

Initial Science Plan

Building a Southern African Program on Ecosystem Change and Society (SAPECS)

Ideas emerging from 1st SAPECS scoping workshop
7-10 February 2012, Stellenbosch, South Africa

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INTRODUCTION

This document lays out a preliminary set of ideas for developing a **Southern African Program on Ecosystem Change and Society (SAPECS)**. The ideas presented here synthesize and build on discussions and ideas that emerged during an initial SAPECS scoping workshop held in Stellenbosch, 7-10 February 2012, that included leading South African and international scientists in the field of social-ecological systems and ecosystem services (Appendix I). While the primary purpose of the workshop was to develop an initial science plan for SAPECS, a strong desire was expressed to also strengthen and build the community of researchers and practitioners working on the dynamics of integrated social-ecological systems in southern Africa and the ecosystem services they provide. We believe that such an approach, which emphasizes building a community of practice alongside developing a longer-term research program, will provide a stronger platform for our research and increase our potential to effect change in the southern African region. This document therefore lays out a preliminary set of ideas for developing SAPECS over the coming two years or so in terms of i) developing a collaborative international research program around social-ecological systems and ecosystem service research in southern Africa, and ii) strengthening and building a community of practice in this field. This initial science plan will continue to be iteratively developed and updated as the program develops.

THE CHALLENGE WE SEEK TO ADDRESS

Human impacts on ecosystems are now so extensive and pervasive that they have significantly changed the physical and biological functioning of the planet at a global scale¹⁻³. While the consequences of these far-reaching changes remain uncertain, it is clear that the appropriation of natural resources that fuelled this transformation over the past two centuries improved the lives of millions of people^{4,5}. Nevertheless, there is increasing evidence that the scale and scope of these changes to the Earth system could undermine this relatively newfound prosperity by jeopardizing the continued, reliable supply of essential ecosystem services that underpin human

economies, health and security^{3,4}. Furthermore, the escalating costs associated with the process of resource appropriation that enabled many of today's wealthier societies to escape poverty make this an increasingly unviable pathway for bringing about a similar transformation for the billions of people around the world still living in poverty today^{1,4}. A defining challenge for the 21st century is therefore to find alternative pathways for large-scale societal transformation out of poverty, and at the same time to significantly reduce the impact of our current economies and activities on the functioning of the Earth system^{6,7}. In short, we need to radically transform our relationship and approach to the Earth's ecosystems on which human prosperity depends.

This challenge is particularly acute in sub-Saharan Africa, where about half the current population lives below the World Bank's poverty line⁸, populations in many countries are expected to more than double by 2050⁹, and climate change shocks such as droughts and floods are projected to be more extreme and frequent than in other parts of the world². Sub-Saharan Africa lags furthest behind in terms of the attainment of the Millennium Development Goals (MDGs)¹⁰. Africa is also the continent experiencing the most rapid urban growth⁹. However, many African cities are located in areas at high risk of climate-related hazards, which are likely to amplify pre-existing stresses caused by poverty, economic inequity, social tensions, and insecurity². These ongoing large, rapid changes will substantially increase demand for ecosystem services in the region, especially for food and clean water, and combined with climate change, substantially increase pressure on the region's rich biodiversity and already pressed agricultural systems^{4,11}. These changes are also likely to alter important cultural services that underpin local identities and influence societal cohesion, affecting society's capacity to deal with social and environmental change¹². Finding new ways of fuelling large-scale wealth creation, and fostering proactive stewardship of ecosystem services, including those in urban areas, is therefore critical to shifting sub-Saharan Africa onto a positive, sustainable development trajectory that is resilient to rapid, ongoing social-ecological change at local to global scales.

THE IMPERATIVE FOR A NEW TYPE OF SCIENCE

Addressing this challenge requires, at least in part, new ways of thinking and new types of science^{13,14}. In particular it requires a much better understanding of the interconnections and interactions between people and ecosystems, and the factors that shape these interactions^{6,15,16}. It demands an appreciation of the complex, emergent, non-linear, dynamic nature of intertwined social-ecological systems, and their complex connections and interactions across space and time. Such understanding in turn requires significant advances in bridging the divide between social and ecological sciences, as well as between science and practice¹³⁻¹⁵. It is important to involve citizens and decision makers in co-discovering solutions and co-inventing a new future. Not only is knowledge exchange and social learning important, but a new form of engagement is necessary in the form of 'situated learning', where agents (individuals and organizations) become actively involved in generating and experimenting with new ways of acting in their own contexts.

Several large initiatives and new research areas have emerged over the past decade to start addressing these needs. Examples include the Millennium Ecosystem Assessment^{4,12}, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)^{17,18}, the increasing interest in complex systems approaches across a wide diversity of fields¹⁹⁻²¹, and the growing interest in resilience-based approaches^{15,22,23}. Many of these initiatives fall under the umbrella of the emerging discipline of sustainability science, that focuses on transdisciplinary, problem-driven research that addresses issues of social-ecological sustainability^{24,25}. The emerging *Future Earth*¹ initiative aims to integrate, build on and advance previous and on-going research in these areas to develop the knowledge for responding

¹ <http://www.icsu.org/future-earth/>

effectively to the risks and opportunities of global environmental change and for supporting transformation towards global sustainability in the coming decades.

A related initiative, just starting up, is the international **Program on Ecosystem Change and Society** (PECS), a 10-year research initiative within the ICSU global change programs that aims to integrate research on the stewardship of social–ecological systems, the services they generate, and the relationships among natural capital, human wellbeing, livelihoods, inequality and poverty²⁶. The goal of PECS is to generate the scientific and policy-relevant knowledge of social–ecological dynamics needed to enable a global shift towards sustainable stewardship of social–ecological systems. It is envisaged that PECS will consist of a range of place-based case studies around the world that will be initiated and driven through bottom-up processes, and use a variety of transdisciplinary approaches and methods. These bottom-up-initiated case studies can apply for endorsement as an official PECS case study, based on criteria listed in Appendix II. PECS itself will not fund research, but can help access funding and build international consortia. The international project office for PECS is based at the Stockholm Resilience Centre in Sweden, and its main role is to facilitate interaction between the various case studies around the world.

BUILDING A SOUTHERN AFRICAN RESEARCH PROGRAM

This document lays out some initial ideas about building a southern African research program linked to PECS that can help leverage change in relation to the management of social-ecological systems and ecosystem services in the southern African region, and grow the community of researchers and practitioners working in southern Africa in this field. We believe that PECS presents an exciting opportunity to work towards these objectives, and can complement and work synergistically with other regional initiatives that are building towards similar goals (e.g., Southern African RA node, Complexity Forum, DST’s Global Change Grand Challenge and ACCESS), organizations doing related work in the broader sub-Saharan Africa region (e.g., CGIAR, IIASA), as well as international programs in this area (e.g. Natural Capital Project, IPBES). We therefore envisage that SAPECS will involve both regional and international researchers and practitioners working on social-ecological systems and ecosystem services in the southern African region.

Southern Africa provides a particularly important and interesting context for PECS, given the huge diversity that exists in the region in terms of socio-economic levels, ecosystems and cultures as well as within the research community itself. It is one of the world’s most rapidly developing regions and has invested in and is experimenting with a range of innovative, large scale approaches to ecosystem management (e.g. Working for Water Programme), making it an especially interesting place to study processes of transformation. Furthermore, given the slow progress towards the MDGs, southern Africa presents an ideal opportunity to investigate how engaged research on ecosystems and society could contribute to improved human well-being.

Discussions about including SAPECS as a PECS case study have been enthusiastically received by the PECS Scientific Committee. From the SAPECS perspective, benefits of affiliation to PECS are that it provides opportunities to interact and work with other cutting-edge international research groups in this field, to leverage and access funding, to engage with society and decision makers in a way which connects science and society, and to participate in international training workshops, while providing the autonomy to largely define our own research questions, approach and structure. On the other hand, SAPECS can contribute important policy-relevant insights from the southern African perspective to the global PECS process and other global processes, potentially extending our research impact. Furthermore, as one of the first case studies, SAPECS can play an important role in developing approaches and methods for the broader PECS initiative, including ways of engaging decision makers and citizens to promote improved ecosystem stewardship.

We envisage that SAPECS will consist of a network of case studies at several scales, as well as various cross-cutting research projects and working groups, working within a shared conceptual framework on a common set of core themes, to form a vibrant community of practice (see following sections for more detail). The case studies and projects will collect and analyse new data, but an equally important focus will be to undertake cross-cutting syntheses and comparisons based on existing knowledge and data, in order to capitalize on the strong research that has already been done in the region.

By *community of practice* we mean a group of people informally bound together by shared expertise and a common domain of interest who interact regularly to share information and experiences in order to learn from each other and develop themselves personally and professionally²⁷. In the case of SAPECS we envisage this community centred on a group of regional and international researchers and practitioners who are actively engaged in studying the dynamics of complex adaptive social-ecological systems and the ecosystem services they provide in the southern African region, and engaging with policy-makers and practitioners to mainstream this knowledge. While it is imperative that SAPECS is regionally owned and led, we foresee substantial involvement of international researchers in the program, bringing with it new capacity, skills, ideas and networks that can contribute to building an exciting, innovative and cutting edge research program and community of practice – a model already begun in our initial scoping workshop. The goal of this community of practice is to share expertise and knowledge and provide a platform for transdisciplinary research collaboration in relation to SAPECS and social-ecological and ecosystem services research in southern Africa more generally. We expect that people will participate to different degrees, depending on their interests. Our community of practice will also link to various *communities of interest*, consisting of people interested in our work but who are not themselves actively working in the area of social-ecological systems and ecosystem services (e.g. NGO groups, practitioner forums).

Based on the SAPECS scoping workshop and previous experience in transdisciplinary scientific collaborations we believe several things can be put in place to foster a vibrant, collaborative and impact-oriented research program and associated community of practice. We propose that some key ingredients include (but are not limited to):

- Common objectives
- Shared conceptual framework
- Common research themes
- Common ways of working, including active engagement with stakeholders
- Bottom-up initiated research projects
- Cross-project working groups
- Face-to-face meetings
- Student and researcher exchanges
- Electronic communications e.g., website, email, online forum

The following sections lay out our initial thinking with respect to each of these components, drawing on the discussions at the workshop. As the program develops, we expect that these initial ideas will be further developed and clarified in an iterative way.

OBJECTIVES

SAPECS will be developed as a transdisciplinary international research program that aims to advance stewardship of social-ecological systems and ecosystem services in southern Africa, by:

1. Producing a body of empirical evidence and developing innovative, practical theory and tools to improve understanding of social-ecological systems and ecosystem services in the region and developing country contexts.
2. Mainstreaming knowledge into policy and practice, and incorporating experiences from policy and practice into our scientific understanding, in order to have a tangible impact and effect change in the governance and management of social-ecological systems in the region.
3. Growing the community of practice, including researchers, students and practitioners engaged in research and management of social-ecological systems and ecosystem services in the southern African region.

CONCEPTUAL FRAMEWORK

Experience suggests that a shared conceptual framework is key to developing both a successful, innovative, transdisciplinary research program as well as a vibrant community of practice. Drawing on the Millennium Ecosystem Assessment and subsequent work, we propose the social-ecological framework depicted in Figure 1 as a starting point. As shown in the figure, we propose that SAPECS focus on the dynamics of interconnected social-ecological systems, which we understand to be complex adaptive systems subject to nonlinear behaviour and associated with substantial uncertainties. In particular, we are interested in:

- How the dynamics of social-ecological systems in southern Africa are shaped by structures and processes at interconnected local, regional and global scales, as well as over a range of timescales from short to long-term.
- How changes in social-ecological systems influence human well-being and equity in southern Africa, especially through their impacts on ecosystem services.
- How changes in governance and management practices shape social-ecological systems, and how different human well-being outcomes and learning processes in turn influence these practices.

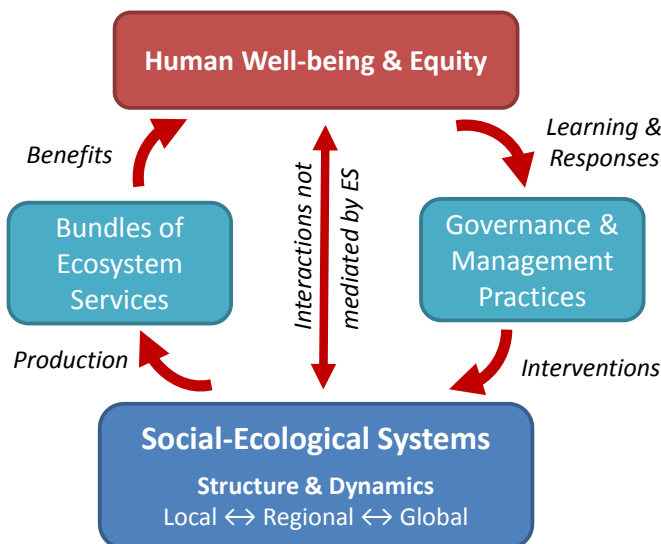


Fig 1. Proposed conceptual framework for SAPECS research. We suggest that SAPECS focus on i) how changes in the structure and dynamics of social-ecological systems affect human well-being and equity, especially through impacts on ecosystem services, and ii) how learning and changes in governance and management practices occur and how these can be leveraged to enhance stewardship of social-ecological systems, and bring about transformations in such systems. Modified from Reyers et al. in review.

RESEARCH THEMES

Experience similarly suggests that exciting new insights and innovations as well as communities of practice are greatly facilitated by shared focal research themes or areas which can provide a platform for collaboration and syntheses. During the discussions at the workshop we identified four initial research themes that we felt are both important research gaps and topics around which interesting collaborations and comparisons across individual research sites in southern Africa are possible. These four themes are (Figure 2):

- 1) Links between ecosystem services and human well-being, with an emphasis on poverty and inequality
- 2) How governance and management institutions and practices affect social-ecological systems, including the capacity for learning and transformation
- 3) Potential traps and transformations in the structure and dynamics of social-ecological systems, and the consequences of different trajectories of development for human well-being
- 4) Cross-scale connections that impact the structure and dynamics of social-ecological systems at different scales

Examples of the types of questions we are interested to investigate within each of these themes are given in Box 1.



Fig 2. Proposed core research themes and approaches within SAPECS. We have identified four initial research themes around which to focus research in SAPECS (dark grey). In addition we see transdisciplinary modes of collaborative research and training, as well as an emphasis on mainstreaming and communication as core characteristics of the way in which SAPECS research is done (red).

WAYS OF WORKING: TRANSDISCIPLINARITY & MAINSTREAMING

There was a strong recognition that the way in which we do research should be a distinguishing feature of SAPECS – namely, that our research should be characterized by transdisciplinary, collaborative approaches, and pay particular attention to transdisciplinary training, as well as mainstreaming and communication (Figure 2). In adopting a *transdisciplinary approach* we mean that our research should draw on and integrate perspectives and approaches from a variety of disciplines, while avoiding superficial work at the boundaries of disciplines by actively seeking depth of understanding from all perspectives. Another aspect of this transdisciplinary approach will be actively working with stakeholders and practitioners in the design and conduct of research. We will emphasize training of students in transdisciplinary approaches, and link together teams of students with different disciplinary backgrounds to identify research topics and solve problems in collaboration with stakeholders.

Furthermore, given the desire for SAPECS research to have tangible impacts on policy and practice, we will pay particular attention to communication and mainstreaming of our findings and insights in the conduct of our research. We believe that it is important that decision makers, civil society and students not only be given access to information but are actively involved in co-discovering new possibilities, and co-inventing new ways of doing (not just thinking). This type of ‘situated learning’, also called ‘inquiry learning’, is essential for translating knowledge to action. There is growing recognition that cognitive processes (i.e. ‘thinking about change’) are less important than the social context within which learning takes place and the actual engagement of agents in the learning process^{28,29}, and the approach is firmly embedded in environmental education practice.

Lastly, we propose that all research under the SAPECS umbrella be committed to openness and data sharing.

BOX 1 – POTENTIAL RESEARCH QUESTIONS IN RELATION TO KEY THEMES & APPROACHES

Ecosystem Services & Human Well-Being

- How can ES contribute to poverty alleviation?
- What is the role of ES in livelihood options?
- What are conflict hotspots in ES tradeoffs?
- How do cultural ES vary with scale?
- What places have anomalies in ES supply? Why?
- How does connectivity impact disease regulation?
- How does type of urbanization impact ES & HWB?
- How does tourism impact ES & HWB?
- How can ecological infrastructure enhance ES?
- How do people connect with nature in the city?
- How do valued ES change with urbanization?
- How can we better measure human well-being?
- How do we measure natural capital?

Governance and Management institutions & Practices

- How does institutional diversity across countries impact ES management?
- What drives decisions at different scales?
- What institutional structures facilitate or constrain successful ES management (including transboundary)?
- What opportunities do economic development strategies (eg IDP, SDP, DMP) provide for improved SES stewardship and ES management?
- How can land reform and redistribution account for ES & SES stewardship?
- How does inequality impact ES management?
- What is the role of civic society actors involved in the management of urban ES?
- How do local actors interface with one another and link upwards to government?
- How can the capacity of agencies, communities and societies to navigate away from traps towards more sustainable trajectories be enhanced?

Traps and transformations

- What are the main types of SES traps & shifts that have occurred in the region?
- What are ES impacts of different future land transformation trajectories in the region?
- How does infrastructure shape ES pathways?
- What is the potential for social-ecological restoration? How can green jobs contribute?
- How do regulating services impact the risk of traps and negative shifts?
- What is relation between ES variability & risk?
- How are different mental models constructed via engagement with local ecosystems?
- How does social structure and agency influence trajectories of social-ecological transformation?

Cross-scale connections & flows

- What are the trade footprints of ES regionally and globally?
- What ES flow into and out of large metropolitan areas eg Cape Town?
- How do global trends play out in local places?
- What drives human migration in the region and how does it link to ES?

Transdisciplinarity

- How is transdisciplinary science done?
- How to foster collaborative TD teams?
- How do we build capacity for TD?

Mainstreaming

- How to connect politicians to the Biosphere?
- How do we tell our stories more effectively?
- What existing processes can we tap into?

HOW WILL SAPECS BE ORGANIZED?

We propose that SAPECS be organized in a flexible, self-organizing way, principally structured around i) bottom-up initiated research projects, ii) cross-cutting synthetic working groups, iii) face-to-face meetings, including student and research exchanges, and iv) online interactions. Each of these components is described in the following sections.

We envisage that the SAPECS community will also actively link to and interact with other key research networks (e.g. Southern African RA node, SAEON), professional societies, and forums (e.g. Complexity Forum, Biodiversity Planning Forum, Arid Zone Forum) in the region and internationally (Figure 3). This could be in the form of shared projects, working groups, participating in conferences and colloquia etc. Depending on how interest develops, there may also be scope in the longer term for establishing our own forum specifically around transdisciplinary social-ecological and ecosystem service issues.

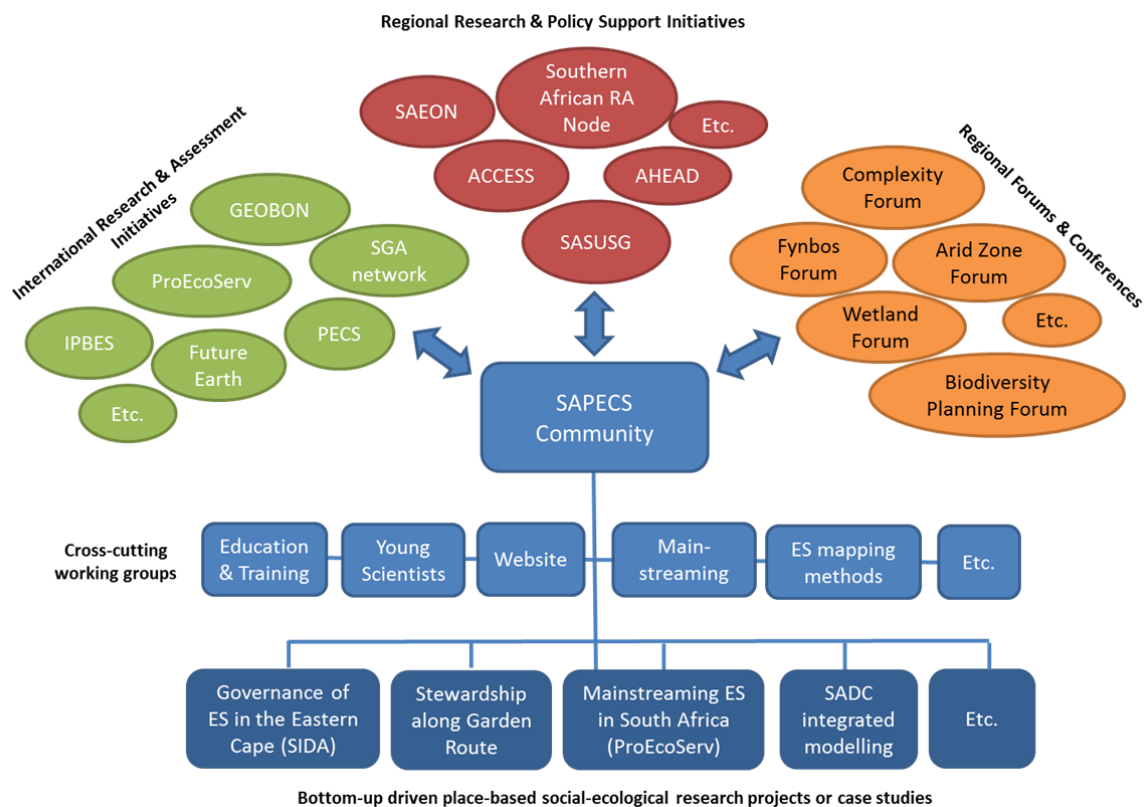


Fig 3. We envisage that SAPECS will be organized around a set of bottom-up initiated collaborative research projects and cross-cutting working groups. SAPECS will also actively seek to build a larger community of practice around social-ecological systems and ecosystem services in southern Africa, through training workshops and links to other key research networks and forums. The working groups and projects in the figure are simply examples and have not yet been decided upon.

i. Bottom-Up Initiated Research Projects

Given the scope of the issues SAPECS plans to tackle, instead of trying to design a large research program in a top-down way, SAPECS will comprise a network of individual, bottom-up initiated research projects that are based on our shared conceptual framework and contribute to the SAPECS research themes. We therefore envisage that SAPECS function as a flexible platform or network for forming new project collaborations, and for linking, leveraging and synthesizing across various individual projects to gain new scientific insights and strengthen our community of practice. Some existing projects identified at the workshop that could potentially be incorporated into SAPECS are listed in Appendix III.

In adopting this structure, we would like SAPECS to be quite open and flexible, but at the same time ensure that it is intellectually attractive and maintains a high level of innovation and research quality. This will require some degree of selection of participants in order to build the trust and cross-disciplinary understanding needed to do cutting edge transdisciplinary science, keep intellectual leaders of the research excited and engaged, and compete for larger funding opportunities. Similar to PECS, we therefore suggest we agree on some relatively open criteria (eg Appendix II) for deciding which existing or new projects are officially SAPECS-affiliated projects – with the principle that the core SAPECS community needs to be centred on researchers with relevant expertise and on-going research in the area of interest to SAPECS. People involved in these SAPECS-affiliated projects will then have preferential access to certain meetings and funding opportunities. However, given our commitment to mainstreaming and growing the broader community of practice, we will make sure that there are always some meetings and activities that are open to all.

However, this is just a suggestion and we propose to discuss this issue further at our next meeting in October. If we go this route, we suggest appointing a small group to oversee the approval process (which should be simple and straightforward), with the initial suggestion (to be further discussed) that the key criteria for including a project in SAPECS be that it:

- i) contribute to one or more of the SAPECS research themes
- ii) be anchored within our shared conceptual framework
- iii) follow a transdisciplinary, mainstreaming approach in conducting the research
- iv) include an aspect of capacity building or training to build the broader community
- v) follow any agreed-upon methods and protocols developed within SAPECS
- vi) be committed to openness, data-sharing and collaboration
- vii) project leaders have a track record in high quality, relevant research or practice, or in the case of students are supervised by someone with an appropriate track record.
- viii) involve at least 2 researchers working collaboratively (could be a supervisor and student)

We envisage that these individual bottom-up projects would be initiated and coordinated by individual researchers or self-organized subgroups. Projects could address a range of topics in one particular place, or involve a comparison of several different locations or scales in relation to a specific issue or set of issues. Eventually we would ideally like to have a collection of projects that cover our core research themes at a range of different scales (local, national, regional) and across a variety of social-ecological contexts (within South Africa and other countries), thereby helping to inform policy frameworks at different levels (Figure 4). We are specifically targeting a multi-scale and cross-scale design in recognition of the fact that:

- Social-ecological systems and their components interact across scales e.g. benefit flows generated at the local scale can benefit regional communities
- Different components function differently at different scales e.g. cultural services may include tourism at a regional scale, while spiritual values are more important at a local scale

- Governance and management differ across scales e.g. in South Africa legislation is determined nationally, budgets allocated provincially, and decisions made at a local scale.

Despite the bottom-up, flexible nature of individual studies within SAPECS, we believe there can be added value in co-developing and sharing some common methods and other protocols across projects. This will not only help develop better methods that draw on and benefit from multiple inputs and disciplinary expertise, but also facilitate the comparison and use of data across sites and scales. We envisage that such methods and protocols will be developed by various cross-cutting working groups in relation to different topics (e.g. mapping ecosystem services), and shared with the broader group at the SAPECS meetings (see next point). In some cases we may arrange special roundtable discussions or workshops to develop particular methods, or co-develop new papers to explore particular cross-cutting methods and issues. As SAPECS and PECS develop we may decide to have some of these methods or protocols become key criteria for SAPECS projects in order to enable greater comparability between projects. However, given the exploratory stage of development of many methods in this research area at the current time, we will initially leave the choice of methods and protocols open to the individual projects.

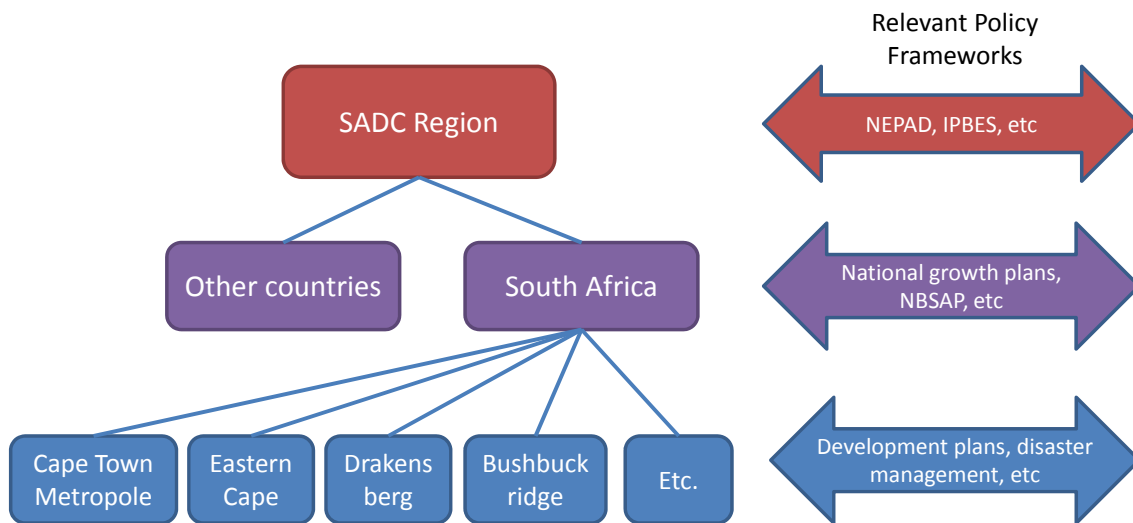


Fig 4. Eventually we hope that SAPECS will grow into a set of transdisciplinary studies that span a range of spatial scales and social-ecological contexts throughout the southern African region. Studies at each locality or scale will comprise one or several interlinked bottom-up projects (bottom level in Figure 3). These different studies will be informed by and target a range of policy frameworks (figure gives examples only) at different scales. The figure shows some existing studies that could form part of SAPECS but this has not yet been decided.

ii. Cross-Cutting Working Groups

In addition to individual research projects, SAPECS will be organized around a set of cross-cutting working groups to foster collaboration and knowledge-sharing and thereby help grow the community of practice and increase the potential for new insights. As in the case of the individual research projects, these working groups will be initiated and led by members of the SAPECS community who have a passion for a particular issue. Working groups could focus on specific cross-cutting research topics (e.g. methods for mapping ecosystem services, shared protocols for *in situ* data collection), building human capital (e.g. working groups on education and training, mainstreaming), or could in some cases link directly to collaborative research projects (e.g. developing a collaborative funding proposal).

We suggest that anyone associated with an SAPECS affiliated project (and hence part of the SAPECS community) be able to propose a collaborative working group provided it falls within the scope of our shared research framework and agenda, and that working groups exist for as long as there is an interest. Some groups may therefore be once-off or short term groups focused on a particular event or issue, while others could exist for many years. Because of the interest in growing the larger community of practice and influencing policy and practice in the region, we envisage that training workshops for students and practitioners, as well as the development of products to help communicate and mainstream our research (e.g. policy roundtables, policy briefs, website) will be key working group initiatives.

Initial working groups proposed at the first SAPECS meeting include (group coordinator is listed in italics):

1. **Ecosystem service mapping** – *Rebecka Malinga*, Maike Hamann, Odi Selomane, Line Gordon, Regina Lindborg, Belinda Reyers, Oonsie Biggs, Patrick O’Farrell, Jeanne Nel, Garry Peterson, Vanessa Masterson, Maria Tengö, Luthando Dziba, Marja Spierenburg
2. **Theory Development** – *Graeme Cumming*, Oonsie Biggs, Belinda Reyers, Bob Scholes
3. **Impacts of climate change on ES** – *Bob Scholes*, Luthando Dziba, Line Gordon
4. **Communities of practice and transdisciplinary work** - *Georgina*, Dirk, Tally
5. **Mainstreaming** – *Nadia Sitas*, Patrick O’Farrell, Jeanne Nel, Tracey Cumming, Richard Cowling, Belinda Reyers, Luthando Dziba, Christo Fabricius
6. **Website** – *Oonsie Biggs*, Maike Hamann, Vanessa Masterson, Nadia Sitas
7. **Education & Training** – *Christo Fabricius*, Karen Esler, Bianca Currie
8. **Young scientists** – *Maike Hamann*, Vanessa Masterson, Nadia Sitas, Odi Selomane, Ryan Blanchard, Ilse Kotzee, Rebecka Malinga, Bianca Currie
9. **Funding** - *Christo Fabricius*, Belinda Reyers, Oonsie Biggs

We envisage that these working groups will be a key mechanism for building the SAPECS community over the next 2 years by providing a platform for knowledge sharing and facilitating collaborations. In so doing we hope to develop a platform that is ready to take advantage of some larger funding calls to develop collaborative proposals that can help further build the SAPECS program in exciting and innovative new ways. In the meantime we encourage group leaders and members to approach their respective institutions for co-funding of working groups. A logical next step may be to develop a collective proposal for submission to the respective institutions of the core SAPECS participants. This might require some kind of a governance framework (or secretariat) to ensure that funds are properly and accountably spent.

iii. Face-To-Face Meetings

Face-to-face meetings are clearly an essential component of a successful transdisciplinary research program and community of practice. We envisage several types of face-to-face meetings within SAPECS:

- Annual meetings of the full SAPECS community.
- Working group meetings, coordinated by the working group coordinator, and which could occur opportunistically in conjunction with individual project meetings, or when several people attend the same conference or workshop.
- Individual research project meetings, coordinated by the individual project leaders
- Student and researcher exchanges between SAPECS member institutions

Annual SAPECS Meeting: We propose that the full SAPECS community meets at least once a year to share and synthesize insights and lessons from the individual projects, advance the working groups, and develop new ideas for syntheses and collaborations. We envisage that this “Annual SAPECS meeting” consist of i) 1-2 days of colloquium-type presentations and discussions that would be open to anyone to attend, and ii) 2-3 days of working group meetings and innovative breakout sessions open only to SAPECS project members to synthesize new insights into papers, develop new teaching or policy outputs, build new collaborations, develop proposals, etc. At least initially, Oonsie Biggs and Belinda Reyers volunteer to facilitate these annual meetings. However, at this stage, travel and accommodation costs would need to be covered by individual participants. In the longer-term these annual meetings could potentially morph into our own forum-type activity.

Working group meetings: In addition to the 4-5 day annual SAPECS meetings, we envisage that we would have at least one smaller 2-3 day “Working Group Meeting” each year. These may often be held in conjunction with other forums or meetings that several SAPECS members are attending. These meeting would be for SAPECS project members to get together to share ideas, advance cross-cutting working groups, and further collaborations. The first of these smaller working group meetings will be held 25-26 October 2012 in Stellenbosch, in conjunction with the first meeting of the Complexity Forum. We plan to use this opportunity to advance the working groups proposed at the first SAPECS workshop, as well as to agree on criteria and a process for approving SAPECS affiliated projects.

Other meetings: Beyond the various SAPECS-related meetings, we would like to actively participate in the meetings of other relevant communities, such as the Complexity Forum, Fynbos Forum, and meetings and conferences of professional societies in order to help mainstream knowledge around social-ecological systems and ecosystem services in southern Africa. Where appropriate, we may consider running some special sessions on SAPECS at these meetings. These would also be opportunities for some working groups or individual project teams to get together face-to-face.

Student and researcher exchanges: SAPECS will encourage young scientists and researchers in the SAPECS community to visit other SAPECS member institutions to share research ideas and experiences and learn new methods.

iv. Online interaction

We plan to develop a website and potentially set up an email list and/or online forum to facilitate interaction and sharing of ideas between meetings. In particular, we plan to set up a forum for students/young researchers to connect with one another. Some tentative ideas have been developed by the website working group, and these will be further developed at the October meeting.

LONGER-TERM POSSIBILITIES

We do not see SAPECS as an end in itself, but rather as a springboard for developing some exciting longer-term initiatives in the southern African region. In particular, we feel that SAPECS could provide a platform for building towards some sort of transdisciplinary center of expertise in the area of social-ecological systems and ecosystem services in southern Africa. What form this centre might take is as yet unclear, but some potential options might include a virtual centre with affiliates in different places, a Centre of Excellence-type of node with different sub-

nodes, or a semi-independent research centre. Such a centre could substantially strengthen our contribution of cutting-edge insights into ecosystem service and resilience issues from a southern African perspective, with an explicit focus on issues of poverty alleviation and equity. We believe that establishing a successful SAPECS initiative, with strong international links, will provide an excellent base and network from which to potentially develop some sort of centre in the longer term, and leverage our skills and expertise to build capacity and effect change in the wider southern African region.

NEXT STEPS IN THE SHORTER-TERM

We have the following activities planned for the coming months:

1. 2nd SAPECS workshop – 25-26 October 2012, Stellenbosch

This workshop will be held immediately after the first meeting of the new Complexity Forum (22-24 October at STIAS, Stellenbosch). This workshop will be largely focused on advancing the working groups identified at the 1st workshop, developing any new working groups that are proposed, and agreeing on the criteria and process for SAPECS affiliated projects. The workshop will be organized by Oonsie and Belinda; more details to follow.

2. Insights/framework paper

Based on the questionnaire circulated after the 1st workshop, we are developing a short paper to introduce SAPECS and synthesize some of the key insights that have been gained from transdisciplinary social-ecological work in southern Africa to date. A draft will be circulated for comment in September. The intention is to include the paper in a special issue of *Ecology and Society* focusing on the application of complexity thinking in southern Africa.

3. SAPECS website

We will develop a set of ideas for a SAPECS website for further discussion and input at the October workshop. Ideally we would like an initial version up and running by the end of the year for comment and feedback.

4. Meetings in 2013

We propose that we gather at least twice in 2013: i) in collaboration with the RA science meeting or the new ecosystem services forum in the first quarter of 2013, and ii) have our first official annual meeting in the later part of 2013.

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APPENDIX I – Participants of 1st SAPECS Scoping Workshop, 7-10 February 2012

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List of abbreviations:

AWARD	Association for Water & Rural Development
CSIR	Council for Scientific and Industrial Research
ICSU ROA	International Council for Science - Regional Office for Africa
NMMU	Nelson Mandela Metropolitan University
NRF	National Research Foundation
SANBI	South African Biodiversity Institute
SANParks	South African National Parks
SRC	Stockholm Resilience Centre
UCT	University of Cape Town
UKZN	University of KwaZulu-Natal
UWC	University of the Western Cape

APPENDIX II – Endorsement Criteria for PECS Case Studies

Endorsement by PECS obliges a case study to conform to the scientific aims, criteria of scientific scope and excellence, principles of openness and free exchange of data, as expressed in the science and implementation plans of PECS.

When an external project applies for endorsement, initial contact should be with the PECS International Programme Office (PECS-IPO), either directly or via a member of the PECS Science Committee (PECS-SC). A formal request for endorsement should be sent to the chair of the PECS-SC or the PECS Executive Offices. The PECS-SC or PECS Executive Officer will inform the PECS-SC and will facilitate a decision by the PECS-SC. The applicant will be informed of the decision by the PECS Executive Officer.

Endorsement Procedure

1. Contact the PECS Executive Officer or PECS-SC member regarding endorsement.
2. Send formal request for endorsement to PECS-SC Chair or PECS Executive Officer
3. Upon receiving the request, the PECS-SC Chair or PECS Executive Officer will a) inform the PECS-SC of the request, b) inform the PECS-IPO of the request, and c) facilitate a decision about the request by the PECS-SC
4. Once a decision is made by the PECS-SC, the PECS Executive Officer will inform the external project and the PECS-IPO of the result

Endorsement criteria

The general criteria for endorsement of a new PECS working group are:

- Scientific excellence
- Contribute to the content and direction of PECS, features, goals, aims and visions of PECS
- Explicit description of interdisciplinary methods to be used
- Relevance of cases to be used in relation to the PECS strategy and the degree to which the cases complement other cases in the PECS portfolio
- Willingness and adherence to share data in transparent way

APPENDIX III – Some on-going social-ecological and ecosystem service related research projects in the southern African region

On-going case/activity	Who is involved?	ES, HWB, Poverty	Traps & Transformations Regime shifts	Governance	Cross-scale links	Mainstreaming	Transdisciplinary
Eastern Cape SIDA project	Oonsie, Belinda, Luthando, Maria, Marja, Maike, Vanessa	X	X	X	X		X
Eden DM	Belinda, Ilse, Nadia, Patrick, Jeanne, Richard...	X	½	X	X	X	½
ProEcoServ	Belinda, Luthando, Jeanne, Patrick, Nadia, Ilse	X		X		X	X
Impact Private wildlife products on farm dwellers EC/KZN	Marja, Shirley, Nomalanga, Lungisile, Dhoya, Femke, Harry	X	X	X	X	Attempt failed	½
Implementation & water security in water management SANPAD & GCSSRP	Tally, Dirk, Christo, Netherlands Ireland & Georgina	X		X	X	X	X
Communities of practice for stewardship in the Garden Route	Christo, Dirk, Bianca, NM Municipality, WESSA	X			X	X	X
Adaptation, vulnerability, climate change IDRC	George, Sheona Shackleton	X		X	X	X	X
Various Drakensberg (KZN) projects	Graham & many others at UKZN, Rebecka, Line, Regina, EZEMVELO	X		X	X	X	X
Limpopo biosphere reserves	James Gambiza	X					
Stewardship	Gambiza, Powell, Charlie	X		X			
CBNRM, Land degradation	T.Potts	X	X	X		X	
Subtropical Thicket Restoration Project (STRP)	Cowling, Christo Marais, DEA et al	X	X	X	X	X	X
IWRM Compliance & sustainability	Sharon Tally	X		X		X	X
Great Limpopo TFCA: PPPSE land rights	Marja, Steve, Kees & Harry	X		X	X		½
Strategic partnership to land reform in Limpopo	Ben, Marja, Nerhene, Lubabalo, Angelique	X		X	X		½
Private protected areas as SES	Graeme, John, Marja	X	X	X	X		
Restoring natural capital & developing markets	Esler, Le Maitre, DeWit, Blignaut, Milton, WRC	X	X		X	X	X
Land use impacts on water security Ntl & Oliphants	Jeanne, Paul, Belinda	X	X	X		X	½