit the region's oil, gas and mineral reserves and new shipping routes. Yet most discussions of the Arctic fail to consider how changes in climate, ecosystems, economics, and society interact.

The Arctic Resilience Report (ARR), led by the Stockholm Environment Institute (SEI) and the Stockholm Resilience Centre (SRC), set out to fill that gap. What it found is that the combination of multiple, dramatic changes is pushing social-ecological systems to their limits.

"The Arctic is changing so fast and in so many interacting ways that it affects the very fabric of ecosystems and societies," says Annika E. Nilsson, senior research fellow at SEI and scientific coordinator of the first phase of the ARR.

"We have to be prepared for surprises, and we need to

increase the capacity to adapt and to grapple with conflicting priorities."

Launched in 2011 as a priority of the Swedish Chairmanship of the Arctic Council, the ARR is a collaboration between experts in the Nordic countries, Russia, Canada, and the U.S., representing a range of knowledge traditions, including indigenous perspectives.

The 120-page report lays out the ARR's initial findings, including a preliminary assessment of critical thresholds in the Arctic, an analysis of societies' adaptive capacity, and four pilot case studies.

The ARR final report will be released in May 2015.

Read more about the project on www.stockholmresilience.se: search term "arctic resilience report"

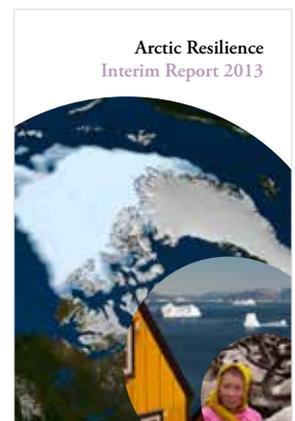




PHOTO: A. MASLJENIKOV/AZOTE

Benefits of saving the Baltic Sea exceed costs by 1500 million Euros annually

The final BalticSTERN report entitled "The Baltic Sea - Our Common Treasure: Economics of Saving the Sea" shows that saving the Baltic Sea would lead to large welfare gains and that people in countries around the Sea are willing to pay 3800 million Euros per year to improve it. This exceeds the costs by 1000 — 1500 million Euros annually.

The findings are the result of three years of research by BalticSTERN, the first large-scale study to include all nine Baltic Sea countries, which estimated the benefits and costs of reducing eutrophication according to the HELCOM Baltic Sea Action Plan.

"The Baltic Sea is one of the most polluted seas in the world, surrounded by some of the richest countries. We now have the scientific results, wide public support and policies in place. There are no longer any excuses for failing to take strong measures and save the Baltic Sea," says Johan Rockström, Chairman of the BalticSTERN's Steering Group.



Resilient days in Davos

Much can be said about the World Economic Forum, but everybody fights for a place in Davos. The theme for 2013 was "Resilient dynamism" and how we can stabilise a shaky world economy but do so in a sustainable manner.

As for sustainability, at centre stage this year was the planetary boundaries concept and how to avoid critical tipping points. Research from the Stockholm Resilience Centre was prominently highlighted.

"After 10,000 years of supporting human development, our destabilized planet needs a break," Centre director Johan Rockström pointed out.

He presented findings and insights in three different sessions on Arctic development, global tipping points and pioneering sustainable growth.

See video interviews from Davos 2012 on www.stockholmresilience.su.se: search term "Davos 2013"

Centre contributes to latest State of the World report

Science director Carl Folke contributed with a chapter in Worldwatch Institute's annual flagship "State of the World" report

The 2013 report asked the fundamental and somewhat uncomfortable question: What is the future of sustainability? Folke provided perspectives on the need to respect planetary boundaries and reconnect to the biosphere. "It is indeed a remarkable achievement for

a single species to become this dominant, but it has to a large extent been enabled by the human ability to draw on the functioning of the biosphere," he argued.

"We need a shift from perceiving people and nature as separate actors and rather consider them as interdependent social-ecological systems. Such thinking will create exciting opportunities for humans to thrive in generations to come."

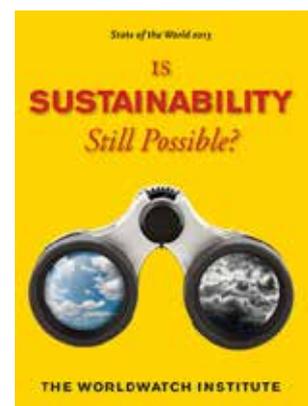


PHOTO COVER DESIGN BY M. GATEIX, COURTESY OF ISLAND PRESS

Centre director Johan Rockström (centre left), Brigitte Baptiste, head of the Alexander von Humboldt Institute (left), Marie Andersson de Frutos, Sweden's ambassador in Colombia (centre right) and Alejandra Torres from the Ministry of Environment and Sustainable Development of Colombia (far right) set the stage for the dialogue in Colombia.



Earth's biodiversity key to achieving all sustainability goals

In early December 2013 some 60 stakeholders from 18 countries – representing government organisations, UN organisations, science and civil society met in Medellín, Colombia, to discuss how social-ecological resilience might be integrated into the Sustainable Development Goals (SDGs) and the Post-2015 Agenda

This multi-stakeholder dialogue was a collaboration between the Centre, the Alexander von Humboldt Institute for Research on Biological Resources and the Ministry of Environment and Sustainable Development of Colombia. The governments of Colombia and Sweden fully supported the process, which was also carried out in consultation with the UN CBD Secretariat.

The aim of the dialogue was to explore different ways of how to integrate social-ecological resilience, underpinned by biodiversity and ecosystem services, into future development goals and monitoring frameworks.

“By gathering different perspectives and experiences from

a variety of actors we wanted to broaden and enhance the understanding of biodiversity not as a problem to solve, as it is often perceived, but as an important opportunity and solution for sustainable development, including poverty eradication and social-ecological resilience,” says Ellika Hermansson Török, dialogue project leader at the Programme for Resilience and Development (SwedBio) at the Centre.

The multi-stakeholder dialogue followed the Chatham House Rule, producing a co-chairs' report.

“The report will emphasise the most important message from the dialogue, which is that Earth's biodiversity and living



PHOTO: C. TAPIA



PHOTO: L. HÅRD AF SEGERSTAD



PHOTO: C. TAPIA

Engaged participants during one of the dialogue sessions.

processes are the key to achieving all of the sustainability goals“, says Sarah Cornell, senior researcher and co-author of the co-chairs’ report.

The report will be presented at a side event hosted by the Environment Ministries of Colombia and Sweden during the Eighth Session of the General Assembly Open Working Group on Sustainable Development Goals in February 2014. The report will also be widely disseminated to other fora.

Read more about the dialogue here:
<http://medellin-dialogue.com>

Planetary city limits

Co-organised centre conference in Eskilstuna demonstrates how cities can flourish within planetary boundaries

Eskilstuna has been hailed as one of the best municipalities in Sweden environmentally. During a two-day conference in March, Eskilstuna municipality, together with Stockholm Resilience Centre, looked at how a municipality can stay and flourish within planetary boundaries.

Johan Rockström, Centre director, introduced the planetary boundaries concept as the safe operating space for humanity. Centre researcher Björn Nykvist (pictured above) then discussed whether or not the official Swedish environmental goals create conditions for global sustainability. Nykvist is co-author of a report that the Swedish Environmental Protection Agency ordered on the connection between environmental goals and planetary boundaries.

Louise Hård af Segerstad from Centre partner Albaeco presented the concept of resilience and how resilience theory can be applied at the municipal level. She also presented the results of the resilience assessment and what has come out of it for Eskilstuna. Centre researcher Stephan Barthel also presented principles for social-ecological city planning. The conference hosted a number of seminars on topics ranging from ecological footprints and consumption to “green rehabilitation” as a way of recovering from illness, in addition to study visits to sites with solar cells and waste management.

The Human Quest Initiative

Centre-led initiative merged science, arts, business and policy to promote a new perspective on sustainability in Sweden and beyond



Based on the insights from *The Human Quest*, a book written by Centre director Johan Rockström and photographer Mattias Klum, who received a Stockholm University honorary doctorate in 2013, The Human Quest Initiative aimed to facilitate a closer dialogue between leaders from science, business, policy and arts.

By marrying the latest science on the anthropocene, resilience, planetary boundaries and global sustainability with photography and storytelling, the initiative provided a platform for cross-sector knowledge-sharing and new perspectives on global sustainability. The initiative was run by Nina Ekelund and Marika Hjalsten with funding from the Swedish Postcode Lottery.

Key activities:

“PROSPERITY WITHIN PLANETARY BOUNDARIES”, a full-day seminar during the political forum *Almedalsveckan* in Visby in collaboration with The Ministry of Environment and The County Administrative Board of Gotland, including speakers such as EU Commissioner Connie Hedegaard, Minister for the Environment Lena Ek, and GE CEO Hans Enocson.

“THE LATEST CLIMATE SCIENCE: WHAT DOES IT SAY AND WHAT DOES IT MEAN FOR BUSINESS?”, a science-business dialogue with 35 Nordic CEOs in Stockholm discussing findings from

the latest IPCC report, together with Professor Thomas Stocker and Volvo AB CEO Olof Persson.

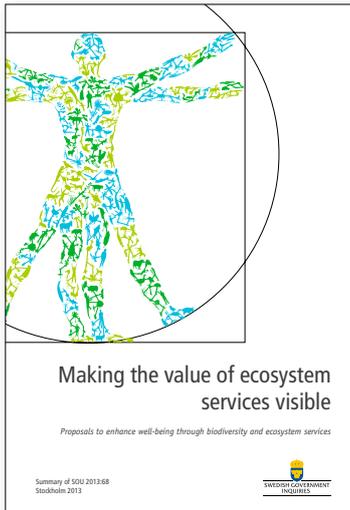
“DOING BUSINESS IN THE ANTHROPOCENE”, a science-business dialogue in Stockholm with 25 Swedish CEOs along with presentations by Johan Rockström, Thomas Elmqvist, Fredrik Moberg, Lisen Shultz, Mattias Klum, Hans Enocson, Karolina Klüft.

“HUMAN PROSPERITY WITHIN PLANETARY BOUNDARIES”, a high-level decision-maker dialogue in Washington D.C., in collaboration with the World Resources Institute and the Embassy of Sweden.

“THE QUEST FOR SUSTAINABLE GROWTH”, a keynote presentation with Johan Rockström at the World Economic Forum’s Annual Meeting of the New Champions in Dalian, China.

“BUILDING WITHIN BOUNDARIES”, a high-level decision-maker workshop on Resilience and Planetary Boundaries with Johan Rockström at the World Economic Forum’s Annual Meeting of the New Champions in Dalian, China.

The production of a free indoor version of the **HUMAN QUEST EXHIBITION** (18 105x70 images).



Move beyond monetary valuations

Centre report on the value of ecosystem services handed over to Swedish government

A commission led by Maria Schultz from the Resilience and Development Programme together with Centre researcher Thomas Hahn, Louise Hård af Segerstad from Albaeco and Lars Berg from the Ministry of Environment handed over its final report to the Swedish Minister for the Environment, Lena Ek in October 2013.

The report presented 25 ways to raise awareness and promote the integration of the value of ecosystem services and biodiversity into decision-making processes. The report presented valuation scenarios beyond monetary valuations. This means looking at the contexts in which valuations are relevant, who should do the valuations, and what types of valuations are most appropriate.

A central theme of many of the proposed measures was to make the value of ecosystem services visible through so-called ecosystem service assessments, a method that identifies important ecosystem services and estimates their state and benefits as well as factors affecting their maintenance.

The report was a collaboration between the Centre, the Swedish Cross-Party Committee on Environmental Objectives and the Environmental Advisory Council. It also had a reference group with representatives from state agencies and local and regional government, business representatives and organizations of civil society, as well as scientists who have worked with and shaped the discussions on ecosystem services and valuation.

Read more about the report on www.stockholmresilience.se: search term "monetary valuations"

Switched on Nature - digital solutions for urban resilience

Two-day hackathon explored the role and importance of innovation and technology for urban development

In early December 2013, some 50 programmers, designers and developers gathered at the Stockholm Resilience Centre for Switched on Nature - a two-day hackathon focusing on digital solutions for resilient futures in cities. The hackathon was a collaboration between the centre, Google and Shift, the latter an initiative led by Maja Brisvall and part of the transformation research initiative at the centre. Shift will function as a platform to explore resilience, social-ecological innovation and technology.

The two-day hackathon began with a half-day intelligence briefing on global sustainability issues. The briefing, which gathered 120 people, was opened by centre director Johan Rockström, who provided an introduction to the new challenges humanity is faced with in the Anthropocene. Other talks included perspectives from MIT media lab, Singularity University, NASA and Spotify, representing the leading expertise in science, tech, gaming and policy.

Inspired by the briefing, the participants spent two intensive days developing solutions to resource management challenges that big cities face. They were organised into transdisciplinary teams of around 4-5 people where all different skills were represented. Researchers from the centre provided feedback and advice to the teams as they were developing their projects.



At the end of the second day eight projects were presented. They included ways to share food and decrease waste, an app to plot and share unused land in the city for urban gardening, a network solution for sharing seeds and a game to educate children about sustainable choices.

For more information on SHIFT, go to www.weshift.se

What is a hackathon?

A hackathon is an event where programmers, developers, designers and sometimes people with other expertise meet to develop and prototype solutions to meet a defined challenge. Hackathons can focus on everything from developing commercial smart phone applications to sustainable solutions in urban areas.



PHOTO STEVEN ZEPH/AZOTE

Boosting knowledge on ecosystem services in the Stockholm Region

Report first to explain benefits of ecosystem services in urban development

The concept of ecosystem services is rapidly being embraced by city planners. To meet this demand joint Centre and Beijer Institute researcher Johan Colding and Lars Marcus from the KTH Swedish School of Architecture were lead authors on a report on ecosystem services in the Stockholm region. The report, which was produced with support from centre researchers Stephan Barthel, Erik Andersson, Åsa Gren (also the Beijer Institute) and Sara Borgström together with the County board of Stockholm and Regional Growth, Environment and Planning (TMR) at Stockholm County Council, constitutes a new knowledge base on ecosystem services, how ecological, economic and social dimensions can interact in the Stockholm region. “The connection between the topics is increasingly important for long-term and robust urban planning,” says Johan Colding.

Though the report was launched in June 2013, it was in great demand long before it was printed. The report focuses on

the role of regulating and cultural ecosystem services, the long term resilience of a city, and how social-ecological city planning can create conditions for ecosystem services.

“Ecosystem services can both decrease our impact on climate and build resilience for urban environments to handle negative effects of climate change. By promoting biodiversity in urban areas, managing green areas and water and providing habitats for pollinators, for example, resilience in urban systems can be increased,” Colding explains.

Read more about the report and download it on www.stockholmresilience.su.se: search term “connecting ecosystem”

Seminars and events



Transformation in a changing climate

Centre-hosted conference on human capacity and willingness to transform amid climate change

"Climate change is primarily a social problem, not an environmental one. Its primary causes and consequences are social. And so must be the solutions." This was one of the key messages coming out of a conference hosted by the Centre in collaboration with the University of Oslo and Center for International Climate and Environmental Research (CICERO).

The conference, which took place in Oslo in March 2013, established an arena for researchers, artists, entrepreneurs and

engaged individuals to meet and talk about transformational issues. The conference attracted some of the best people across disciplines and theoretical areas to come share their perspectives and help generate new knowledge on transformation.

"The challenges that we are facing now, of staying within planetary boundaries, stabilizing the climate and solving issues of equity and conflict, are what can be called 'hyper-complex': they have aspects of social complexity, dynamic



ALL PHOTOS: M. HAEGGMAN

Left: Karina Mullen from ConverSketch.com interpreting the conference dialogue through art. Right: Reflections on ideas from the audience.
Lower left: Centre researcher Per Olsson giving the framing talk for day 2 of the conference. Lower right: Centre Science director Carl Folke.

complexity and emerging complexity”, explained Karen O’Brien from the University of Oslo and one of the initiators of the conference.

Centre Science Director, Carl Folke, gave a plenary talk on his perspectives on transformation and reminded us of the importance of ecological literacy:

”I’m embarrassed as a human that we have in two generations created a mindset that we are independent of the biosphere.”

Cecilie Mauritzen, the director of CICERO and a physical oceanographer expressed her concern about how we communicate climate change.

”My answer to what is transformation is a simple and perhaps a bit nerdy equation: Transformation = imagination.”

Another central topic was communication and how we

get people engaged in the necessary transformation to a low-carbon society. Idar Kreutzer, Finance Norway, described the problem as follows:

”Hell doesn’t sell; you have to try to motivate people to look for solutions and have a vision.”

Cathrine Moestue, a psychologist, agreed and added that according to research within social psychology, social norms are key to making people change their behaviour:

”Knowing that your neighbours have changed behaviour is the strongest incentive for changing your own.”

Read more and watch videos from the conference on www.stockholmresilience.su.se: search term “Oslo transformation”



H.R.H Crown Princess Victoria visits the Centre to learn more about sustainability

As part of her active engagement in environmental issues, H.R.H Swedish Crown Princess Victoria spent an entire day at the Centre to learn more about social-ecological systems and the challenges and opportunities associated with living in an increasingly anthropogenic world.

The Crown Princess received an introduction to the latest scientific insights on water management, the role of ecosystem services, network theory and the biosphere by Centre researchers Johan Rockström, Carl Folke, Line Gordon, Henrik Österblom, Will Steffen, Lisen Schultz, Oonsie Biggs and Garry Peterson.

The final part of the day focused on discussions on how Sweden can step up and take a leading role internationally on sustainability issues.

This is not the first time the Crown Princess has engaged with the Centre's research. In 2011 she opened the Nobel Laureate Symposium on Global Sustainability, which took place at the Royal Swedish Academy of Sciences in Stockholm.

"I see this engagement as a good sign, a sign of hope and how people, if we put our minds and efforts together, can accomplish great things. Our generation has the knowledge and ability to create a sustainable world for future generations," she said during her speech.

"A big world on a small planet"



PHOTO: J. DANZONSON

Centre director Johan Rockström returns to TED talk for a second time in three years, this time on how elegant small solutions can solve grand challenges

Taking place in Edinburgh, Scotland, under the heading "Think Again", TEDGlobal brought together individuals who "venture to change our perspective, who ask different questions."

In his presentation, Johan Rockström highlighted the fact that "we might be facing huge challenges but we have the knowledge and thinking required to design a safe and good Anthropocene."

Highlighting the recent work on redefining sustainable development, Rockström called for a new unified framework that includes all nations.

"We have moved from a small world on a big planet to a big world on a small planet," Rockström said.

"We must be the stewards of a harmonious transformation toward a new development paradigm within Earth's limits."

Stockholm seminars 2013



PHOTO: J. LOKRANTZ

The Stockholm Seminars feature some of the most prominent experts on global sustainability. The seminars are hosted by Albaeco, Stockholm Resilience Centre, the Beijer Institute of Ecological Economics, the International Biosphere-Geosphere Programme (IGBP) and the Swedish Secretariat for Environmental Earth System Sciences (SSEESS).

15 January

Thorsten Kiefer

A region-by-region temperature history of the Common Era

29 January

Shelley Clarke

China's conduct in fishing, seafood production and consumption

9 March

Benjamin Planque

Ecosystems modelled from the outside

7 May

Jinhua Zhao

Economics of adaptation to global climate change: past lessons and future strategies

20 May

Richard Stedman and Keith Tidball

Positive resource dependency in urban systems: applying urgent biophilia and restorative topophilia

30 May

Joern Fischer

Local development risks and opportunities: insights from Southern Transylvania, Romania

23 September

Michael Raupach

Resilience and vulnerability in the coupled carbon-climate-human system

27 September

Bina Agarwal

Gender and forest governance: Does women's presence make a difference?

3 October

Mike Elliot

Bottlenecks, showstoppers and train-wrecks - How can we manage the seas and estuaries?

11 October

Paul Holthus

Science-industry collaboration for solutions to sustainable seas

See videos from the seminars at
www.stockholmresilience.su.se/stockholmseminars



Internal seminars

The internal seminars play an important role in the development of the Centre's transdisciplinary culture. These seminars have gradually been developed and adapted to cover a variety of needs

A leadership programme has been running over the last two years in order to increase staff capacity to design and facilitate different seminar formats. The well-established Brown Bag lunch seminars, and the Resilience Dialogues, continued in

2013, and three new seminar formats were tested, namely the Transformation Talks, Global Future Panels and SRC Monday speed talk lunches.

Transformation Talks

Transformation talks discuss how to reverse negative global trends while staying within the planet's limits. Great thinkers and doers from academia, policy-making, business and the arts are invited to share and develop ideas and innovations on how to initiate and navigate profound change in an ethical, just and sustainable manner.

7 March

"Improve life by restoring nature"

John Liu, an award winning documentary film maker, presented stories from around the world of people improving their lives by restoring damaged ecosystems.

27 May

"How can innovations and transfor-

mations have impact at scales that match the global challenges?"

Frances Westley (Social Innovation Generation, University of Waterloo) and Niki Frantzeskaki (DRIFT, Erasmus University in Rotterdam) discussed the impact innovations and transformations have on current global challenges and the role of agency, including social and institutional entrepreneurship.

23 September

Building capacity for transformation – getting the right skills in the change networks

Eugenio Molini, who has designed and run the Centre's leadership training, presented insights on change management and skills necessary to facilitate transformation.

Global Future Panels

These seminars aim to advance the Centre's thinking on critical but poorly understood future challenges. They explore a range of topics and bring to light novel issues that are explored from a resilience perspective.

17 January

Resilience in a +4C World?

Magnus Nyström, Beatrice Crona, Jon Norberg, Gustav Engström. Moderator: Louise Hård af Segerstad (Albaeco)

21 February

Mental models of the future – do they matter and how?

Andrew Merrie, Stephan Barthel, Lisen Schultz, Therese Lindahl

Moderator: Per Olsson (Stockholm Resilience Centre)

26 March

Demographic and geopolitical futures – should we even bother?

Lisa Deutsch, Karl Hallding (Head of Stockholm Environment Institute's China Cluster), Gunilla Reischl (Swedish Institute of International Affairs) and Åsa Gren (Beijer Institute of Ecological Economics)

Moderator: Ann-Sophie Crépin (Beijer Institute of Ecological Economics)

26 April

The Next Big Thing: Innovation futures in the Anthropocene

Per Olsson, Will Steffen (Australian National University), Robin Teigland (Stockholm School of Economics) and Maja Brisvall (SHIFT)

Moderator: Victor Galaz (Stockholm Resilience Centre)

24 May

Creating a "Good" Anthropocene – what would it take?

Garry Peterson, Oonsie Biggs, Henrik Österblom and Gustaf Rosell (multi-entrepreneur and senior advisor SHIFT)

Moderator: Fredrik Moberg (Albaeco/ Stockholm Resilience Centre)

Resilience Dialogues

The Resilience Dialogues are internal seminars designed to create a space for reflection and exploration of new research questions.

13 March

Planetary Boundaries: from critique to conceptual advances

Sarah Cornell, Ingo Fetzer, Jonas Torrens

29 April

Resilience & Power: What are the opportunities for combining political ecology and resilience

Garry Peterson

22 May

Can the Star Wars saga and other archetype narratives influence science?

Henrik Österblom and cartoonist Esbjörn Jorsäter

30 May

Insights from measuring SRC's impact – how should we work in the future?

Carl Folke and Beatrice Crona

6 November

Meet the economists of the Beijer Institute of Ecological Economics

Therese Lindahl, Anne-Sophie Crepin, Gustav Engstrom

Monday Speed talk lunches

The Monday lunches started in August 2013 and immediately became one of the most attended internal events at the Centre. The purpose is to provide an opportunity to learn more about novel Centre ideas and inspire new collaborations between staff. Each lunch session consists of ten four-minute speed talks.

Brown Bag Lunch Seminars

These informal lunch seminars continue to provide Centre staff and external partners with a platform to present their work and discuss issues on the wider sustainability research agenda.



Art and Science

Collaboration with music and arts is an integral part of the Centre's scientific practice and communication, both externally and internally. Our focus on sustainability gives a special angle to the ArtScience work

New global challenges require new thinking, and the meeting between artists and scientists gives opportunities for new perspectives and research pathways. Over the years, the Centre has experimented with ways to bring together different perspectives in order to foster innovation, creativity, and insights on the specific challenges of transdisciplinary learning on complex systems.

In 2013, the ArtScience work displayed a great variety of formats and topics, involving music, poetry, film, photography, cooking, theatre, painting, etc. For example, methods

from theatre were used to explore ways to better formulate insights about the dynamics of change.

The Centre worked closely with artists and photographers to communicate the challenges and opportunities of human prosperity within the biosphere. Worldwide, leading sustainability scientists and centres are increasingly nurturing their creativity and innovation by combining arts and science. Stockholm Resilience Centre is linking up with these to exchange experience, improve methods, and continue to explore sustainability questions in spaces where art and science can meet.



PHOTO: S.H. SIMONSEN

The Human Quest Initiative

In 2013, the Human Quest Initiative, a spin-off project of the book *The Human Quest*, blended insights from science, business and arts to promote dialogues about the possibilities and the desired effects of global sustainability.



PHOTO: VÄNNERSSON ©KUNGL. VETENSKAPSAKADEMIEN

Japanese flower show at a seminar with the Volvo Environment Prize Laureate 2013

Ikebana master Judit Katkis has created Japanese flower installations for different Centre events. She interprets the themes of the events using local and seasonal flowers mixed with reusable material.



PHOTO: D. GALAVANSSI



Art-science workshop in Uruguay

The South American Institute for Resilience and Sustainability Studies (SARA(S)2) organised in December a workshop with South American artists and scientists on ways to develop art-science interactions. Staff from the Centre contributed with insights and experiences from their work in Stockholm.



PHOTO: A. LIEBLE

Angela Lieble

One of the artists the Centre had the pleasure to work with during the workshop in Uruguay. Lieble is a Chilean artist with a focus on the indigenous American culture and history, and the relation between human and nature.



PHOTO: A. EMWELIN

Centre Marathon day

The Stockholm Resilience Centre Marathon Day, a full-day team-building and planning session, included a range of artistic and musical additions.



PHOTO: A. GUPTA

Biodiversity in Bangalore

As part of the Cities and Biodiversity project, a photo exhibition was organized with pictures taken by inhabitants of the Indian city Bangalore.



PHOTO: M. HÄGGGÅN

Conference art

The Centre co-hosted the “Transformation in a changing climate” conference, which took place in June in Oslo and was much appreciated for the many carefully integrated art elements.

Baltic Sea workshop

Through dance, theater and storytelling, Swedish theatre group Långsjö theatre helped Centre researchers explore narratives about the Baltic Sea.



PHOTO: S.H. SIMONSEN



PHOTO: M. WALIN

Coral Guardians Saloon

Coral reef scientists and musicians jammed together and explored possibilities to take the Coral Guardian Initiative to Zanzibar. The Coral Guardians Initiative includes Centre researchers Per Olsson and Fredrik Moberg and combines music and science to support the stewardship of coral reefs.



PHOTO: A. EMWELIN

Swedish King 40 years on the throne

As part of the celebration of H.M. King Carl XVI Gustaf's 40 years on the throne, the Royal Dramatic Theatre highlighted some important moments within the development of environmental questions. SRC was one of the organisers behind the event.



An urbanizing planet

Hollywood actor Edward Norton provided the voice for a spectacular video on the challenges and opportunities that come with an increasingly urbanizing planet. The video was produced for the Cities and Biodiversity Outlook project, the world's first assessment of how global urbanization and urban growth impact biodiversity and ecosystems.

Education



Current students in the Social-ecological Resilience for Sustainable Development (SERSD) Master's programme.

World class

2013 represented a year of exciting developments and rewards

The Centre's first-level course *Världens Eko* (Sustainable Perspectives on Development) - known for its impressive line-up of speakers, including Will Steffen, Johan Rockström and Hans Rosling - recorded its largest class ever with 130 students. The Master's programme in Social-ecological Resilience for Sustainable Development (SERSD) continued to attract students from the whole world, with over 100 applicants for the 15 places available in autumn 2013. In addition, two PhDs, four licentiate and 16 Master's students successfully defended their theses 2013. These students also contributed significantly to the Centre's publications portfolio with four Master's theses published as peer-reviewed articles and one as a book chapter. The Phds published 20 articles and one book chapter.

Firmly established PhD platform

With the Centre's inclusion in the Natural Sciences faculty at Stockholm University, it was granted examination rights for its own PhD degree programme in Sustainability Science. Cibele Queiroz became the first PhD student to defend her thesis in the new programme (see feature article, page 7) and four new doctoral students were recruited to the programme. The Resilience Research School will continue to serve as a platform for interdisciplinary cooperation among PhD students from other faculties and universities. "It is of great value that we not only host a collaborative interdisciplinary PhD school but also our own PhD education in sustainability science. This is extremely important for the research and vision of the Centre. It guarantees further knowledge generation and international

collaboration in an otherwise fast emerging area," says scientific director Carl Folke.

Highest marks for Master's programme

At the same time that the first cohort of SERSD students completed the new MSc programme in June, the Swedish Higher Education Authority awarded the programme with its highest possible marks on all assessed criteria. "The evaluation is not only a welcoming recognition of the outstanding effort put into developing the new Master's programme, but also a boost to produce equally high standards for our new doctoral programme in Sustainability Science," says Director of Studies Lisa Deusch.

The growing educational offerings have been competently staffed with an increased involvement of researchers in teaching and supervising. Furthermore, the growth warranted two new appointments in 2013: Cornelia Ludwig was appointed Education Coordinator and Garry Peterson became Head of Subject. The Education team also successfully launched a new advanced-level course entitled "Urban social-ecological systems". Supervised by SRC and other researchers and public partners, it divided time between classroom activities and applied group work in on-going research projects in the Stockholm area. In 2013, 12 PhD courses were given including "What creates a network and why does it look like it does?" and Social-ecological transformation in China, both considered a great success as they brought in external experts and attracted many applicants from both inside and outside the Centre.

Master's Theses 2013

Social-ecological Resilience for Sustainable Development programme (SERSD)

Maja Berggren, Is Growing Larger the Same as Becoming Resilient? A case study of the Gothenburg Pelagic Offshore Fishery

Emma Björkvik, Explaining the decline in Swedish Baltic Sea small-scale fisheries: A historical analysis of fishers in their social and ecological context

Laia d'Armengol i Catà, Social diversity for ecosystem management in La Palma Biosphere Reserve, Canary Islands: Perspectives, knowledge and management practices among local stewards in the near-shore marine ecosystem

Irene Håkansson, Berlin's Intercultural Gardens: Urban Landscapes of Social-Ecological Memory

Sofia Käll, Exploring opportunities for social learning in community response to natural hazards: A case study of Morpeth Flood Action Group, northwest of England

Grazzia Matamoros, Uno para todos y todos para uno: Emergence and long-term endurance of collective action for governance of marine resources in Roatán, Honduras

Matilda Petersson, The Changing Landscape of Global Governance: A case study of the role of non-state actors in tuna RFMOs

My Sellberg, Resilience in Practice for Strategic Planning at a Local Government

Susanne Skyllerstedt, Can NGOs make a difference? - The role of NGOs in agricultural water development policy processes in Tanzania

Anneli Sundin, The role of agricultural interventions for the Sahelian re-greening

Stephen Woroniecki, Challenging and Defending the Status Quo - The role

of power relations for social-ecological systems transformation in MACEMP Zanzibar

Ecosystems, Resilience and Governance programme (ERG)

Petter Nordqvist, System order and function in urban sanitation governance: Exploring the concept of polycentric systems in the city of Kampala, Uganda

Nikolina Oreskovic, Influence of local social factors on green area sustenance: Assessment of the protective capacity of Skärholmen

Sustainable Enterprising programme (SE)

Alicia Berg, Empowering the Steel Industry as a Stakeholder: Environmental Management and Communication through a Social-Ecological Approach

Andreas Mårtensson, Finding the right conditions for wind power: A business environment perspective on Sweden

Independent MSc thesis

Jean-Baptiste Jouffray, Human and natural drivers of multiple coral reef regimes across the Hawaiian archipelago

PhD theses 2013

Cibele Queiroz, Managing for biodiversity and ecosystem services in a context of farmland abandonment

Susa Niiranen, Multiple forces drive the Baltic Sea food web dynamics and its response to environmental change

Licentiate Theses 2013

Jonas Hentati-Sundberg, Only regulated fisheries system - Sources of resilience and limits to command and-control management

Malin Jonell, Eco-certification of farmed seafood: Environmental effects on a local and global scale (Department of Ecology, Environment and Plant Sciences)

Juan Carlos Rocha, Regime Shifts in the Anthropocene

Hanna Sinare, Linking Landscapes and Livelihoods: Ecosystem services as a lens in Sudano-Sahelian West Africa

Publications from MSc theses

Journal articles

Colding, J., Barthel, S., Bendt, P., Snep, R., van der Knaap, W., Ernstson, H. 2013. *Urban green commons: Insights on urban common property systems. Global Environmental Change*, 23, 1039–1051

Modeling Social–Ecological Scenarios in Marine Systems. Österblom, H., Merrie, A., Metian, M., Boonstra, W.J., Blenckner, T., Watson, J.R., Rykaczewski, R.R., Ota, Y., Sarmiento, J.L., Christensen, V., Schlüter, M., Birnbaum, S., Gustafsson, B., Humborg, C., Mörth, C-M., Müller-Karulis, B., Tomczak, M.T., Troell, M., and Folke, C. *BioScience*, Vol. 63, No. 9 (September 2013), pp. 735-744 [dx.doi.org/10.1525/bio.2013.63.9.9](https://doi.org/10.1525/bio.2013.63.9.9)

Ran, Y., L. Deutsch, M. Lanmerstad, J. Heinke. 2013. *Rapidly intensified beef production in Uruguay: Impacts on water-related ecosystem services. Aquatic Procedia* 1: 77-87.

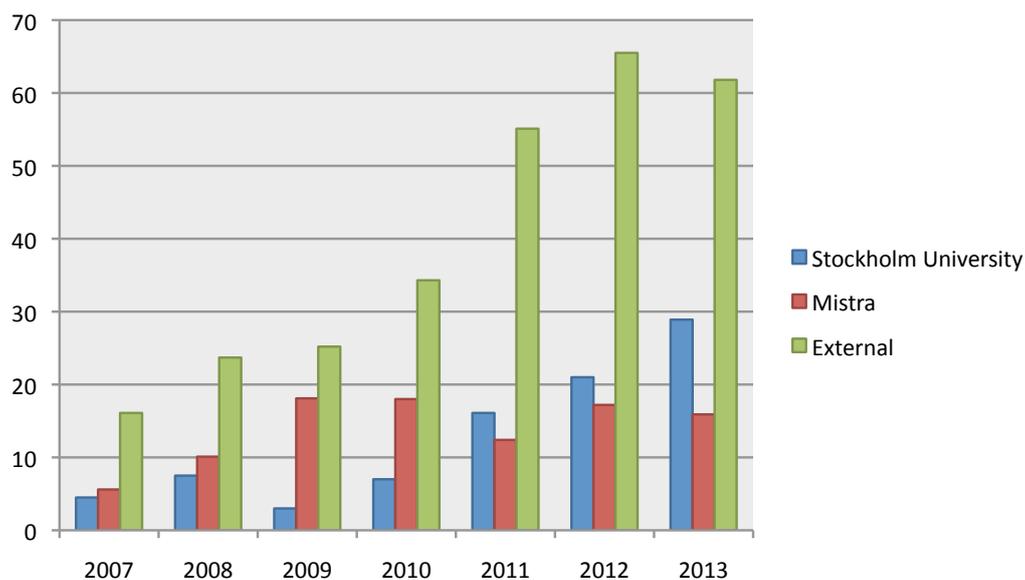
Book chapter

Wilkinson, C., Sendstad, M., Parnell, S., Schewenius, M. *Urban governance of biodiversity and ecosystem services.* In Elmquist, T, Fragkias, M, Goodness, J, Güneralp, B, Marcotullio, PJ, McDonald, RI Parnell, S, Schewenius, M, Sendstad, M, Seto, KC, Wilkinson, C. (Eds.) 2013. *Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities.* Springer, Dordrecht.

Appendix: Finances

| | | |
|---|--------------|-------------|
| 2013 Total | 106,6 | MSEK |
| Stockholm University | 28,9 | MSEK |
| Allocated subsidy from Stockholm University | 20,8 | MSEK |
| Allocated External Formas funding via faculty | 6,2 | MSEK |
| Accumulated surplus External Formas funding via faculty | 1,9 | MSEK |
| MISTRA core grant* | 15,9 | MSEK |
| External grant total | 61,8 | MSEK |
| The Swedish Research Council | 3,9 | MSEK |
| Formas | 17 | MSEK |
| SIDA | 3,5 | MSEK |
| SIDA (Swedbio) | 20,5 | MSEK |
| Futura | 1,7 | MSEK |
| Schwartz | 1,4 | MSEK |
| Nippon Foundation | 1,4 | MSEK |
| EU | 5,4 | MSEK |
| other | 7 | MSEK |

*Allocated grant from Mistra 15,8 MSEK plus accumulated surplus 0,1 MSEK



Centre publications

Books

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Articles

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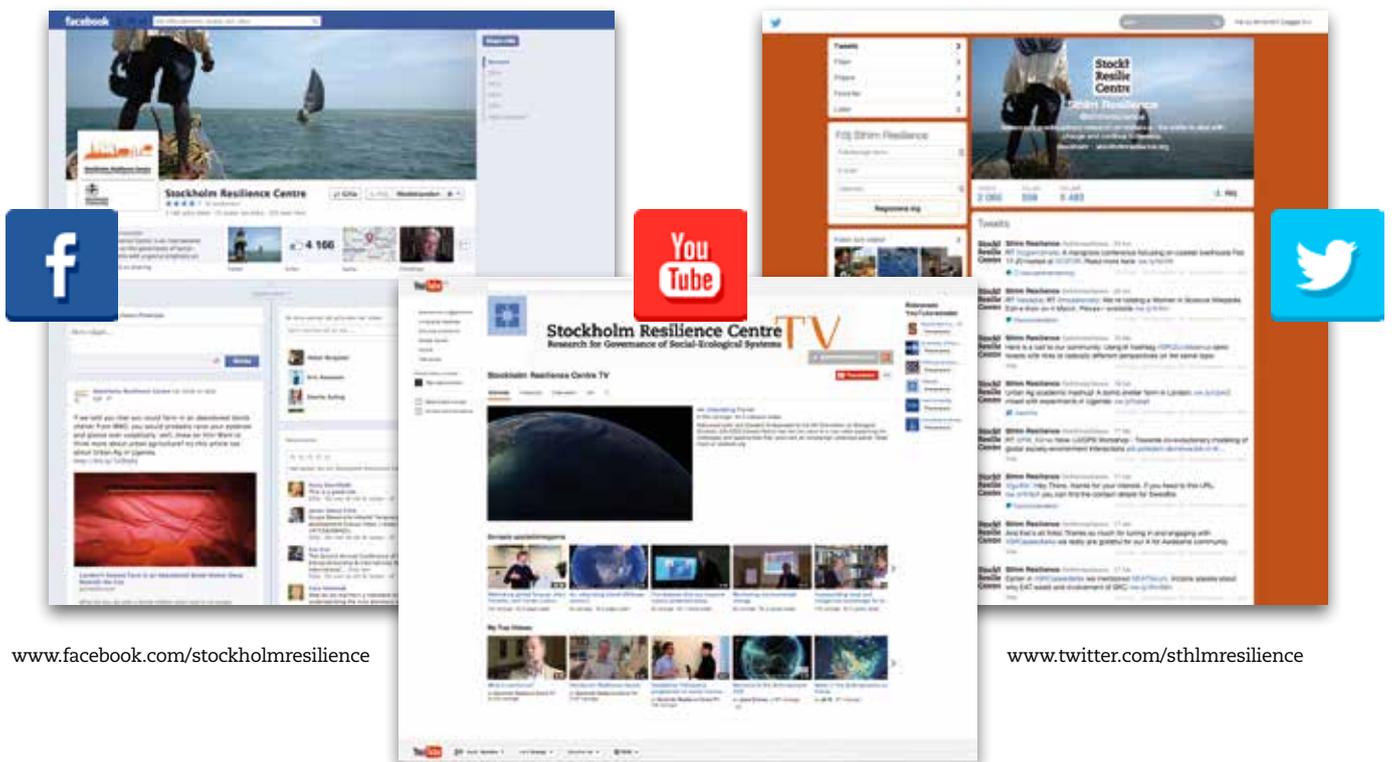
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Centre Management

Carl Folke *Science director*
Olof Olsson *Deputy director*
Johan Rockström *Executive director*

Administration

Johan Ahlenius *Financial & education administrator*
Astrid Auraldsson *Coordinator to executive director*
Bengt Hall *IT-support*
Gunnar Jacobsson *IT-support*
Denise Kreppenhofer *Human resources*
Karolina Krzyzanowska *Financial controller*
Thérèse La Monde *Office & financial administrator*
Christina Leijonhufvud *Affiliated administrator*
Cecilia Linder *Human resources*
Emina Muratspahic *Head of administration*
Stina Nieminen *Project controller*
Henrik Pompeius *Fundraiser*
Maria Schewenius *Project coordinator*

Practice, Policy and Communication

Nina Ekelund *Project leader – Human Quest*
Anna Emmelin *Communication strategist*
Marika Haeggman *Communication officer*
Sturle Hauge Simonsen *Head of communications*
Marika Hjalsten *Project assistant – Human Quest*
Mattias Klum *Affiliated senior advisor*
Fredrik Moberg *Senior strategic advisor*
Agneta Sundin *Affiliated communications officer*

Modeling and Visualisation lab

Emma Sundstöm *System developer*
Örjan Bodin *Associate senior lecture*

Resilience and Development programme (Swedbio)

Håkan Berg *Senior researcher & advisor*

Pamela Cordero *Financial controller & administrator*

Sara Elfstrand *Programme coordinator*
Ellika Hermansson Török
Senior advisor

Claudia Ituarte Lima *Advisor*
Pernilla Malmer *Senior advisor*
Mauricio Portilla Ospina *Project assistant*

Maria Schultz *Director*
Hanna Wetterstrand *Advisor*
Marcus Öhman *Senior advisor*

BalticSTERN Secretariat

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Siv Ericsson *Head of secretariat*
Marmar Nekoro *Communication officer*
Henrik Scharin *Officer*

Education

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Lisa Deutsch *Senior Lecturer, Director of Studies*
Eleonora Horn *Course assistant*
Miriam Huitric *Programme director*
Cornelia Ludwig *Education coordinator*
Elin Sperber Ossiansson *Course assistant*

Research staff with main theme/programme association

Theme Landscapes

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Lisa Deutsch *Senior Lecturer, Director of Studies*
Elin Enfors *Researcher*
Malin Falkenmark *Affiliated senior researcher*
Line Gordon *Senior researcher (Deputy science director)*
Tilman Hertz *Visiting researcher*
Louise Karlberg *Affiliated researcher*
Timothy Karpouzoglou *Postdoc*
Patrick Keys *PhD student*
Steven Lade *Postdoc*
Mats Lannerstad *Affiliated researcher*
Emelie Lindqvist *PhD student*

Rebecka Malinga *PhD student*
Megan Meacham (PECS) *PhD student*
Olivia Murzabekov *PhD student*
Kirill Orach *Project assistant*
Daniel Ospina *Research assistant*
Issa Oudraogo *Postdoc*
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Cibele Queiroz *Postdoc*
Angelina Sanderson Bellamy *Researcher*
Maja Schlüter *Researcher*
My Sellberg (PECS) *PhD student*
Hanna Sinare *PhD student*
Lan Wang *Research assistant*
Nanda Wijermans *Postdoc*

Urban theme

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Stephan Barthel *Affiliated researcher*
Sara Borgström *Postdoc*
Johan Colding *Affiliated senior researcher*
Lisa Deutsch *Senior Lecturer, Director of Studies*
Thomas Elmqvist *Professor*
Henrik Ernstson *Researcher*
Matteo Giusti *PhD student*
Julie Goodness *PhD student*
Marnie Graham *PhD student*
Tom Green *Postdoc*
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Jeff Ranara *PhD student*
Magnus Tuvendal *Research assistant*
Cathy Wilkinson *Researcher*

Costal and marine theme

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Eny Buchary *Postdoc*
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Martina Kadin *PhD student*
Andres Marin *PhD student*
Andrew Merrie *PhD student*
Marc Metian *Postdoc*
Susanna Niiranen *PhD student*

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 Saskia Otto *Postdoc*
 Matilda Petersson *Project assistant*
 Björn Schulte-Herbrüggen *Postdoc*
 Max Troell *Affiliated senior researcher*
 Johanna Yletyinen *PhD student*
 Matilda Valman *PhD student*
 James Watson *Researcher*
 Henrik Österblom *Associate senior lecturer (Deputy science director)*

Vanessa Masterson *PhD student*
 Helen Moor *PhD student*
 Björn Nyqvist *Postdoc*
 Jon Norberg *Professor*
 Per Olsson *Researcher*
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 Ryan Plummer *Senior research fellow*
 Remberto Salazar *Project assistant*
 Angelina Sanderson Bellamy *Researcher*

Annica Sandström *Postdoc*
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 Jacob von Heland *Project leader*
 Simon West *PhD student*
 Frances Westley *Affiliated senior researcher*

Regime shifts theme

Oonsie Biggs *Researcher*
 Thorsten Blenckner *Senior researcher*
 Jamila Haider *PhD student*
 Maike Hamann *PhD student*
 Garry Peterson *Professor*
 Juan Carlos Rocha Gordo *PhD student*

Global dynamics theme

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 Jonas Colen Torrens *Project assistant*
 Robert Constanza *Affiliated senior researcher*
 Sarah Cornell *Project coordinator*
 Ann-Sophie Crépin *Affiliated senior researcher*
 Ingo Fetzer *Researcher*
 Victor Galaz *Senior lecturer*
 Mark Owe Heuer *Project assistant*
 Therese Lindahl *Affiliated researcher*
 Will Steffen *Affiliated senior researcher*
 Uno Svedin *Senior researcher*
 Sverker Sörlin *Affiliated senior researcher*
 Brian Walker *Affiliated senior researcher*

Stewardship theme

Örjan Bodin *Associate senior lecturer*
 Arvid Bergsten *PhD student*
 Anderas Duit *Affiliated senior lecturer*
 Johan Enqvist *PhD student*
 Diego Galafassi *PhD student*
 Thomas Hahn *Researcher*
 Malena Heinrup *Project assistant*
 Irene Håkansson *Project assistant*
 Stuart Kininmonth *Postdoc*
 Cecilia Lundholm *Affiliated senior researcher*



Leadership training

In order to better manage the challenges of leading multidisciplinary research and complex collaborations with different stakeholders, a leadership training course, specially designed for Centre staff, has been running over the last two years. As of the end of 2013, approximately half the organisation had taken the training, which consists of three workshops:

Workshop 1 Leadership in complex systems through Genuine Participation

Workshop 2 Change management and conflict resolution

Workshop 3 Leading and designing high-performing, task-oriented meetings, teams and processes

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lience Centre, Stockholm University*
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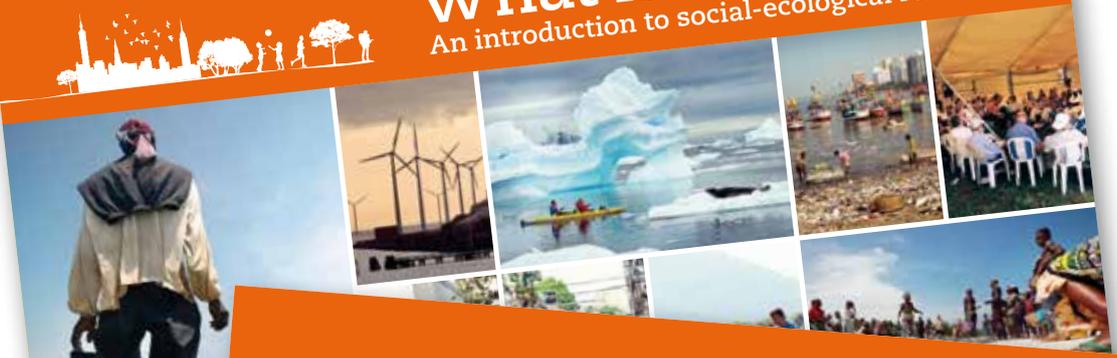


Team building and reflections on Stora Karlsö 2013



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An introduction to social-ecological research



Vad är resiliens?

En introduktion till forskning om social-ekologiska system



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