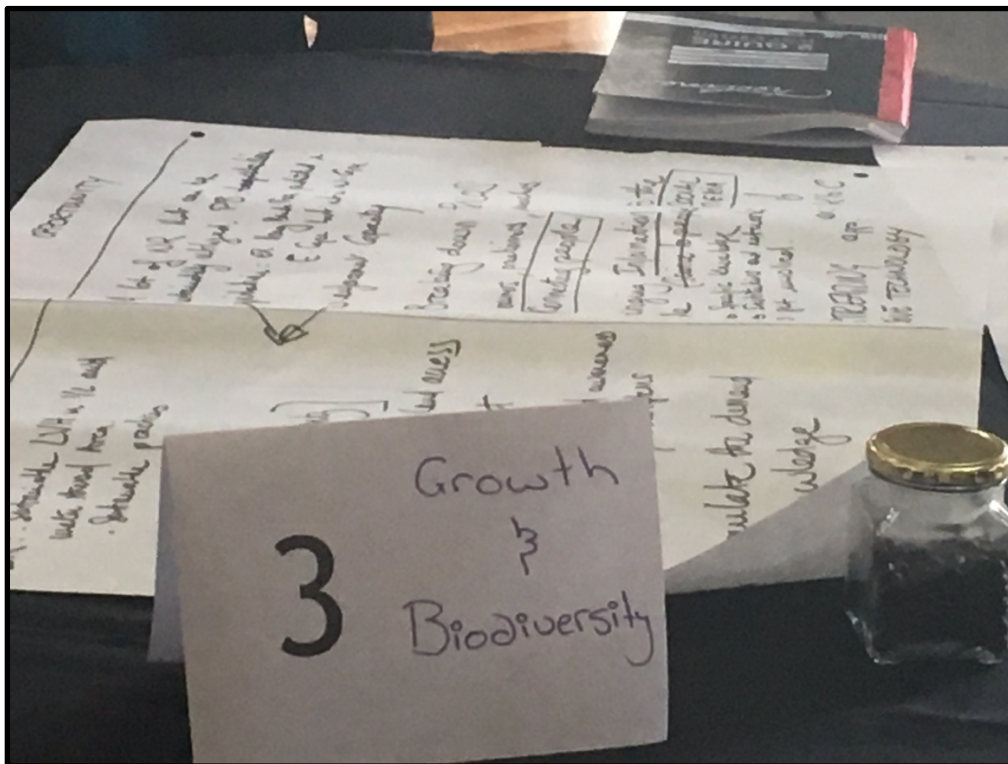


Western Cape Biosphere Reserves Towards a Research Agenda

31 August 2018
Nelson Mandela University
Sustainability Research Unit
George Campus



Compiled by: Dr. Bianca Currie
19th September 2018

Executive summary

The United Nations Educational, Scientific and Cultural Organization's (UNESCO) Man and the Biosphere Programme (MAB) is an intergovernmental scientific programme, launched in 1971 to establish a scientific basis for the improvement of relationships between people and their environments. As part of the MAB programme the World Network of Biosphere Reserves (WNBR) are sites for sustainable development and are designed to demonstrate harmonious relationships between humans and nature. There are over 669 biosphere reserves in 120 different countries. South Africa has 10 such sites five of which are in the Western Cape Province in the country.

Governing biosphere reserves means reconciling human activity, policies and technologies with the capacity of ecosystems and the biosphere to sustain life. Social-Ecological Systems science offers an approach to studying humans and nature as an integrated whole, to understand how values, beliefs and behaviors shape sustainable or unsustainable pathways. It is an inter- and trans-disciplinary science, meaning that multiple sources of knowledge from professional, academic and public sectors are recognized, and incorporated in co-learning about adaptive and pro-active solutions that would enhance the success of biosphere reserves.

Engaging in social-ecological systems science necessitates a better understanding of the complex feedbacks between political, economic, cultural and ecological processes. It also requires high levels of research and practice collaboration in the service of human well-being and environmental integrity. In a landmark event the Nelson Mandela University, Sustainability Research Unit hosted a workshop bringing together a diversity of practitioners, researchers and interested parties who are tasked with aligning human activity and well-being with environmental protection in the Western Cape biosphere reserves. The workshop was focused on facilitating a Western Cape biosphere research network and developing a user inspired, coordinated research agenda. Working at the interface of practice and research the workshop targeted the development of a social-ecological research focus that would inform inter-, multi- and trans-disciplinary research themes for the biosphere reserves.

A series of short presentations from the Western Cape Biosphere Reserves Forum on social and ecological challenges in the Western Cape and the launch of a research portal, together with an introduction to the Social-Ecological Systems (SES) framework and the need for long term inter- and trans-disciplinary research in and on biosphere reserves were given. The presentations set the scene for important deliberations on the challenges of achieving biosphere reserve goals and, the difficulties, opportunities and role of networks in facilitating research practice feedbacks for impactful research.

The primary challenges in achieving biosphere reserve goals that emerged from participant reflections included numerous land use issues such as alien invasive plants and water quality and quantity, as well as the participation and communication of stakeholders at multiple scales. It came to light that biosphere reserves also offer opportunities to collaborate and develop partnerships, and opportunities to learn and share knowledge. The development of networks present opportunities for stakeholders to work together towards aligning efforts across landscapes and learn and share knowledge and resources across the Western Cape. Networks however also face challenges such as; inclusive participation and buy-in from stakeholders and, issues with co-ordination and governance. The dominant research themes which emerged from the participant conversations included the green economy; monitoring and evaluation and the development of tools and frameworks; understanding governance of biosphere reserves and collaboration of stakeholders.

The workshop marked the first time that researchers and practitioners across the Western Cape biosphere reserves came together and is the first step toward entrenching a research network and developing a coordinated approach to research taking place in and on our Western Cape biosphere reserves.

Participant analysis

The workshop invited mainly, but not exclusively researchers and students working on or in biosphere reserves in the Western Cape, directors of biosphere reserves in the Western Cape, environmental Non-Governmental Organisations (NGO's) operating within or working with Western Cape biosphere reserves, practitioners and managers of protected areas and biospheres in the Western Cape and, citizen science groups within the Western Cape biosphere reserves. Over 300 Participants from the following sectors were invited. Sixty-nine Participants responded positively to the invitation with 52 attending. Figure 1 is a breakdown of the participants in attendance according to their associations.

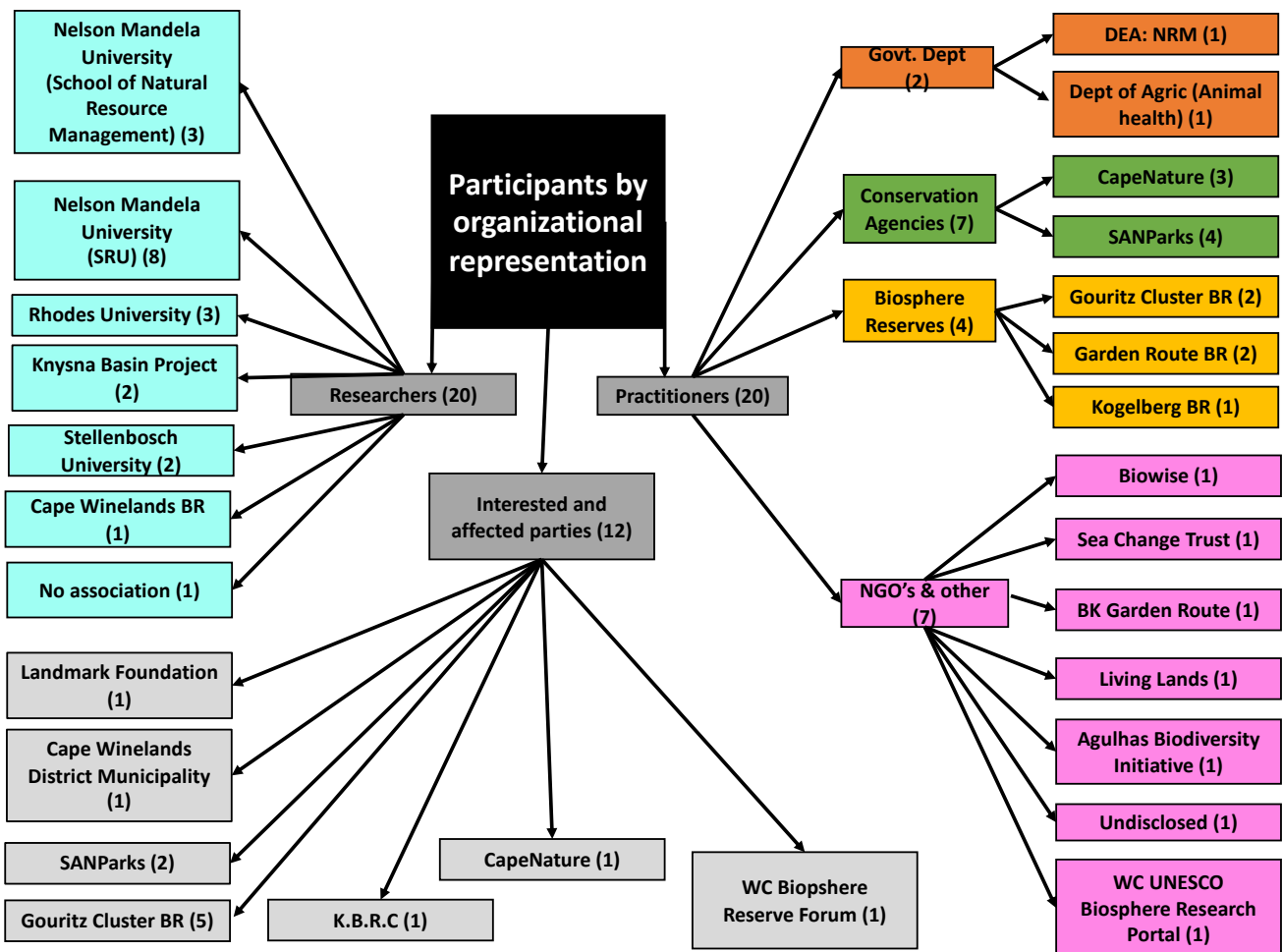


Figure 1. Participant breakdown according to organisational representation

Participant were also categorised according to their interests (see Figure 2) In biosphere reserves and expertise (see Figure 3)

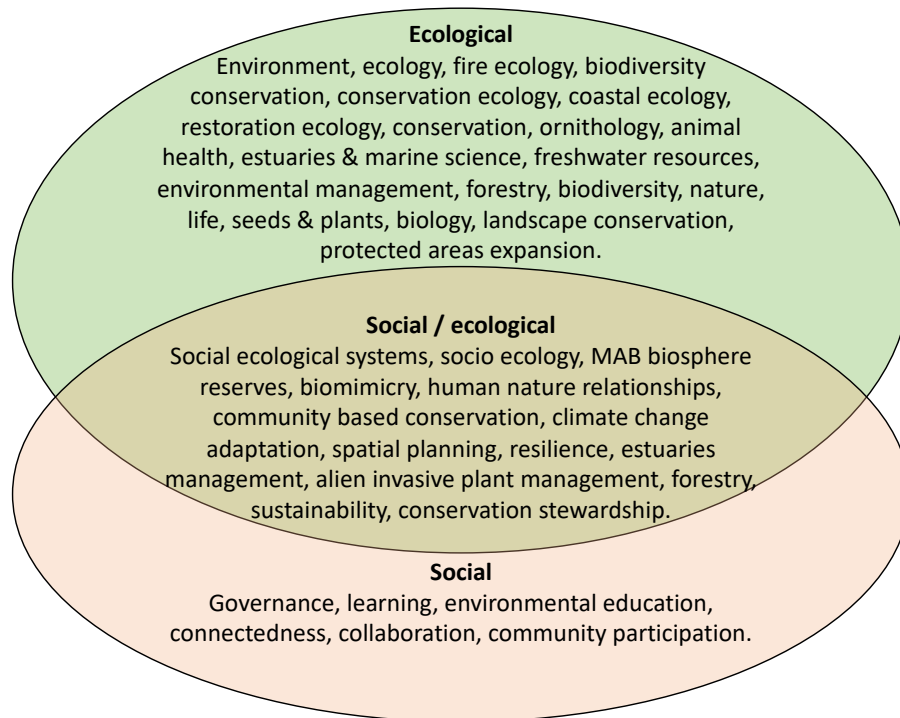


Figure 2. Participant interests categorised as ecological, social ecological or social

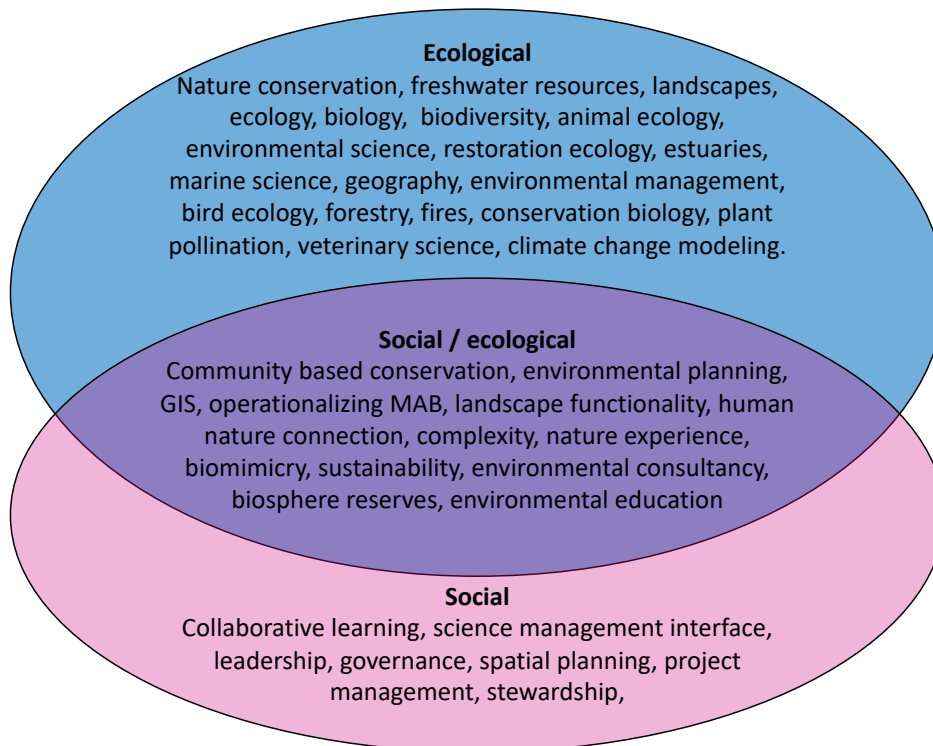


Figure 3. Participant expertise categorised as ecological, social ecological and social.

During the plenary discussion the lack of widespread government representation was highlighted, as was the lack of the business sector. In further engagements greater effort to gain participation from local and district government representative is needed. Several participants stated that government officials don't have the capacity to attend and it would be pertinent to engage them on a one on one basis and take the engagement to them. Using other platforms and opportunities where the network engages with government officials such as catchment management and estuary forums was recommended. The education sector was also identified as missing. Stakeholders such as schools, local business chambers were suggested for specific targeting.

Method of engagement

The programme for the workshop began with four presentations to set the scene for engagement

- **Mr. Errol Finkelstein, the chairman of the Western Cape Biosphere Reserves Forum** spoke on the social and ecological challenges in the Western Cape and expressed the research needs of the Western Cape biosphere reserves.
- **Mr. Johan West** launched the **Western Cape UNESCO Biosphere Research Portal**, a project of the Western Cape Biosphere Reserves Forum. The portal providing an open access data repository for research outputs and other information related to biosphere reserves in the Western Cape.
- **Dr. Bianca Currie from the Sustainability Research Unit** contextualized biosphere reserves as complex social-ecological systems (SES) and provided an introduction to SES frameworks and the need for long term inter- and trans-disciplinary research in and on biosphere reserves.
- **Prof. Herve Fritz from the Sustainability Research Unit and the French CNRS** presented on the needs and opportunities for long term SES research.

The presentations set the scene for important dialogues focused on developing a research network and a agenda for the Western Cape biosphere reserves.

When registering participants were asked to list their interests and expertise on a registration card. These cards were used to categorize small group dialogue tables according to areas of interest. Participants were asked to move to the table with the interest that most resonated with them. The interests used to initially group individuals included:

1. Landscapes and connectivity
2. Water and coast
3. Growth and biodiversity
4. Learning and innovation
5. Monitoring and evaluation
6. Risks and changes

Dialogues

The important dialogues that took place during the workshop were designed using a social learning method of engagement. In brief the method involves, interacting and engaging with a diversity of stakeholders holding different knowledge types so as to draw on the collective intelligence of the group involved in dialogue. The small groups engage in open and honest authentic dialogue. In their engagement the individuals in the group reflect on their past experiences and contributed their views and opinions, learning from each other while trying to understand perspectives other than their own. Participants go on to integrate a diversity of knowledge types, views, values and opinions with the aim of collaborating and co-creating plans for a way forward.



- **Dialogue 1 (Reflection)** - The first dialogue was designed to facilitate reflection on the challenges and experiences faced on the ground by managers and practitioners. The question posed to the small group was “What are the challenges and opportunities for achieving biosphere reserve goals?”
- **Dialogue 2 (Co – creating networks and interlinkages)** - Dialogue 2 was designed to facilitate the identification of interlinkages and synergies and begin the formulation of small group networks. Participants were asked three questions to prompt the discussions, namely 1) How can working in a network help to overcome challenges and create new opportunities? 2) Where are the interlinkages? And 3) What are the challenges with working in networks?
- **Dialogue 3 (Co-creating themes and questions)** – In dialogue 3 participants remained in their areas of interest and were asked to develop multi/inter/trans-disciplinary research themes. Dialogue 3 occurred just before lunch. After lunch the tables were categorized in terms of the research themes.
- **Dialogue 4 (Co-creating a plan for implementation)** – The final dialogue was designed to consolidate the networks according to the themes that emerged in dialogue three. Participants were asked how networks help create a feedback loop between research and practice to achieve biosphere reserve goals?

Feedback from each dialogue were provided after dialogue 2 and 4. A plenary discussion also took place to give participants the final word on any issues.

Outcomes

With the use of a Wordle images and an inductive content analysis using Atlas ti software the dominant outcomes of the dialogues were synthesized and are presented in this section.

Outcomes of Dialogue 1 (challenges and opportunities)

In Dialogue 1 participants were asked to discuss the challenges and opportunities biospheres face in terms of achieving the UNESCO goals for biosphere reserves. The Wordle figure (Figure 4) infers that more opportunities are seen than challenges especially related to research social engagement and knowledge development, as well as government land use planning.

Table 1. Challenges faced in achieving the goals of biosphere reserves.

Challenges	Frequency count
Land use (development, overpopulation, access and equity, extralimital & IAPs)	16
Lack of participation (esp. Govt) & communication (difficulties at multi scales)	13
Landscape scale connectedness and strategic alignment (governance and management, goals, human nature connectedness & reconciliation)	10
Water management (quality and quantity)	8
Financial sustainability (budgets & funding)	6
Data (lack of, generation and sharing)	4
Working in isolation of one another (silos)	3
Conservation of biodiversity	2
Fire, fuel loads, biomass	2
Lack of teaching and learning opportunities	2
Sustainable livelihoods and practices	2

In terms of the opportunities biosphere reserves offer, participants in the workshop identified many. The most frequently mentioned included the opportunity for learning and knowledge sharing and the opportunities for collaborations, partnerships and networks. Biospheres are seen as an ideal structure for collaborative learning and a vehicle for socio economic development. Including citizens and local and indigenous knowledge through research also featured as an opportunity in biosphere reserves.

Table 2. The opportunities biosphere reserves offer in achieving biosphere goals.

Opportunity	Frequency count
Learning and sharing knowledge (also using technology for communicating and learning)	12
Collaboration, partnerships, relationships & networks	9
Socio Economic development (business development, job creation, Green economy, sustainable livelihoods)	4
Inclusion of Indigenous knowledge	3
Influence municipal planning and management (SDFs & IDPs)	3
Research (Action research, project based)	3
Citizen Science	2
Data sharing (long term data sets)	2
Enthusiasm and volunteerism	2
Funding	2
Monitoring, evaluation and reporting	2
Unique biodiversity	2

Outcomes of Dialogue 2 (Network challenges and opportunities)

In Dialogue 2 participants were asked 1) How can working in a network help to overcome challenges and create new opportunities? 2) Where are the interlinkages? And 3) What are the challenges with working in networks? From the Wordle Figure (Figure 5.) illustrates that people connecting and sharing dominated as terms mentioned in the conversations.



Figure 5. Wordle illustrating the frequency of words used in Dialogue 2 about the challenges networks present in achieving biosphere reserve goals

Through the content analysis of the text which was captured during Dialogue 2, the participation and buy-in, especially from disadvantaged communities and local government, including issues around competition and power sharing appears to be the greatest challenges mentioned in relation to networks. Co-ordination, governance and representivity in networks also emerged as dominant challenges.

Table 3. Challenges related to networks in achieving biosphere goals.

Challenges	Frequency count
Participation & buy-in (poor communities, municipalities)	9
Competition and territoriality and power sharing (Silos & Egos)	8
Network coordination, representivity & governance, communication at multiple levels and scales	5
Clashing interests	2
Funding	2

In terms of the opportunities networks offer, learning and sharing and collaboration were most frequently mentioned. Networks can create new opportunities for applied research and the inclusion of a diversity of knowledge types. Networks were also seen as a means to improve efficiency by reducing duplication and being more responsive and adaptive in the context of ongoing change.

Table 4. The opportunities networks present in achieving biosphere reserve goals.

Opportunities networks present	Frequency count
Learning & sharing (frameworks, resources, knowledge)	19
Working together (partnerships), align efforts and operating at multiple levels and scales, (breaking down silos)	17
Applied research and Inclusion of a diversity of knowledge (esp. indigenous) & skills	9
Efficiency (reducing duplication, being more responsive and adaptive)	6
Capitalising on technology	5

Outcomes of Dialogue 3 (Co-creating themes and questions)

Participants were asked to develop multi-/inter-/trans-disciplinary research themes for the coordination of a research agenda for the Western Cape biosphere reserves.



Figure 6. Wordle illustrating the frequency of words emanating from Dialogue 3 designed to elicit research themes for biosphere reserves

Participants felt that research taking place within the Western Cape biosphere reserves should be of an applied and place-based nature. They emphasized the need for participatory methods of research for creating an enabling environment for knowledge co-production. Participants also discussed how research in the biosphere reserves should be outcomes based and skills orientated.

Participants also discussed the need for common frameworks and goals and the development of best practice guidelines. In teasing out the themes for research that emerged from Dialogue 3, human nature connectedness featured most strongly in the discussions followed by socio-economic opportunities, entrepreneurship and the green economy. Monitoring and evaluation, the development and of tools and frameworks as well as collaborative governance and organizational development and management also featured. See Table 5 For the full list of the themes that emerged from the dialogue with the corresponding research questions participants asked.

Table 5. Research themes and corresponding questions for biosphere reserves.

Research themes	Frequency count
<p>Human Nature connectedness (values, benefits and eco-system services, health and well-being, livelihoods)</p> <ul style="list-style-type: none"> • <i>How inter-dependent is the biosphere and people?</i> • <i>How to create conditions conducive to supporting livelihoods?</i> • <i>How do you value authenticity and unique skills?</i> • <i>Where are the disconnects?</i> • <i>What resources, skills, markets, opportunities and capacities are needed?</i> • <i>How do we create a unified value statement?</i> 	8
<p>Socio-economic opportunities and Entrepreneurship, the green economy (markets and products, consumer behaviour, cultural heritage,)</p> <ul style="list-style-type: none"> • <i>How to identify socio-economic job opportunities, empowerment and environmental benefits?</i> • <i>What are the socio-economic vs ecological trade-offs?</i> • <i>What rural development opportunities do biosphere reserves offer?</i> • <i>How can we unlock tourism opportunities?</i> • <i>How can we make better use of world heritage and biosphere reserve status for tourism?</i> 	6
Monitoring and Evaluation	4
Tools and Frameworks	3
<p>Collaborative governance and organisational development and management</p> <ul style="list-style-type: none"> • <i>How to overcome institutional challenges that create silos?</i> • <i>How can different institutions effectively connect?</i> • <i>What structure do we need for the networks?</i> • <i>How do we make linkages?</i> • <i>How do we put the networks together and who should be there?</i> • <i>What are the innovative ways to ensure financial sustainability in biosphere reserves?</i> • <i>What is the role of scenario work in supporting organisational development?</i> • <i>What are the leverage points for collaborative governance and new governance models?</i> • <i>How do we link with municipalities and municipal spatial planning?</i> 	3

<ul style="list-style-type: none"> • <i>How can the silos of government departments be broken down?</i> • <i>How do we promote and enable collaboration and communication between different government departments?</i> • <i>How can biospheres and local government and district municipalities engage with positive outcomes?</i> • <i>How can water forums communicate with communities?</i> • <i>What are the missing connections and where do we need redundancy?</i> 	
Education, learning (impact of environmental education programmes) & communication <ul style="list-style-type: none"> • <i>What are the ways of learning, experiencing and knowing?</i> • <i>How to adapt programmes from other disciplines – successfully implemented?</i> • <i>What are the messages that can make civil society care and reconnect to nature?</i> 	3
Community perceptions, needs and interests	2
Safe operating space <ul style="list-style-type: none"> • <i>What are the thresholds of potential concern?</i> • <i>What is the transformative change we face?</i> • <i>What thresholds of potential concern are we not considering?</i> • <i>What are the tipping points to inform spatial development frameworks?</i> 	1

Dialogue 4 (Co-creating a plan for implementation)

In the final dialogue participants were asked how networks can help create a feedback loop between research and practice to achieve biosphere reserve goals? The most commonly mentioned contribution networks can make to crossing the research practice divide is by being inclusive of a diversity of knowledge types. Some participants felt that the digital landscape and associated technologies can contribute to better communication between research and practice.

Table 6. The ways in which networks can help cross the research practice divide.

Networks contribution to the research practice interface	Frequency count
Inclusive diverse knowledge types (indigenous)	15
Technology & digital	3
Action oriented research	2
Create business opportunity	2
Knowledge, skills bank & network	2
Needs and gap analysis	2
Sharing knowledge	2
Two-way flow	2

Conclusion

The Western Cape Biosphere Reserve Research Workshop was a landmark event bringing together researchers, practitioners and interested parties from across biosphere reserves in the province. The workshop offered participants a chance to meet others in the field and elicited rich conversation through conversation and authentic dialogue about the challenges in achieving biosphere reserve goals and around the challenges and opportunities networks offer in meeting the goals. Having involved both

practitioners and researchers, the themes that emerged are user inspired. They are responsive to the challenges faced on the ground.

Apart from the land use challenges biosphere reserves face in terms of development pressures and alien invasive plants, the emergent research themes draw light on the difficulties practitioners face in governing biosphere reserves in the Western Cape. The outcomes of the workshop also highlighted the challenges faced in getting stakeholders involved and participating in networks. The themes provide a coordinated framework for research in and on biosphere reserves and marks the starting point for the development of a user inspired research agenda for the Western Cape biosphere reserves going forward.



NELSON MANDELA
UNIVERSITY

(Save the date / Expression of Interest)

31 August 2018

Nelson Mandela University, George Campus

Developing a social- ecological research agenda for Western Cape biosphere reserves

Workshop overview

Governing biosphere reserves means reconciling human activity, policies and technologies with the capacity of ecosystems and the biosphere to sustain life. This necessitates a better understanding of the complex feedbacks between political, economic, cultural and ecological processes. However, uncertainty and a lack of consolidated knowledge currently stifles holistic and premeditative decision-making in service of human well-being and environmental integrity.

Social-Ecological Systems science offers an approach to studying humans and nature as an integrated whole, to understand how values, beliefs and behaviors shape sustainable or unsustainable pathways. It is an inter- and transdisciplinary science, meaning that multiple sources of knowledge from professional, academic and public sectors are recognized, and incorporated in co-learning about adaptive and proactive solutions that would enhance the success of biosphere reserves.

The Sustainability Research Unit at Nelson Mandela University is hosting a one-day workshop targeting the development of a social-ecological research focus that will inform inter- and transdisciplinary research themes for the Western Cape biosphere reserves. Working at the interface of practice and research, the workshop will provide an introduction to the Social-Ecological Systems (SES) framework and the need for long term inter- and transdisciplinary research in and on biosphere reserves. The challenges and experiences faced on the ground by manager and practitioners' will be brought to light and will set the scene for important dialogues focused on asking the big questions that matter to us all.

Desired outcomes

The desired outcome of the workshop is to establish a Western Cape biosphere reserves network to formulate key inter-and transdisciplinary themes to guide and coordinate the research needs of biosphere reserves in the Western Cape. We wish to formulate a research focus that is impactful and responsive to the needs of practitioners on the ground. The particular outcomes anticipated for this workshop are:

- Knowledge of the principles and benefits of a social-ecological systems' approach to the governance of biosphere reserves
- Awareness of practical challenges in the governance of biosphere reserves
- Consensus about a research strategy that would assist practitioners and managers in decision-making
- Formulated research themes for the Western Cape biosphere reserves
- A network and community of practice that will continue to engage around research needs and outcomes in the Western Cape biosphere reserves.

Who should attend?

This workshop is designed for researchers and practitioners who work at the social-ecological interface in the Western Cape biosphere reserves and are tasked to align human activity and well-being with environmental protection. The workshop invites mainly, but not exclusively:

- Researchers and students working on or in biosphere reserves in the Western Cape
- Directors of biosphere reserves in the Western Cape
- Environmental NGOs operating within or working with Western Cape biosphere reserves
- Practitioners and managers of protected areas and biospheres in the Western Cape
- Citizen science groups within the Western Cape biosphere reserves

Contact

Please express your interest in attending the event and let us know of any special dietary requirement by sending an email by the **1st of August 2018** to:

Ms Luzanne Visagie
SRU Administrative Coordinator
Tel: 044 801 5127
Luzanne.visagie@mandela.ac.za

Please note seats are limited



Developing a social- ecological research agenda for Western Cape biosphere reserves

31 August 2018

Nelson Mandela University, George Campus, Main Hall

FINAL Program

Time	Event	Persons involved
08h30–08h50	Registration	Ms. Luzanne Visagie Sustainability Research Unit
08h50-09h00	Welcome and introduction	Dr. Bianca Currie Sustainability Research Unit
09h00–09h20	Presentation: Western Cape Biosphere Reserves Forum	Mr. Errol Finkelstein Western Cape Biosphere Reserves Forum
09h20–09h40	Presentation: Launch of the Western Cape UNESCO biosphere reserves research portal	Mr. Johan West Western Cape Biosphere Reserves Research Portal
09h40–10h00	Presentation: Using social ecological systems framework as a lens for research in biosphere reserves	Dr. Bianca Currie Sustainability Research Unit
10h00–10h20	Presentation: Long Term Social Ecological Research	Prof. Herve Fritz Sustainability Research Unit
Tea (10h20-10h50)		
10h50-11h00	Setting the scene for dialogues	Dr. Bianca Currie Sustainability Research Unit
11h00-13h00	Dialogues - Developing a social - ecological research agenda for Western Cape biosphere reserves	All participants
Lunch (13h00 – 14h00)		
14h00-14h40	Dialogues - Developing a social - ecological research agenda for Western Cape biosphere reserves	All participants
14h40-15h30	Plenary discussion – the way forward	Prof. Herve Fritz & Dr. Bianca Currie Sustainability Research Unit
End of day tea for further networking		