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Stockholm Resilience Centre

Action Plan 2010-2013

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1. Summary

- *Scientific progress during the start-up phase:* According to the evaluation of the start-up phase (2007-2009) of Stockholm Resilience Centre by Professor William C. Clark, Harvard University, the Centre has already “emerged as a world leader in the conduct of interdisciplinary research on the dynamics of interconnected social-ecological systems”. Recommendations for the next phase included clarification of vision, mission and goals, and how to bridge science, practice and policy. Also strengthening the management of the Centre was called for.
- *Vision and mission:* the vision of SRC remains the same, whereas the mission has been clarified: to advance research for governance and management of social-ecological systems to secure ecosystem services for human wellbeing and resilience for long-term sustainability. Based on this research we apply and further develop the scientific advancements in practice, policy, and academic training.
- *Research development next phase:* SRC will persistently advance the scientific understanding and theory of social-ecological systems, recognizing that many social-ecological research processes involve collaborations of diverse knowledge systems and actors. Social-ecological interactions in complex systems are the glue for all research at the Centre, with a common denominator in resilience thinking, covering processes from individuals to the global level and with a focus on governance and stewardship of ecosystem services in dynamic landscapes and seascapes. In general, the scientific understanding of interdependent social and ecological systems is still poorly developed and needs to be considerably advanced in order for the academic systems to offer robust insights in dialogues with practice and policy on those issues. All research efforts at the Centre are framed by three core features, or boundary conditions, for SRC research;
 - society and nature represent truly *interdependent social-ecological systems*;
 - social-ecological systems are *complex adaptive systems*; and
 - *cross scale and dynamic interactions* represent new challenges for governance and management in relation to interdependent social-ecological systems and ecosystem services.

These three core features provide the overall research direction, and will continue to serve as a significant attractor that allows for emergence of diverse approaches from different disciplines within a common framing. The content and direction of the framing is a central identity of the SRC that distinguishes SRC research from multidisciplinary collaborations in sustainability science.

- *Bridging science, practice and policy:* Based on the research at SRC and its international scientific network, bridging science with policy and practice will be a part of the social innovation process that forms the core of the Centre’s research endeavor. This means that we intend to, over the coming four years in a coherent fashion, start testing, convening, and executing, various efforts of bridging our sustainability science and resilience thinking to policy and practice. We also intend to document and learn from the process. To a greater extent than before, the Centre itself will take the lead, define the agenda, and convene initiatives.

- *Academic capacity building:* As part of the core mission, SRC has the ambition to educate and train students to become part of the next generation of researchers and academic leaders. SRC is therefore developing an internationally competitive research school with both MSc and PhD education, and we will continue to take on Post-Docs. SRC will also train our young- and mid-career researchers in their present and future role as academic leaders.
- *Organization, management and administration:* To build up and lead a Centre of the size and with a magnitude of operation as SRC, takes time and considerable resources. Our strategic goal is to build a permanent international research institution. Even after three years, the Centre still is in the “institutional building” phase. A key challenge for the Centre’s leadership and administration is to make the dynamic and innovative mode of operation go hand in hand with the additional management demands of running a centre that is truly interdisciplinary, internationally recognized and with ambitions of collaboration with policy makers (rather than just broadcasting scientific findings). During the last year several strategic measures have been taken to update the capacity of the leadership and the management capacities at the Centre. The internal processes have during the last year been overseen. “Growing pain” problems have been identified and measures of improvements have been taken. This includes more investments in administrative and leadership capacity.
- *Budget and financing:* To attain the strategic goals outlined in the 2010-2013 action plan will require new investments in (i) research, (ii) permanent research positions, (iii) leadership and management, (iv) research capacity building and the resilience research school, (v) science-policy bridging and communications activities, (vi) internal learning and monitoring and evaluation, (vii) hosting of international research programs, (viii) building a world-leading working environment for transdisciplinary research, and (ix) the key process of contributing to a sustainable campus development at the Centre’s future location in the new Albano campus development. Our known projections for 2010-2013, based on known income streams, places the centre on a status-quo trajectory of approximately 50 MSEK/yr income and expenses. Our assessment is that the Centre will have to increase the centre turn-over from this level to somewhere in the range of 70-90 MSEK/yr in 2013, in order to achieve the goals set out in this action plan. We assess it is important for a strategic research centre such as the SRC that the level of institutional core and program funding remains in the order of 50 % of the centre funding.

2. Introduction

To activate the Mistra funding of the first regular phase (2010-2013) of Stockholm Resilience Centre (SRC), after the start-up phase (2007-2009), a supportive evaluation was conducted by Professor William C. Clark, Harvard University: *Start-up Review of the Stockholm Resilience Centre* (hereafter referred to as “Clark’s evaluation”). This Action Plan of SRC for the first regular phase aims at clarifying the Centre’s priorities at a strategic level, including an update of the Centre’s vision and mission. Goals and general strategies, and in several cases sub-strategies, are presented for the following areas of activities: research; educations; bridging practice, science and policy; organization management and administration; monitoring and evaluation. The main focus of this Action Plan is to address and respond to the Findings and Recommendations presented in Clark’s evaluation in the light of the shared vision, mission and direction of SRC’s continuous development. The board and leadership of the SRC understands that this Action Plan, after approval by Mistra, becomes a strategic steering document for the next phase and in the context of future evaluations of the SRC .

3. Vision and mission

- The *vision* of the Stockholm Resilience Centre is a world where social-ecological 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 wellbeing and resilience for long-term sustainability. Based on this research we apply and further develop the scientific advancements in *practice, policy, and academic training*.

Our internationally leading role in *advancing research* will be accomplished through outstanding inter- and transdisciplinary research, collaboration with leading researchers and research environments worldwide, and fostering a new generation of researchers and academic leaders through cross-disciplinary academic teaching and training programs.

Our internationally recognized role in *bridging science to policy and practice* will be accomplished through interactions with strategically selected practitioners and policymakers in different parts of society from local to global levels, and by fostering an international arena for science, practice and policy dialogues.

Strategic *communication* is continuously employed as part of the mission through dissemination of findings and activities, facilitation of science, practices and policy interactions, and decision and policy support.

An efficient and supportive *administration*, an attractive and functional *venue* and an internal *working environment* that facilitates creativity are key prerequisites for making the operation of the Centre successful.

4. Goals

Building on our vision and mission, and the progress so far during the start-up phase 2007-2009, we have defined the strategic goals for the coming four years (2010-2013). These strategic goals include the overarching goals of where the Centre aims to be in 2013 on research, interactions with policy and practice, academic training, and in terms of our own leadership, management and organization.

The starting point in defining the SRC strategic goals for 2010-2013 are two key findings in the Clark evaluation (Findings 1, 2) that (1) the centre “has emerged as a world leader in the conduct of interdisciplinary research on the dynamics of interconnected social-ecological systems, and (2) the centre has contributed to important policy discussions on sustainable management of social-ecological systems [...] The centre has not, however, yet emerged as a world leader in developing and testing new ways of linking research to action in support of sustainability.” These two findings resulted in a strategically central recommendation by Clark (C) that the Centre, at this juncture, should be growing upwards and not downwards in its transition from start-up to full-scale operation.

Our action plan supports these findings and recommendation as the overarching strategic direction for the centre in its coming four year operation. We aim at maintaining our role among the world leading scientific institution on interdisciplinary research on the dynamics of social-ecological systems in relation to ecosystem services, and we aim at raising further our recognized role in science-policy bridging in support of sustainability. We aim at investing further in all core activities of the centre – in research, engagement with policy and practice, academic training, and in creating an exciting international working environment for interdisciplinary sustainability research and resilience thinking. These investments will focus on consolidating the Centre and further the social innovation experiment, which we intend to accomplish by continuing our strategic development during the coming four years.

By 2013, our aim is that SRC will be a fully established institution, internationally recognized scientifically in the world and also in terms of bridging science to policy and practice.

The Centre will accomplish these goals

- by developing further its internal transdisciplinary working culture managing for flexibility and social innovation,
- by developing further a top-class international working environment that facilitates and supports inter- and transdisciplinary science in line with our vision and mission,
- by developing further its networks and collaboration with leading international research groups and institutes,
- by engaging in selected science-policy-practice processes based on the science performed in line with our vision and mission and
- by fostering a new generation of transdisciplinary skillful scholars and scientific leaders, and by creating attractive career opportunities for staff, in a financially sustainable institution.

A prerequisite to succeed is that we provide leadership and management skills that support the continuous development of a dynamic collaborative research environment, and that we develop our ability for monitoring, learning and evaluation.

A fundamental feature of our Action Plan is the determination to continue developing the SRC as an organization that supports continuous innovation and knowledge generation for improved governance of social-ecological systems. This places less weight on the “transition” from start-up to operational phase (we see it as a continuous dynamic evolution of the Centre) and more on the profound importance of setting an appropriate culture, one which values creativity, provides the space and the resources to support researchers and their collaborations through periods of exploration and nurtures diverse ways of knowledge generation. We have started to build such an environment and are convinced that it is a central feature contributing to Clark’s positive evaluation of our science.

Hence, a key challenge for SRC is not only to deliver on science, policy impact and on organizational indicators in an efficient manner. We are convinced that productivity and knowledge generation and the long-term success of such deliverables rests on the dynamic working culture set up to sustain creativity and innovation, support collaboration and collective action with an infrastructure (technical, financial, social) that help researchers to perform at their best. During the coming years we intend to continue to build such a working culture.

Research goal

Continue to play a leading role in the advancement of inter- and transdisciplinary research for governance and management of social-ecological systems.

Sustain our position as an internationally recognized and highly relevant institution for science within our mandate of resilience and sustainability research.

Provide a dynamic and attractive research arena (platform) that continuously evolves and fosters collective action, innovation, synergies and stimulates inter- and transdisciplinary collaboration, through interaction of practice and theory and inductive and deductive research. Such creative platforms increase the likelihood for major contributions and breakthroughs in the frontier of social-ecological research.

Place a stronger focus on comparative regional analyses, and invest further in a few place-based areas of social-ecological research (e.g., the Baltic Sea region; the Sahel; Bali water temples; network of urban cities, marine ecosystem-based management).

Build up our capacity for dynamic and interdisciplinary spatial and temporal analyses that integrate quantitative and qualitative methods across the natural sciences, social sciences and humanities. This goal will, for example, be progressed by building up the Centre’s spatial modeling and visualization lab.

Goals for bridging science, policy and practice

The “business model” of the SRC is to generate new scientific insights and to apply and further develop these scientific advancements in policy, practice and academic training. This means that the SRC policy relevance and impact is fundamentally determined by the quality of its science. At the same time, the SRC intends to follow Bill Clark’s recommendation (A) and raise even further the Centre’s ability to provide science-based support to policy makers and practitioner. In line with his recommendations we aim to do this as an integral part of the research process and by experimenting with novel ways of bridging knowledge to policy and practice.

The key question in this endeavor (inspired by Bill Clark’s evaluation) is how to most effectively promote scientific knowledge that fosters sustainable development? The SRC goal is to contribute to answer this question by experimenting with, and assessing, different forms of dialogues between science, policy and practice.

In so doing, the Centre will aim at attaining its goal to influence the Swedish and international policy agendas in the areas where the Centre carries out research.

The Centre will start experimenting with convening international high-level “Aspen” like science-policy dialogues on the most challenging and relevant scientific areas within the focus of the Centre. The key rationale here is to match significant scientific findings within SRC with critical environment and development challenges on the international policy agenda. Such high level science-policy dialogues can, for example, be carried out in collaboration with the Royal Swedish Academy of Sciences.

The centre will continue to engage and contribute to the follow-up process of the UN Millennium Ecosystem Assessment and the UN process to establish an intergovernmental platform for biodiversity and ecosystem services (IPBES).

The Centre will continue to provide scientific knowledge support to the Swedish government, and will further explore the possibilities of raising its relevance for decision support within the European Union.

The Centre will continue to perform participatory work on the ground with practitioners for collaborative knowledge generation to improve stewardship of ecosystem services.

There will be collaboration with SEI in the efforts to bridge science with policy and practice.

Goals in academic capacity building

The Centre has the strategic objective of making academic capacity building – through PhD, Post-Doc and MSc training – an integral part of its scientific endeavor. Our goal is to develop an international high-quality research school for post graduate training and research (PhD, MSc and Post Doc training) that fosters the next generation of researchers and professionals, which inspires the development of new transdisciplinary academic capacity building programs, and which functions as an attractive school for international collaboration and academic training on resilience and sustainability.

By the end of the period the Centre will have a fully operational research school that attracts students and collaboration from around the world. The research school will run a PhD program, at least one MSc program, short courses, and host Post-Doc researchers. The goal is to have a core financial basis to advertise and host on average 5-10 PhD positions each year (by 2012), which would imply having the resources to advertise 2-4 PhD positions per year from own core resources.

Develop further the Centre's MSc education with the goal of establishing an internationally attractive state-of-the-art and relevant graduate training. Our MSc training will build on the scientific strengths at the Centre.

We will investigate the possibilities to, and if realizable, develop our MSc program in collaboration with internationally leading universities on inter-disciplinary graduate training on sustainability issues.

We aim at establishing international collaboration on shared PhD positions, where young scientists are given the opportunity to receive supervision and join in research and learning together with top institutions internationally. These collaborative nodes will be developed from the Resilience Alliance network and SEI host universities.

Goals for leadership, management and institutional development

The strategic goal of the SRC is to continuously provide leadership and management that enable the organization to excel in high quality inter- and transdisciplinary research, bridging science to policy and practice and academic training. To succeed, the centre will continue to provide an attractive international arena for collaborative research, and further raise its efforts of "being" a creative and continuously innovating arena for knowledge generation and learning. The organizational structures for leadership, management and operations will be a reflection of this strategic goal.

The goal is to further develop an internationally recognized and respected working environment for inter- and transdisciplinary research. This is not an easy task. Creating arenas for interactions across disciplines and research themes, which provide both depth and breadth, in an environment that stimulates innovation and scientific inquiry requires active direction and institutional support. We aim at providing the best possible learning environment for this purpose.

The centre will further develop its internal management structure over the coming years. The current centre advisory committee will be transformed from 1st of January 2010 to benefit more heavily from the leadership among mid- to senior level scientists who have the primary engagement with the Centre. This is also part of the strategy to successively introduce research staff in leadership capacities.

The goal is to engage even more actively the strategic advice and support from the SRC board, e.g., through more frequent board meetings (not necessarily physical meetings) and engagement by board members in SRC activities.

The centre will aim at establishing clearer career pathways for research staff, by providing teaching and supervision opportunities in the Research School, and by establishing ~10 permanent university positions over the coming four years (including “Professor, Lektor, Biträdande lektor). To meet this goal, the long-term core funds must be expanded.

The centre will develop its own monitoring and evaluation system. The purpose of this system is to allow the centre to evaluate progress, among staff and centre activities (are we reaching our goals and should they be redefined?) in a way that supports the development of the Centre. We intend to better document the experiment and explorations that the Centre is involved in, while at the same time being able to present meaningful quantitative indicators that helps staff to develop and also as an aid for the Centre leadership to identify “choice points” when initiatives that have not been productive or fruitful may be abandoned and resources remobilized.

The SRC will actively engage in the development of the sustainable Albano Campus area, and prepare for its own move to the new campus.

We will continue to develop a structure with personnel and processes that smoothly operates to support research and policy activities in terms of leadership; administrative matters; in-house collective action, innovation, collaboration and communication.

Monitoring of goals

We intend to develop a system of monitoring progress and capturing performance and Centre developments by initiating assessments of (1) research achievements, (2) scientific convening power (3) international recognition, (4) teaching and training achievements, (5) science-policy-practice assessment, (6) outreach, (7) diffusion of results in science, practice and policy, and (8) innovative ways of assessing features of SRC’s collective action and a social innovation research culture.

We will employ staff to perform the monitoring and we also plan to assess to what extent the proposed monitoring helps in evaluating progress on inter- and transdisciplinary science for sustainability in general and its significance for SRC development in particular. There will be a major discussion with the SRC Board on the most effective ways of capturing the development of this SRC experiment.

5. Research Strategies

General research strategy

The central mission of SRC is to advance research for governance and management of social-ecological systems to secure ecosystem services for human wellbeing and resilience for long-term sustainability. The pre-analytic perspective at SRC is that humanity is an embedded part of the biosphere and a major force in structuring ecosystem dynamics from local scales to the biosphere as a whole. Decisions in one place are increasingly influencing people and ecosystems elsewhere. Reduced temporal variability of renewable resource flows in some parts of the world has resulted in increased spatial dependence on other areas on earth. Many terrestrial and marine systems have as a result of human impacts shifted into less productive states in their capacity to generate ecosystem services to society and now the risk of such shifts are starting to appear at large regional and even global scales. At the same time human societies and globally interconnected economies are fundamentally dependent on ecosystem services and support. We are confronted with a new scientific endeavor – to generate insights supporting transformations of societal development towards respecting planetary boundaries and cultivating global resilience for sustainability.

Social-ecological interactions in complex systems are the glue for all research at the Centre, with a common denominator in resilience thinking and covering processes from individuals to global level. In general, the scientific understanding of interdependent social and ecological systems is still poorly developed and needs to be considerably advanced in order for the academic systems to offer robust insights in dialogues with practice and policy on those issues. This insight was fundamental for Mistra's decision of setting up SRC and, thus, to advance the scientific understanding is the central mission of the Centre. Consequently, SRC strives to be a leading centre in the world for developing new scientific understanding of interdependent social-ecological systems that in turn will contribute to forming the foundation for development of practice and policy towards stewardship of ecosystem services.

According to Clark's evaluation, the Centre has already “emerged as a world leader in the conduct of interdisciplinary research on the dynamics of interconnected social-ecological systems”. The Centre itself believes that it has made considerable progress during the start-up phase and will therefore more explicitly complement this progress with a plan for collaboration with practice and policy for the first regular phase (2010-2013). Nevertheless, persistently advancing the scientific understanding of social-ecological systems is the central mission of the Centre, recognizing that many social-ecological research processes involve collaborations of diverse knowledge systems and actors. Through such work new understanding emerges and contributes to theory developments, with new hypotheses proposed to be tested again in an iterative learning process between practice and theory, inductive and deductive work.

Framing the research direction

Since the beginning of the SRC all research efforts have been framed by three core features or boundary conditions for SRC research (referred to by Clark as the “framework” questions);

- society and nature represent truly *interdependent social-ecological systems*;
- social-ecological systems are *complex adaptive systems*; and
- *cross scale and dynamic interactions* represent new challenges for governance and management in relation to interdependent social-ecological systems and ecosystem services.

These three core features provide a broad research direction, and will continue to serve as a significant attractor that allows for emergence of diverse approaches from different disciplines within a common framing. The content and direction of the framing is a central identity of the SRC that distinguishes SRC research from multidisciplinary collaborations in sustainability science. It provides direction for taking on the vision and mission and it has, in our view, been a key feature for the positive scientific evaluation by Clark and serves as an attractor for international interest and engagement. Within the framework scientists define in a flexible way their inter- and transdisciplinary research agendas.

The research strategy of the SRC is very open and welcomes any approach, method, perspective, epistemology or ontology from the social sciences, humanities and natural sciences that can contribute to a deeper understanding of the challenge of governance of social-ecological systems in the context of the three features above.

Our framing implies that the core focus of the centre will not be on issues of power, democracy, or justice in their own right. Such issues will certainly be further and more explicitly addressed in the next phase of centre development, when they play a central role for understanding the challenges for governance of social-ecological systems to secure ecosystem services for human wellbeing and resilience for long-term sustainability.

This three core features of our framing have been further strengthened during the start up-phase to highlight three major challenges (referred to by Clark as the “challenge” questions) in research for governance of social-ecological systems

- the existence of potential tipping points (thresholds) and regime shifts and the challenges that implies,
- the adaptability of social-ecological systems to deal with such changes, uncertainty and surprise,
- the ability to steer away from undesired regimes and possibly even transform social-ecological systems into new improved trajectories that sustain and enhance ecosystem services and human wellbeing.

The research framework of the Stockholm Resilience Centre emphasizes that ecosystems in all parts of Planet Earth are shaped by people and, at the same time that all people are fundamentally dependent on the collective work of the Earth’s ecosystems – the Biosphere and its generation of critical ecosystem services. Humanity is faced with the largest challenge ever, to redefine our relationship with the Biosphere, and translate this into operational governance and management to enable sustainable futures. In this sense, environmental issues have become issues of how to increase the likelihood for societal development pathways that can generate, sustain and improve human welfare and wellbeing in collaboration with the Biosphere.

It is in this context that the resilience lens becomes of interest. We emphasize three features of resilience for analyzing social-ecological systems in relation to sustainability;

- persistence - in the face of change, buffer capacity, withstand shocks
- adaptability - the capacity of people in a social-ecological system to manage resilience through e.g. collective action
- transformability - the capacity of people in a social-ecological system to create a new system when ecological, political, social or economic conditions make the existing system untenable

During the next phase (2010-2013) we plan to further strengthen the framework and challenge questions by explicitly investigate the cross-scale interplay (from history to the future and from global to local and vice versa) of the globalised social-ecological system, recognizing that stewardship of landscapes and seascapes is shaped by global processes and disturbances that can help build or erode resilience.

In this global social-ecological resilience effort we will draw on expertise in several of the themes to address global change in relation to life-support capacity of ecosystems and the biosphere as a whole. Continuous work with the planetary boundaries concept and associated governance and economic challenges in this context will be in focus. We will draw on our comparative advantage of cross-scale competencies and resilience thinking. Furthermore, we intend to select a number of case-studies in different parts of the world in which we have expertise and collaboration with scientists, practice and policy. Management and governance of the Baltic Sea drainage basin is one such example where the Baltic Nest group and the rest of the centre will strengthen collaboration and also with practice and policy. The purpose is to develop comparative analyses for the generation of more robust results on social-ecological systems and ecosystem services. These efforts will be part of various international collaborations, for example, the recent ICSU initiative the Program on Ecosystem Change and Society (PECS). We will also develop joint databases at the centre for these purposes.

In the evaluation by Clark the strategic question is raised whether *the SRC will advocate, illustrate and apply 'resilience thinking', or rather to become the world leader in critical evaluation and testing of theory about complex social-ecological systems in general, and resilience propositions in particular.* The Centre looks upon itself as a forerunner, a creative hub for generating new scientific understanding; to draw on multiple perspectives and to build new scientific methods and languages, on the international arena. The SRC has no intention to become an advocate and uncritically apply resilience thinking. We will continue to use our research framing to further the exploration and understanding of social-ecological systems in a scientifically rigorous manner, which includes critical evaluation and testing of theory, with results subject to peer review and scientific testing and adjustments by the wider scientific community.

Strategy for global networking

SRC has already from the start had the dual strategy of building critical mass of research staff under one roof in Stockholm and to advance its international network of leading researchers and institutions. Hence, this resource of in-house research capacity that regularly interacts with a first class global network is one of the most important factors behind reaching and staying in a world leading position. In fact, this is a self reinforcing spiral; a stronger Stockholm node leads to attractiveness in the global network, and *vice versa*. It builds convening power.

From the perspective of the Centre's organization and priorities, the nursing of the international network implies:

- Invitation to the Centre for shorter visits (a few days to a few weeks) to selected scientist.
- Provision of part time 'Senior Research Fellow' positions at the Centre, often 1 month per year, to selected world leading international scientists.
- Invitations to 'visiting scientists' for periods of several months to a year.
- Exchange programmes with leading international research institutions for researchers, Post-Docs, and PhD-students.
- Joint organization of international workshops, meetings and symposium
- Joint research projects, programmes and publications.
- Joint engagement in critical policy processes

To manage these different categories of temporary researchers, workshops, etc., the Centre is developing an organization and routines for providing excellent service and support and an inviting atmosphere for collaboration.

The network of researchers that we collaborate with continuously include different institutes, centers and researchers of the Resilience Alliance (e.g. Arizona State, James Cook University, Alaska Fairbanks, Indiana State, Emory, Wisconsin, Waterloo, Tyndall/UEA, South African partners), many scholars engaged with the Earth System Science Partnership (e.g. IGBP, IHDP, Diversitas, GECHS) of the CGIAR-system (e.g. IWMI, ICRISAT, ICRAF, World Fish), scholars of the Vulnerability network (for example through SEIs work and networks on vulnerability and adaptation), at various departments of Stanford, Princeton, Columbia, Minnesota, Vermont, Harvard, Manitoba, McGill, Australian National University, CSIRO Canberra, Wageningen, Tilburg, PIC, etc. There are those with whom we interact less regularly or recently have initiated collaboration, like DRIFT, Erasmus Univ., Rotterdam and RMNO in the Netherlands, the STEPS Centre in Brighton, researchers at Leeds and in Sheffield, Oxford, LSE, Öko-institute Berlin, and Michigan State, and several scholars engaged with sustainability science initiatives.

In addition, different themes of SRC collaborate with groups, institutes and networks like Earth System Governance, the European Association of Environmental and Resource Economics, various societies for Ecological Economics, International Association for the Study of Common Property, NCEAS in Santa Barbara, various marine groups (e.g. Maine, Vancouver, Dalhousie and in Europe through Baltic Nest networks), various urban groups (e.g. Bangalore, Cape Town, Istanbul, New Orleans, Canberra), freshwater groups (e.g. Kassel, New Hampshire, Newcastle, Kwazulu Natal, University of Dar es Salaam), economists engaged with sustainability (e.g. networks of the Beijer Institute), scholars dealing with knowledge systems, learning and networks (e.g. Berkes, Plummer, Armitage, Tabura, Stoll-Kleman, Pelling, Pahl-Wostl, Frank). We also have collaboration with many scholars, institutes and universities in East Africa, Asia and to a lesser extent in South America (e.g. SARAS). There are collaborators that we have initiated a dialogue with, but where collaboration has not yet

started, e.g. IIASA, economists and human geographers increasingly interested, researchers at Swedish Universities, and other sustainability sciences scholars and institutes.

We are in the process of compiling a comprehensive list of SRC collaborators and we envision that several of these collaborations will continue and be strengthened during the coming funding period, some may fade away and other will be initiated.

Furthermore, the SRC is strongly engaged in the current initiative of ICSU (International Council for Science) of developing a new strategic framework for research on global sustainability. We envision that the SRC will play an important role in this context for example through hosting the International Program Office of IHOPE (Integrated history and future of people on earth) and its engagement in the new ICSU endorsed initiative PECS (Program on ecosystem change and society) as well as in Millennium Ecosystem Assessment follow-up processes.

Strategies for interdisciplinary and transdisciplinary research

The SRC is very open for collaboration with anyone and any perspective that conduct internationally competitive academic research and that are curious and have an interest in research for governance of interdependent social-ecological systems in relation to ecosystem services, human wellbeing and resilience for long-term sustainability. The issues require interdisciplinary collaboration and also transdisciplinary research drawing on diverse insights and perspectives from various disciplines, research fields, knowledge systems and experiences. Some collaboration takes place with researchers that are close to our focus, some that are far away from our focus but with particular competencies required to address aspects of the research agenda, to explore and for innovation and novelty.

Performing inter- and transdisciplinary research is not a goal in itself, but fostering a platform, an arena advancing understanding and new insights in line with the SRC's vision and mission is a central goal, and will often require interdisciplinary and transdisciplinary research. For this purpose, we have structured research into themes to provide flexible collaborative arenas for sharing different perspectives and bending knowledge from different disciplines and areas in a joint learning process with multi-directions of inquiry and diverse discoveries. The objective is not to search for consensus but creative disagreement and critical evaluation within the context of the research framework, mission and vision of the SRC. Each theme has two or more theme leaders that facilitate the theme, its research agenda and direction and develop practices for sharing information and keeping up to date with the research field and the international research arena. Furthermore, themes do not function in isolation, but cross-dissemination of ideas and extensive collaboration is taking place across themes, and new research issues emerge.

A core strategy of the SRC is to continue to perform as an innovating research institute, and develop means to avoid becoming trapped in an efficiency culture of predictable mainstream research. This means that while productivity within a time frame is important, management for sustaining creativity and innovation in the center demands that interdisciplinary teams should be supported to explore and that diversity and even ambiguity in concepts, approaches and methodologies are tolerated. The strategy of the SRC is to set research directions and expectations and simultaneously nurture dynamic platforms for inter- and transdisciplinary collaboration and collective action in order to improve overall performance.

For this purpose, SRC has built critical mass both within the natural and social sciences, including humanities. At present there is a balance between social and natural sciences both within the Centre and in the Centre's international network – which in fact should be the most relevant context to consider. The diversity of backgrounds gather around the vision and mission and build new, common, interdisciplinary ground in terms of advanced scientific understanding. It includes understanding the dynamics of social-ecological systems, how they work and interact, and how to manage and govern them. To complement and further develop the academic, interdisciplinary knowledge base, other knowledge systems – i.e. from practitioners in management, business and policy sectors – are sometimes partners in the transdisciplinary research process.

There exists an expectation, mainly outside the Centre among scholars not yet part of the Centre's national or international network, that SRC should pay attention to a broader range of social sciences and humanities perspectives in the core of the SRC research agenda. The strategy of SRC to these expectations is that taking a broad set of social sciences and humanities approaches on board in SRC's research is not a goal or strategy in itself. It becomes relevant in the context of the centre's vision and mission and is part of the explorative process. Disciplines or perspectives that are involved are the results of the organic, bottom up emergence of inter- and transdisciplinary research collaborations. Research staff at the Centre is constantly elaborating contacts and co-operations with individuals or groups representing diverse scientific approaches or disciplines. The Centre actively works to strike a good balance among the sciences in its inter- and transdisciplinary work in order to fulfill the vision and mission.

Strategy for publication

The core strategy is to produce scientific publications of the highest quality in relation to our vision, mission and research framework. In our view, it is not a goal in itself to reach out into intra-disciplinary top journals, whether in the natural, social sciences or the humanities, but rather to publish in journals that provide the most spin-off effects in dissemination of the results, irrespective of discipline or field. This is a significant strategy, particularly in the light of the inter- and transdisciplinary nature of SRC research, which generally has multi-authored publications across several disciplines. Also the interest and acceptance of disciplinary journals to findings on social-ecological systems varies significantly between areas and disciplines. We certainly encourage our researchers to submit to conventional and high ranked more narrow disciplinary journals but do not believe that success of influencing scientific discourses should be related to the number of such publications.

6. Strategy for research themes development

The research collaboration of the Stockholm Resilience Centre is currently organized around nine transdisciplinary themes framed by our three boundary conditions, the framing questions in Clark's evaluation; society and nature represent truly interdependent systems; they are complex adaptive systems; with cross scale and dynamic interactions representing new challenges for governance and management of social-ecological systems. Furthermore, the focus is on stewardship of ecosystem services for human wellbeing and resilience for long-term sustainability. These aspects of our resilience lens are emphasized in figure 1.

The themes will not develop into tight research groups, but rather serve as platforms for collaborations. The themes have changed somewhat during the start-up phase. Currently, five of the themes advance theory and methods, covering broad areas of research, from regime shifts and economic dynamics of social-ecological systems to understanding and managing ecosystem dynamics, to knowledge management, learning and social networks and to multilevel institutions and adaptive governance of social-ecological systems. Among the four thematic, more applied and on the ground themes, we focus on water and food, urban social-ecological systems, coastal and marine social-ecological systems and global social-ecological systems change. The themes feed into each other through an ongoing dynamic process of inductive-deductive science, practice and theory with active involvement of scholars from the natural and social sciences and the humanities, within the centre, in Sweden and internationally. Tight collaborations have developed between scientists across themes with joint transdisciplinary workshops, projects, applications and multi-authored research papers and anthologies in press and progress. Themes simultaneously interact with practice and policy. Links with international collaborators have been strengthened and expanded.

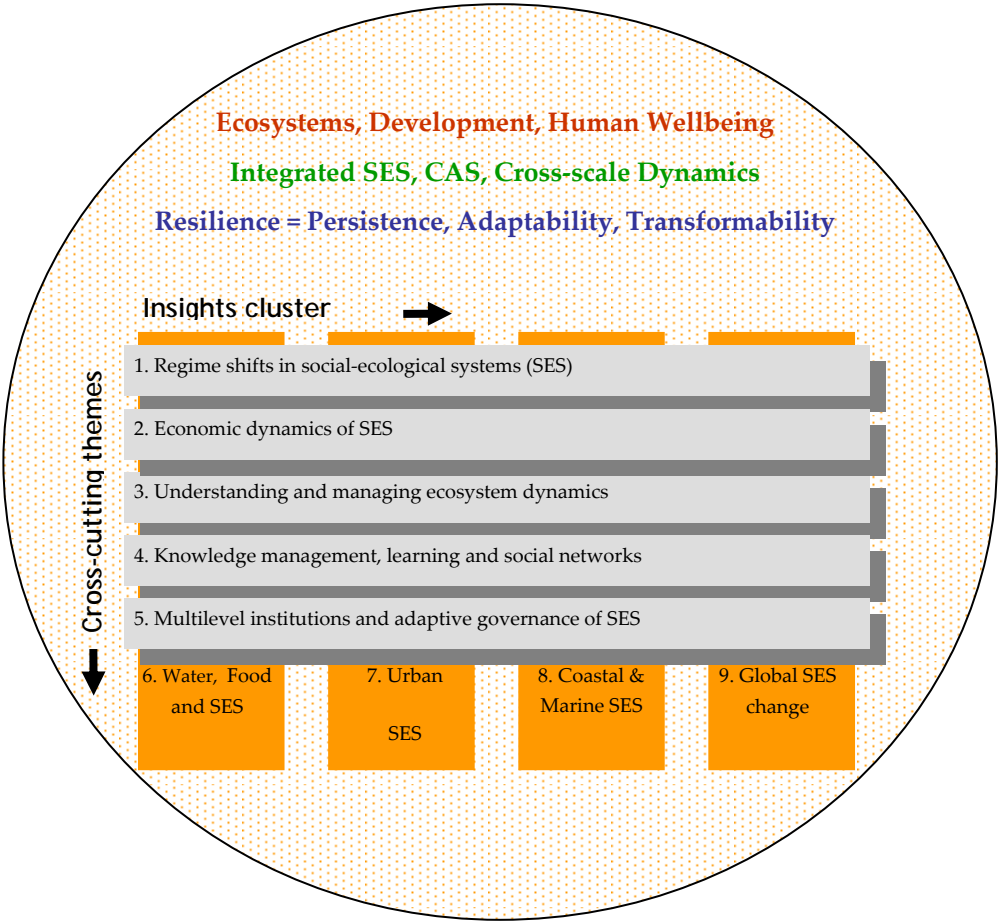


Figure 1. Current structure of the themes

The set-up of interacting ‘insight themes’ and ‘cross-cutting themes’, has worked well and there is a lot of cross-theme interactions. The themes, serving as platforms for collaboration, will continue to develop along with the dynamic research process and agenda.

We are currently at a stage where we jointly at the SRC talk about a restructuring of the advancing insights themes into three major umbrellas, namely:

- Regime shifts and implications in social-ecological systems
- Global dynamics and social-ecological systems
- Multilevel adaptive governance and transformations of social-ecological systems

The restructuring takes advantage of competencies and progress that have developed over the first SRC phase and thereby the global SES theme turns into an advancing insights theme and the cross-cutting themes become three as well, namely:

- Water, food, ecosystem services in social-ecological landscapes
- Coastal and marine social-ecological systems
- Urban social-ecological systems

This does in no way imply that we are closing down any of the current advancing insights theme, but instead that the work on ‘understanding ecosystem dynamics’ becomes explicit in all. This is also true for the economics theme, while the knowledge management, learning and social network research become particularly relevant in the multilevel adaptive governance and transformations theme. All will interplay with work of the cross-cutting themes. This structure has already proven to stimulate creativity within an overall trajectory of our framework and hopefully helps provide insurance against stagnation. The SRC leadership recognizes that it is dangerous to fall in the efficiency trap of concentrating all efforts on a few issues that currently may seem the most successful. Redundancy is needed for flexibility.

This proposed evolution of the themes will take us even further into the global challenges, and use our strength of analyzing how social-ecological processes across scales interact. This restructuring is envisioned to further enable research synergies at the Centre. In this context it is important to look at drivers and interactions across different scales – from local to global, from history, to the present and the future. The dynamic interactions between these scales are largely unexplored in social-ecological systems. Few academic undertakings have this cross-scale comparative advantage and a comprehensive framework and approach like resilience thinking to address it.

With this structure we believe that SRC research will have the flexibility of combining unexpected ideas and to look for a deeper understanding of hidden processes central to human wellbeing and sustainability, and in this context the theme structure will most likely continue to emerge in the years to come.

An important strategy at SRC is to set up a procedure for advancing theory, drawing on all different facets of work at the centre. In short, the present thinking of how to accomplish this is to document the insights of SRC research and its networks once a year, or perhaps every second year, taking stock on the theoretical frameworks of social-ecological systems and resilience and what the implications are for research, policy and practice in relation to ecosystem services. The Centre aims at arrange such events, probably in connection with board meetings.

7. Strategy for academic capacity building

One important way of accomplishing change in line with SRC's vision is to educate and train the next generation of researchers and academic leaders. SRC is therefore developing a research school with both MSc and PhD education, and we take on Post-Docs. Important is also to train our young- and mid-career researchers in their present and future role as academic leaders. Part of that strategy is to introduce them into a strategic advisory function of the Centre, to involve them in the process of strategic decision making.

At present the Centre annually takes on up to 50 new students in two separate two-year MSc programs; the Ecosystem, Governance and Globalization (EGG) and Sustainable Enterprising (SE). Both the EGG and the SE program are inherited from the "Centre for Interdisciplinary Environmental Research" (CTM) at Stockholm University. CTM was a cross faculty unit with emphasis on education and was one of the platforms that SRC emerged from. Both MSc programs have a wide approach: educating students for a range of career opportunities in society, including management in public and business sectors. They also serve as one source for recruitment of PhD students to the Centre and elsewhere. However, this function is as yet marginal.

A new strategy for the MSc education at SRC is to develop the EGG program to better mirror the research of SRC and its network; to become a research preparatory program. The name will be changed to "Ecosystem, Resilience and Governance" (ERG). That includes to go deeper into basic theories and methods and to focus more on training in doing academic research. The work of transforming the program has just started. The education in the new ERG program will be developed closely with the Centre's education at PhD level. Together the ERG program and the PhD education will form the "Resilience Research School". Also post-doc researchers will benefit from courses and other activities at the Research School.

The SE program can to a certain extent be look upon as a "business school program", although "enterprising" in this case refers to a wider context. Today it has an introductory course that gives the student an ecosystem perspective as a basis. This first course is, however, the only one that involves SRC's research perspectives. The remaining courses are not connected to SRC's research context and they are held by teachers at other departments or by consultants from outside the university.

The Centre has formulated a wish to, in addition to the research preparatory ERG program, have education aiming at managers outside academia, including the business sector. It should have a firm footing in SRC's research and thus involving the researchers at the Centre and in its international network. This demands a thorough rethinking and planning.

At present the permanent research staff at the Centre is developing PhD courses at the new Research School, they are involved in coordination and teaching at the EGG program and they are developing the new ERG program. Hence, the demand on the research staff from our education is very high. To simultaneously with this, both coordinate an ongoing SE program and develop a new education strategy aiming at positions outside academia, is simply not possible with present staffing; which currently include only one part time teaching position (lektor). Therefore, the Centre has decided to take a pause in the SE program (i.e. not take on new students in the autumn of 2010). The development of a new education strategy aiming at managers outside academia will start as soon as the in house capacity admits. It is important that the recourses for teaching position at the centre are in balance with the education ambitions.

The Centre shall maintain and further develop good cooperation with relevant departments at Stockholm University and cooperate in developing and organizing courses at basic and advanced (Masters) level. This includes SRC's own open evening course *Världens Eko* ("Eco of the World"), as well as a number of courses that SRC organizes in collaboration with mainly the Department of Biology Education, the Department of Systems Ecology and the Department of Physical Geography and Quaternary Geology.

The PhD education at the Research School has just started. It includes two compulsory courses to give the students a basic knowledge of the scientific principles that the Centre's research is based on. In addition there is a growing set of courses that both researchers at the Centre and visiting researchers are setting up. Some of these *ad hoc* courses will only be given once, while others will reoccur regularly or irregularly. It is popular among visiting senior scientists, of which most are world class in their fields, to give courses at the Resilience Research School. This offers our students unique opportunities. In addition to courses there are several activities, including a range of seminars, in which the PhD students are involved.

In the strive to continuously increase the scientific quality of the Research School, the Centre has decided to announce a senior lectorship with a particular task of strategic development. We aim for a senior scientist with very good insights in interdisciplinary research on social-ecological systems and in resilience thinking.

Within the next four years of the Research School even more emphasis will be put on developing international exchange. The Centre already got invitations to jointly develop MSc and PhD education from several leading universities worldwide.

Of strategic importance for the development of the research school in the next four years, is that the Centre will manage to obtain significant external funding with an explicit aim of increasing the number of PhD students.

8. Strategy for bridging science, policy and practice

In line with the vision and mission of the SRC we will, based on the research at SRC and from its international scientific network, continuously be very active in contributing to the process of accomplishing change towards a sustainable co-evolution of human civilizations with the biosphere. Bridging science with policy and practice will be integrated with the experimental innovation process that forms the core of the Centre's research endeavor. This means that we intend, over the coming four years, to start testing, convening, and executing, various novel efforts of bridging our science to policy and practice. The aim is also to document and learn from this process, which has a dual goal – to contribute to change towards a more resilient and sustainable future and to provide learning towards new effective ways of engagement between sustainability science and change processes in societies.

A critical, strategic evolution as compared to our start-up phase is a gradual shift from a relatively ad-hoc based science-policy interaction (where we to a larger extent depended on existing science-policy arenas), to a science-policy interaction where the Centre itself takes the lead, defines the agenda, and convenes initiatives. The goal is to establish the SRC as an internationally recognized learning platform for bridging of science, policy and practice.

We will explore ways of achieving this goal through four main routes (see figure 2; number 1-4 in the figure correspond to those in this text).

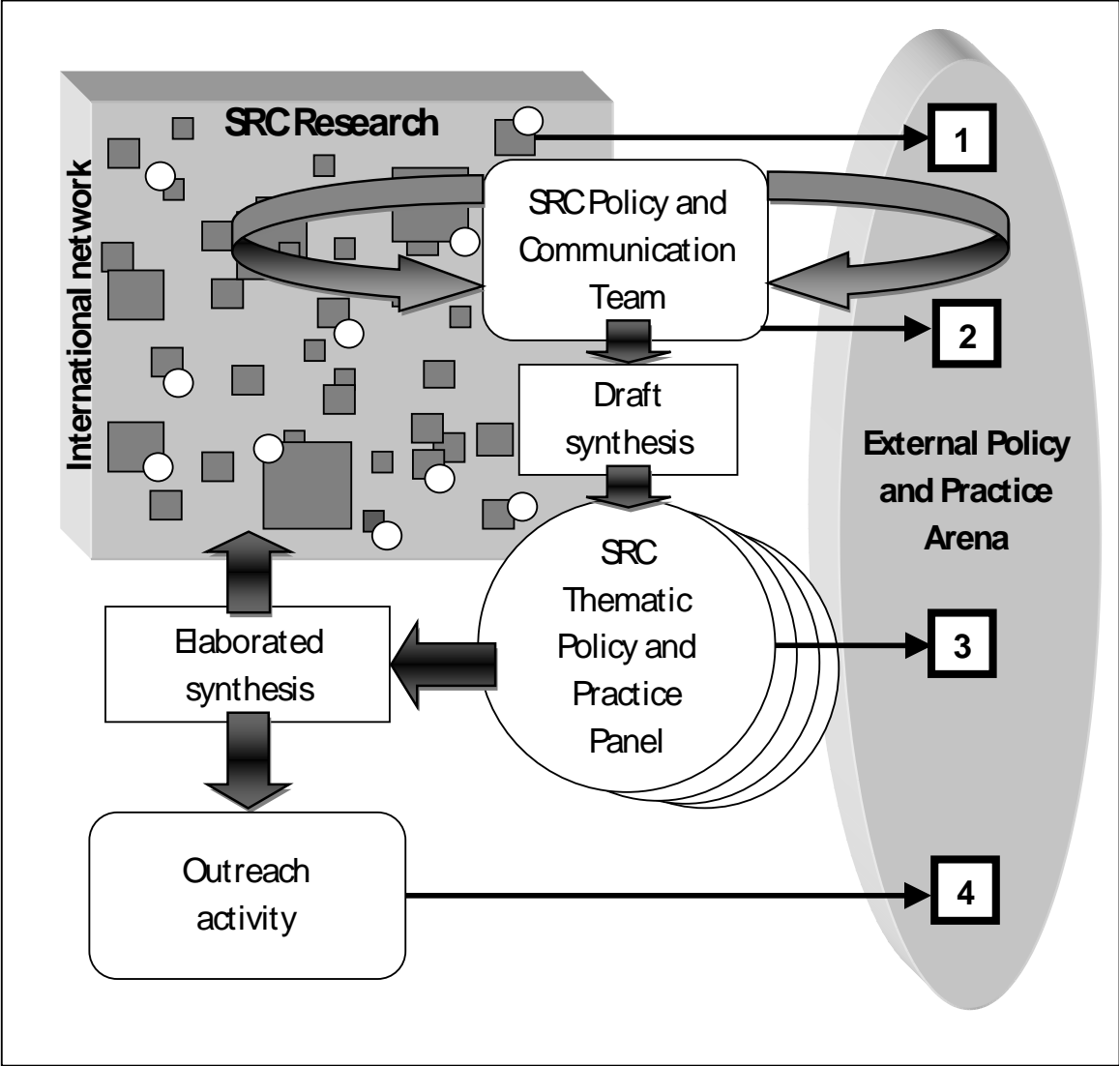


Figure 2. Four main routes for bridging science, practice and policy at Stockholm Resilience Centre (SRC).

1. *Influence on policy and practice from transdisciplinary research.* The research at the centre and its international network consists of a relatively large number of research projects and programs (grey boxes in figure 2), often arranged in clusters, e.g. research themes or geographical case studies. Many of these projects involve decision makers and practitioners (white circles in figure 2) as a part of the research process in itself. This mix of practical and academic knowledge is purposely done to advance the common understanding beyond what is possible within each knowledge domain by itself. This mode of scientific operation, to engage with stakeholders from policy and practice as an integral part of the inter-disciplinary research process, can be referred to as “transdisciplinary research” (or “Mode 2” research). Generating new insights from several knowledge systems, adds relevance and value to the knowledge generation, and increases the influence on the external policy and practice arena. This mode of carrying out research is a continuous learning process, sometimes carried out in an informal and seemingly unstructured way, normally without explicit engagement from communication staff. It is difficult to measure and evaluate the policy impact of these research activities. To follow up and document possible impacts on change processes from the transdisciplinary research processes at the Centre will be of special concern when organizing SRC’s monitoring and evaluation.

2. *Communication of science to policy and practice.* In addition to the “low profile” policy impact activities from transdisciplinary research, we will *continuously map and communicate policy relevant implications of research* going on within the Centre and within its international network for. This mapping will be done in collaboration between our “Policy and Communication Team” and relevant researchers. It will also include scanning of the external policy and practice arena for the needs of knowledge that can be match by SRC’s research activities. This two-way mapping will generate insights of valuable communication channels between SRC’s research, on one hand, and the policy and practice arena, on the other. For this purpose, specially designed communication activities can be executed by the Policy and Communication Team together with relevant researchers. Examples of such activities are popular science publications, policy briefs, synthesis reports, press releases, seminars or conferences, web activities, exhibitions.

3. *Convening high-level panels to produce “draft policy syntheses” of broad priority areas of research.* The centre will consider experimenting with science-policy panels focusing on advancing key areas of science that are of great importance to fulfill the vision of the Centre, into the policy and practice domains. One output of such science-policy-practice panels may be “draft syntheses reports” that summarize key implications of research on policy, business and practice. Such draft syntheses will be continuously reviewed and elaborated in dialogues between the researchers and a panel of relevant practitioners from policy and/or business and sectors. The meetings between researchers and such panels of practitioners can be looked upon as a more advanced transdisciplinary mode of operation than that outlined in section 1 above. Most likely these panels will be semi-permanent so that participants over time build a common and growing wisdom on the issues discussed. The panel discussions will be a mutual, cutting-edge learning process between researches and practitioners and bring both the research frontiers and the policy insights forward. To build trust, the panel activities shall most likely take place in confidence within a restricted group. The synthesis work of the panels will in itself be one of the most important and powerful communication activities of SRC, as important and influential practitioners will gain new insight that they can start turn into practice in their daily work. To be a member of a panel should be very rewarding for the individuals and to be invited should thus be very attractive. [This is in line with Clark’s suggestion of “Aspen-like activities”.] There will be a

demand for more than one panel for different areas of policy and for policy implication at different geographical scale. One panel could for example focus on governance implication from the “Planetary Boundary Concept” and involve international high level policymakers and corporate leaders. Another category of panels would probably focus on regional cases, e.g. governance of the Baltic Sea, the Bali case etc. An important activity within the panels is that researchers and practitioners together elaborate the Draft Syntheses to become more of an “Advanced Syntheses”. These can then both feed back into the research at the Centre, to close that loop, and they can constitute background documents for outreach activities.

4. *Generating elaborated policy syntheses for strategic outreach activities.* If (when) particularly important and general findings, conclusions or insights emerge from the research and panel dialogues, the Centre will develop elaborated policy syntheses and convene strategic outreach activities. Such outreach activities based on Elaborated Syntheses can be of different kinds; see section 2 above. If the topic requires it, ambitious high-level events shall be considered.

Extended social interface through collaboration with Albaeco. The SRC works in close collaboration with Albaeco, located in the same building as the Centre. Albaeco is an independent non-profit organization working to mainstream insights from the transdisciplinary research on resilience and ecosystem services among the general public, schools, and NGOs, as well as policy makers within the public and private sector. Apart from assisting in many of the communications activities of the centre (targeting researchers, practitioners and policymakers), Albaeco is also engaged in the communication of resilience science through its own channels targeting broader audiences. The close collaboration creates a lot of synergies and enables centre insights to become common knowledge.

9. Relationship with Stockholm University

SRC is organizationally, as the only unit at Stockholm University, placed directly under the Vice Chancellor; i.e. not under a specific faculty. This facilitates a fundamental condition of the Center: the interdisciplinary mode of operation, including the ability to recruit and develop carrier pathways for scholars from all disciplines. However, this organizational placing requires that the support functions from the University, which normally is handled through the faculties, must be further developed, not least regarding funding opportunities. The Centre has submitted an application to the Vice Chancellor of extended mutual collaboration and support, in which it is commented how well the Centre can contribute to the University’s goals.

The SRC will continue the dialog with the leadership of Stockholm University on how to continue to develop cross-faculty relations.

10. Centre structure, leadership and organization

To build up and lead a Centre of the size and with a magnitude of operation as SRC, takes considerable resources. Our strategic goal is to build a permanent dynamic international research institution. After three years, we are still in an “institutional building” phase, developing and running our internal operations, covering research, education, communication and administration. This includes daily cooperation with the founding partners: the Stockholm Environment Institute (SEI), the Beijer Institute and the Stockholm University – not least the Department of Systems Ecology and in particular its unit on Natural Resource Management. The leadership and management involve coordination of the Centre’s very active international network, which includes many nodes in the Resilience Alliance, several international scientific programs under the ICSU umbrella, etc. Accurately, in his evaluation Clark pointed out that:

...“interdisciplinary programs require more management than monodisciplinary ones; international programs require more management than intranational ones; coproduction of useful knowledge through collaboration with policy makers requires more management than simply broadcasting scientific findings into the cacophony of messages deluging policymakers.”

To meet the great management demands and simultaneously keep the dynamic and continuously innovative mode of operation is a key challenge for the Centre’s leadership, researchers, administration and support functions. During the last year several strategic measures have been taken to update the capacity of the leadership and the management capacities at the Centre.

To meet the challenges ahead, the leadership capacity will evolve already during the course of 2010 with Johan Rockström taking the role as full-time Executive Director (from the current half-time set-up where he shares the Director role between both SEI and SRC). With this move, and the recent appointment of Olof Olsson into the senior leadership as Deputy Director, the Centre will have a top-leadership well calibrated for the challenging tasks ahead. Olof Olsson will take up – more or less – the COO role that is recommended in the Clark evaluation. Carl Folke will continue as Centre Science Director, but can now be relieved from most administrative tasks and concentrate on the scientific advancements and strategic developments in relation to SRC’s mission. Johan Rockström will, apart from the overall strategic leadership responsibility, take on a particular responsibility for guiding the Centre’s work on bridging science, policy and practice. The leadership works as a team with continuous dialogue, overlapping functions and interchangeable tasks, and Centre researchers and staff will be involved in strategic processes.

The management capacities at the Centre will be further strengthened, with the aim of establishing a flat and dynamic “team” structure, which allows for flexibility and high degree of delegated responsibility, while at the same time providing clarity, transparency, and accountability. The aim is a dynamic, flexible and effective management structure with high qualified staff that are deeply engaged in their work and that collaborate in building the SRC.

The organizational structure of the Centre will essentially remain the same as during the start-up phase (Figure 3). We will continue to emphasize our efforts of building a flexible “learning” organization, a social innovation experiment where the key areas of work at the Centre – research, academic capacity building, policy and communications, and administration – are organized in closely linked teams, led by one person (for communications and administration) or a core group of 1-3 leaders (for the research school and our research themes).

The Centre advisory group, which is our internal group with an advisory role to the Centre leadership, will be reshaped during 2010, with the aim of engaging more heavily key academic staff at the Centre with full or near full engagement with the Centre. The purpose of the new Centre strategy group is to help the Centre leadership with advice on strategic directions of the Centre. As the core research staff are relatively young, membership of the advisory group will be an important feature of leadership training.

The centre has a management team, led by Olof Olsson as Centre COO, including the heads of the different Centre areas of daily management; the Centre director, head of administration, Kristina Hagqvist, head of communications, Ellika Hermansson Török, the head(s) of the Centre research school, Head of the Baltic Nest Institute, Christoph Humborg). This management team coordinates management issues and takes decisions on day to day Centre operation.

We will continue to emphasize the development of a world-class research environment for inter- and transdisciplinary research, which stimulates creativity and a lively international and intellectual atmosphere. This work will require its own leadership and management resources and efforts, which we have placed within our Policy and Communications team (for the substantive work) and our Administrative team (for the enabling support functions).

The Centre offers to continue the active engagement in promoting inter-disciplinary environmental research, networking on sustainable development issues, and contributing to academic training at Stockholm University. This will be spearheaded through the existing platform for cross-faculty collaboration between the Centre and university departments and staff (the RTM; *Rådet för Tvärvetenskapliga Miljöstudier*). A key role here will be for the Centre to annually arrange a or several fora for exchange of experiences and ideas on inter-disciplinary research and training on environment and development.

The Centre board currently meets physically once a year. It has an executive committee, consisting of Arild Underdal (board chair), Frances Westley and Thomas Rosswall (as board members), and Johan Rockström and Carl Folke from the Centre. The aim for 2010 onwards, is to gather the full board at least once more each year, probably in a cyber meeting.

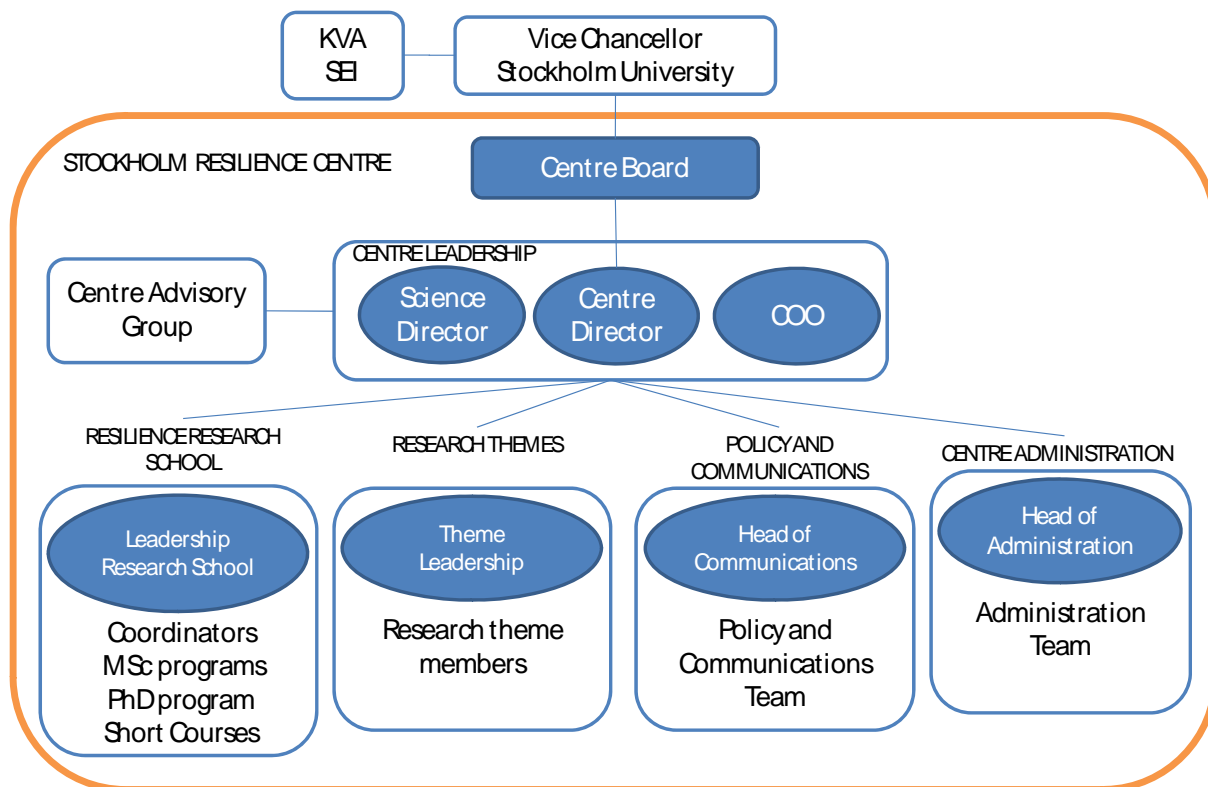


Figure 3. Organizational chart for the Stockholm Resilience Centre

The working environment and the venues

The experience of SRC so far is that the design of the physical environment affects the ability to accomplish interdisciplinary research. Firstly, it is of immense advantage to be able to gather a large number of first class scholars from different disciplines at the same venue. In that respect SRC has few equals in the world when it comes to environmental research. Secondly, also the physical working environment within the venue is important. Shortly, the experience so far supports the notion of a system with “caves and commons”; i.e. where researchers easily can shift between open environments that facilitate meetings (commons) and the ability to work undisturbed (caves). The experience is also that localities with many “dead ends” and distribution on several floors hamper cooperation. The present localities at Stockholm University, which SRC shares with SEI, are not ideal for our kind of research.

Unfortunately, Stockholm University has not provided access to the entire main building at Kräftriket 2b, as promised during the start of the SRC. As the Centre is expending it has already been forced to divert into adjacent buildings, which provides difficulties to the mission of the SRC. Also within the buildings the Centre has to invest research funds into rebuilding some localities to create a reasonable working environment.

Already when applying for the core fund from Mistra, the University leadership announced that the present venue should be replaced with a new one which was planned to be built in the Albano area (a few hundred meters from the present location, across the main road). The date for moving to this new venue is set to, at the best, 2014/2015. SRC will therefore remain in present localities also during the next four-year-phase of the Action Plan (2010-2013).

In parallel to the ambitions to continuously improve the internal physical working environment, the Centre has been very active in trying to influence the planning of the new Albano campus of the University. For example, we recently arranged an international conference on “Green Urbanism” with the Albano case in focus, together with the Stockholm University and “Akademiska Hus” (the property-owner). SRC (and SEI) will only occupy a fraction of the new campus, but due to our great commitment we now have established a strategic cooperation with Akademiska Hus and the University, with the ambition to accomplish a, from a sustainable development and resilience perspective, cutting edges campus. Also to bring about architecture that promote creativity, meetings and innovations are important aspects.

11. Staffing and Research Careers

To fulfill its mission, the Centre aims at establishing up to 10 new permanent academic career positions (chiefly professor, lektor, biträdande lektor) within the four to five years to come. This aim is underpinned in Clark’s evaluation. These positions shall cover, for the developing research agenda, relevant disciplines (likely from different faculties) and they shall constitute the backbone around which the Centre’s interdisciplinary research develops. For these positions additional long-term reliable core funds are necessary; not least from Stockholm University. The Centre has the ability to establish permanent academic career positions, funded by existing internal and external core funds, thanks to a recent agreement with the Vice Chancellor. However current funds can only cover a few career positions. In addition to core funds, the Centre shall, and do already, attract a significant amount of external funds for temporary positions in great numbers, predominantly as “Scientist”, PhD, Post-Doc and guest researcher positions.

A general approach for the recruitment of new research staff is to promote diversity, including research approaches, disciplines, gender, ethnicity, age, etc. We will look for highly qualified persons from all around the world that share the perspectives and values of the Centre. Personality matters.

It is important for the success of the centre that it can provide internationally attractive and transparent career opportunities to researchers engaged in inter- and transdisciplinary work. The “career ladder” at the Centre will be developed as well as a transparent system for measuring scientific achievements. Also the activities of bridging science to policy and practice, as well as education and internal capacity building will be measured. The Centre will clarify its expectations, in relation to its career ladder, taking all these aspect into account.

12. Financing and budget

SRC has, as planned in the approved proposal setting the course for the start-up phase, grown rapidly into a Centre with some 90 staff (55 FTE) and an annual turn-over of approximately 50 MSEK. During the first three year period the Centre has received a total funding of 117 MSEK, of which Mistra contributed 27 % (Figure 4). As the Centre receives 6 MSEK per year from the Stockholm University, the Centre depends to over 50 % on external funding, particularly from project based research grants.

A critical factor during the start-up phase of the Centre is that we are developing both a research program as well as building an institution, moreover a research institution experimenting with social-ecological research methods (integrating social sciences, humanities and natural sciences), and an institution with a high engagement in communication, science-policy bridging and capacity building. This comes with significant fixed costs for administration, management and leadership. We estimate that our ratio between management/administration and research tasks is approximately 20/80, which we consider to be a reasonable figure, even though our assessment is (which is in line with the Clark evaluation) that we need to strengthen further our management capacities.

With the current research funding, including new grants (received 2009, the Centre would be able to continue to operate at a funding level of approximately 50 MSEK/yr over the 2010-2013 period, based on our current assessment of available funding (Figure 5). Our estimates indicate that with this projection the Centre would barely cover its current and necessary cost increases over the coming years, generating a cumulative deficit in the order of 5 MSEK. A particular concern relates to 2010, where immediate and necessary increases in management capacities are, so far, not matched with increased core resources to the centre, resulting in a risk of ~2 MSEK deficit for 2010.

Such a future for the Centre is not only unsatisfactory in terms of barely covering the minimum costs for the current institutional set-up, it is furthermore a future that projects a *status quo* in terms of investments in human resources and other institutional capacities. It is thus a financial plan that does not enable us to accomplish the Clark recommendation – and our goals emerging from these recommendations - to “grow up” (rather than down-sizing) in order to address the current “growth pain” and step up to the challenge of becoming an even stronger and more relevant international partner in science, policy bridging and capacity building.

Our assessment is that there will be a need for significant additional resources in order to fulfill our strategic action plan for 2010-2013. This includes both longer term institutional core funding and new research funding, in order to raise our management capacities, our research capabilities (widening and deepening our scientific skills), our role as an international science-policy convener, our aim to create a world-class working environment for inter- and transdisciplinary research, our aim to become a professional learning organization with a dynamic monitoring and evaluation system, our role as an facilitator and ambassador for interdisciplinary research for sustainable development at Stockholm University, our profound engagement in the policy process following the Millennium Ecosystem Assessment, our ability to invest further in developing an international research school, and finally our contribution to a sustainable campus development in Albano.

The plan is to continue developing a more detailed budget, with both clear priorities and openness for innovation and change, in dialogue with the Centre’s board early 2010 – and to be finally approved by the board on its meeting 19-20 April 2010.

Our rough estimate is that in order to fulfill the goals set out in this 2010-2013 plan we will have to move along a growth trajectory where we by 2013 have raised the centre funding from

the current ~50 MSEK/yr to approximately 70 – 90 MSEK/yr. This would include new resources for core support in the order of 5-10 MSEK/yr, resources to develop our Resilience Research School (leadership, PhD scholarships, curriculum development, international partnerships) in the order of 5-10 MSEK, increased research grants of 5-10 MSEK/yr and a continued growth of our research on the Baltic Sea region of 5-10 MSEK/yr.

This gradual expansion of the centre would allow us to strengthen our management and leadership capacities to a necessary level. It would enable the centre to take on a more active international role in hosting research program initiatives (e.g., the IHOPE program of the global environmental change research programs). We also see this as an opportunity to reach our science-policy goals and to play an active role in the follow-up of the the Millennium Ecosystem Assessment and the IPBES.

Added to these investments in our research, international and capacity building programs, we aim at (1) raising the number of permanent university appointments from 1 position currently to at least 10 positions by 2013, and (2) to investment in our internal learning and monitoring and evaluation processes. These two developments are absolutely fundamental for the Centre in the years to come.

Our planned investments over the period 2010-2013 will be concentrated on further developing our human resource capacities. In total we plan to increase the Centre staff capacity with 3-5 persons in 2010, growing to some 15-25 new staff members by 2013. The largest numbers of these staff members are of course for the Centre’s Resilience Research School (e.g., a vision of achieving 5 to 10 PhD and Post-Doc positions per year). A key strategic focus during the coming four years though, will be the creation of career positions for mid-level to senior research staff at the Centre.

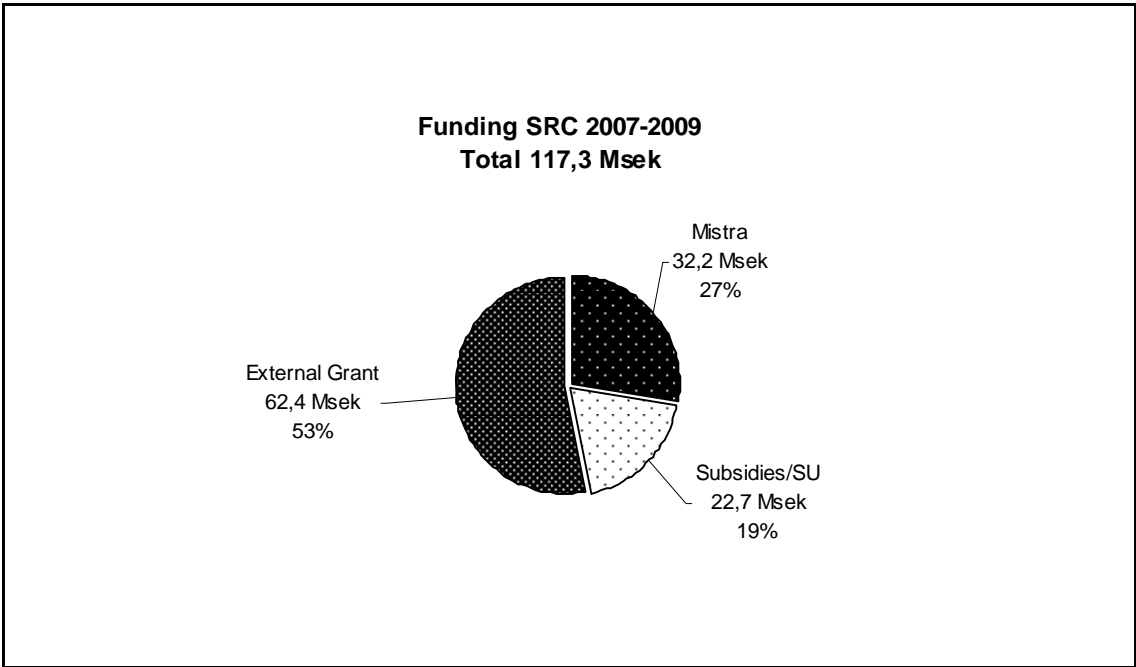


Figure 4. Income of Stockholm Resilience Centre in 2007-2009.

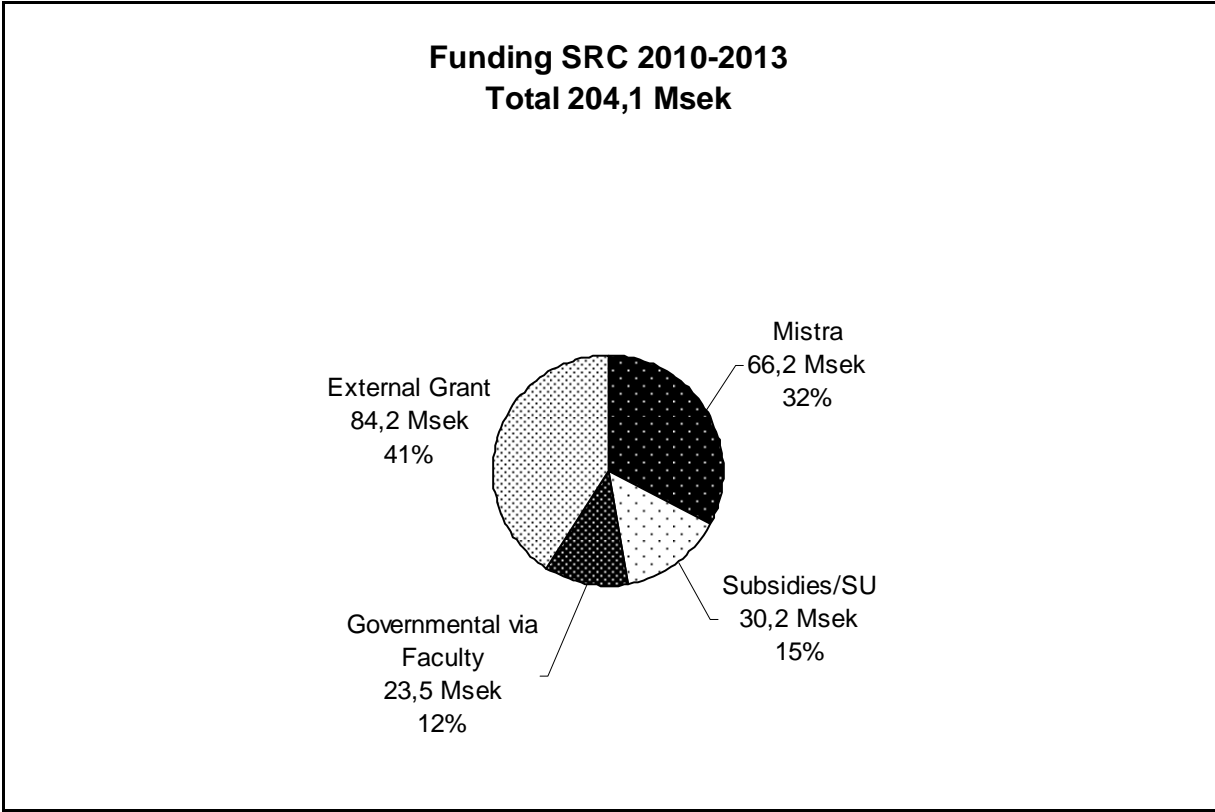


Figure 5. Currently (2009) known income for the next four year period 2010-2013.