Future Africa - 1Hope Webinar: Transdisciplinarity and the Social Sciences

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Transdisciplinary research from an educational psychology perspective

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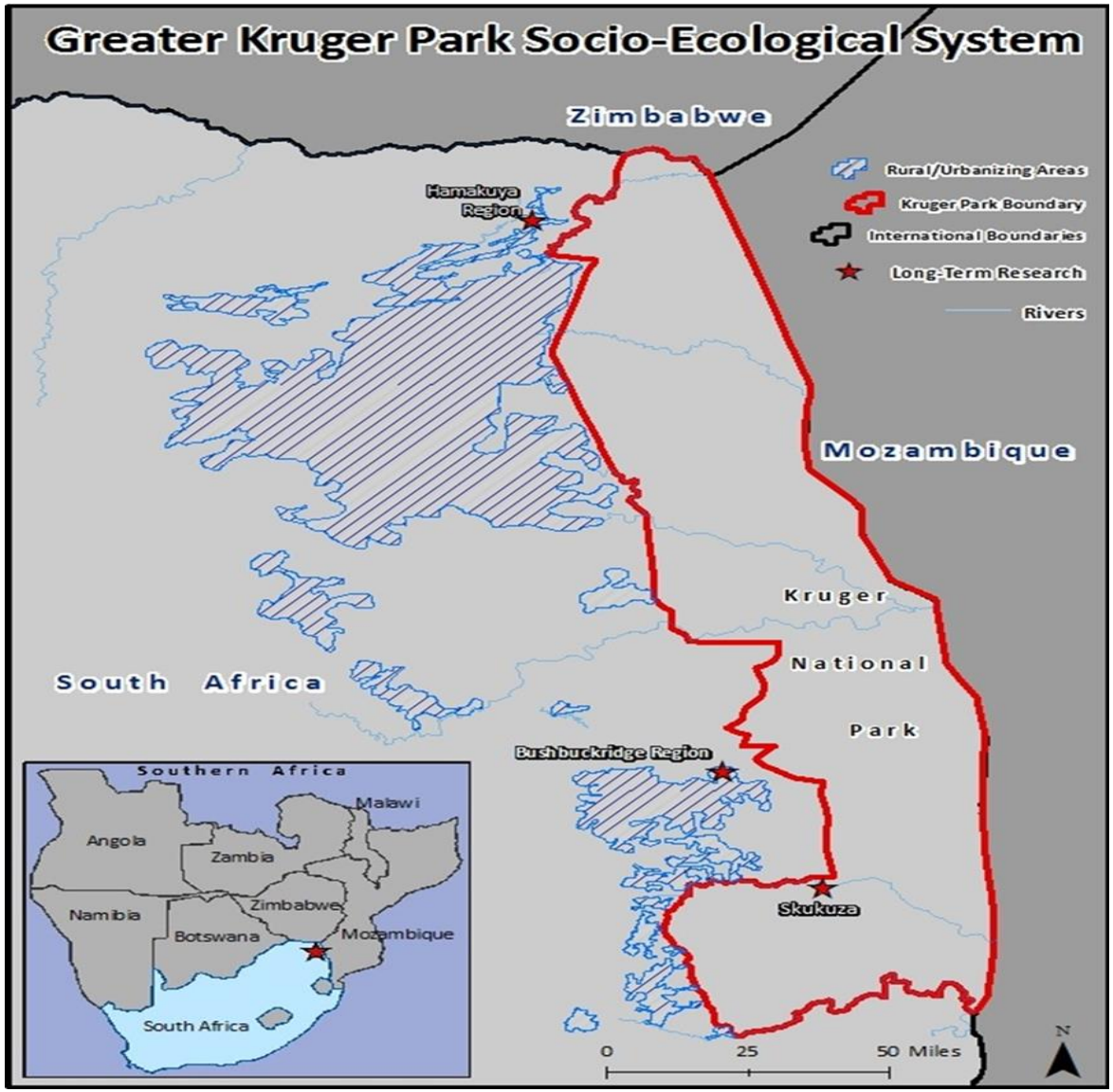
Question

- In what ways can early career research capacity be developed through transdisciplinary research and collaboration?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Hamakuya Region
Bushbuckridge Region
Skukuza
Rural/Urbanizing Areas
Kruger Park Boundary
International Boundaries
Long-Term Research
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An examination of how communities cope with and adapt to environmental challenges and analyses that support a conceptual understanding of socio-ecological resilience.

The focus for our research was HaMakuya, a set of 20 villages with an estimated total population of 9678, with 2054 households (DWA 2011) located in Mutale Local Municipality in the Vhembe District of Limpopo Province, which is situated near the South African borders of Zimbabwe and Mozambique.

HaMakuya is a region where traditional authority combines with new political structures and communal land tenure. Located in the former homeland of Venda.

The research was in three phases.

Phase A: problem framing and team building

- **Build a collaborative research team** – PIs assembled an interdisciplinary research team and facilitated connections to the local community

- **Create joint understanding and definition of the sustainability problem to be addressed** —The International Mentoring of Advanced Graduates for Interdisciplinary Excellence (IMAGINE) Project focused on a socio-ecological problem that was defined from the community's perspective. 2012/13—Water security became the primary focus once we took direction from the community. Beyond the integrative originality of the research, the science is more applied than theoretical

Water security – Livelihoods – Behaviour – Psychological wellbeing
Prevention of crisis – Promotion of health and wellbeing
Socially useful knowledge

Transdisciplinary Team

2 undergraduate students,

21 postgraduate students,

2 postdoctoral fellows

15 scientists from South Africa, the United States, and Canada.

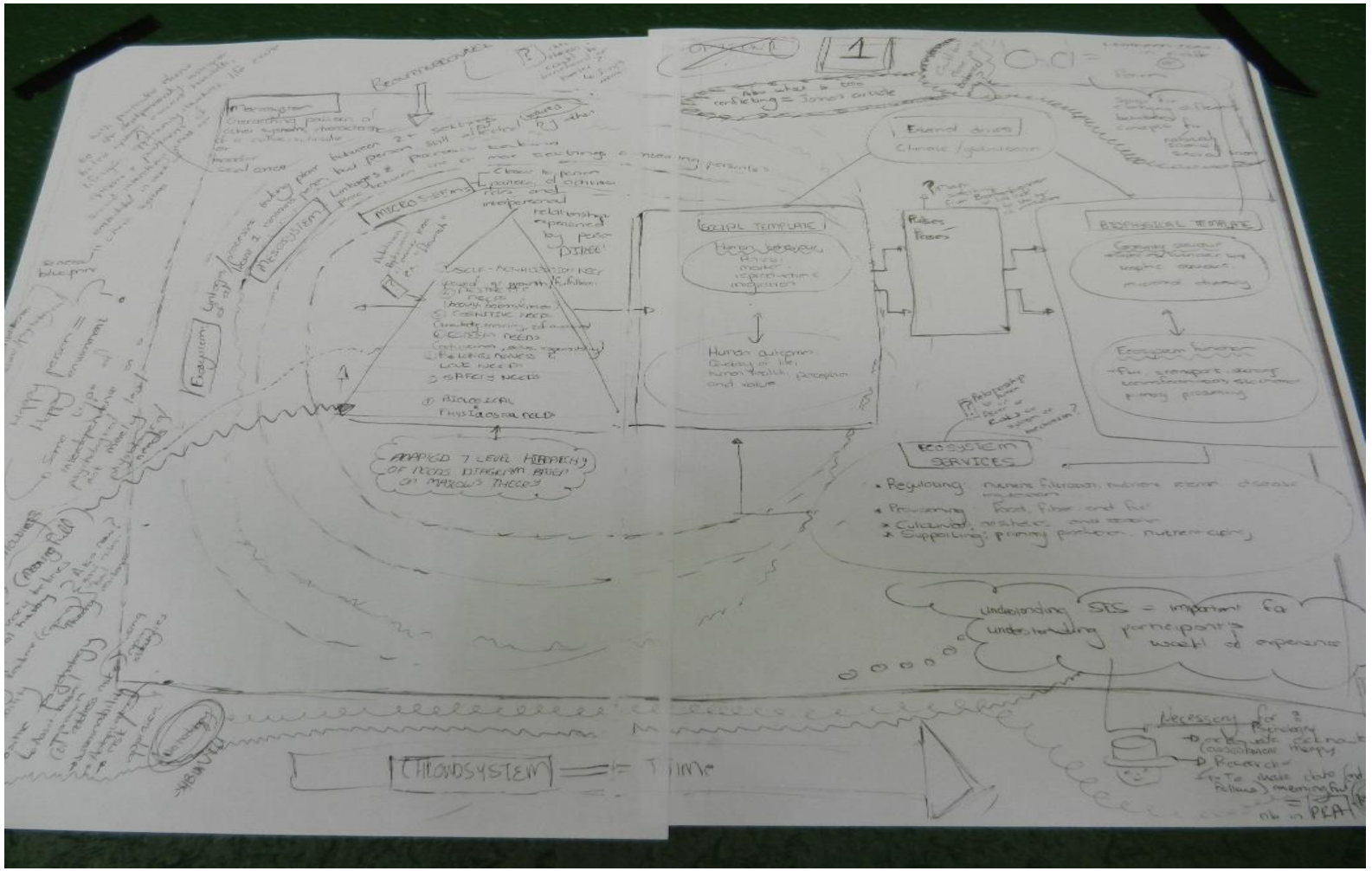
Multiple disciplines, including:

educational psychology, rural livelihoods, conservation and ecosystem ecology, cultural anthropology,

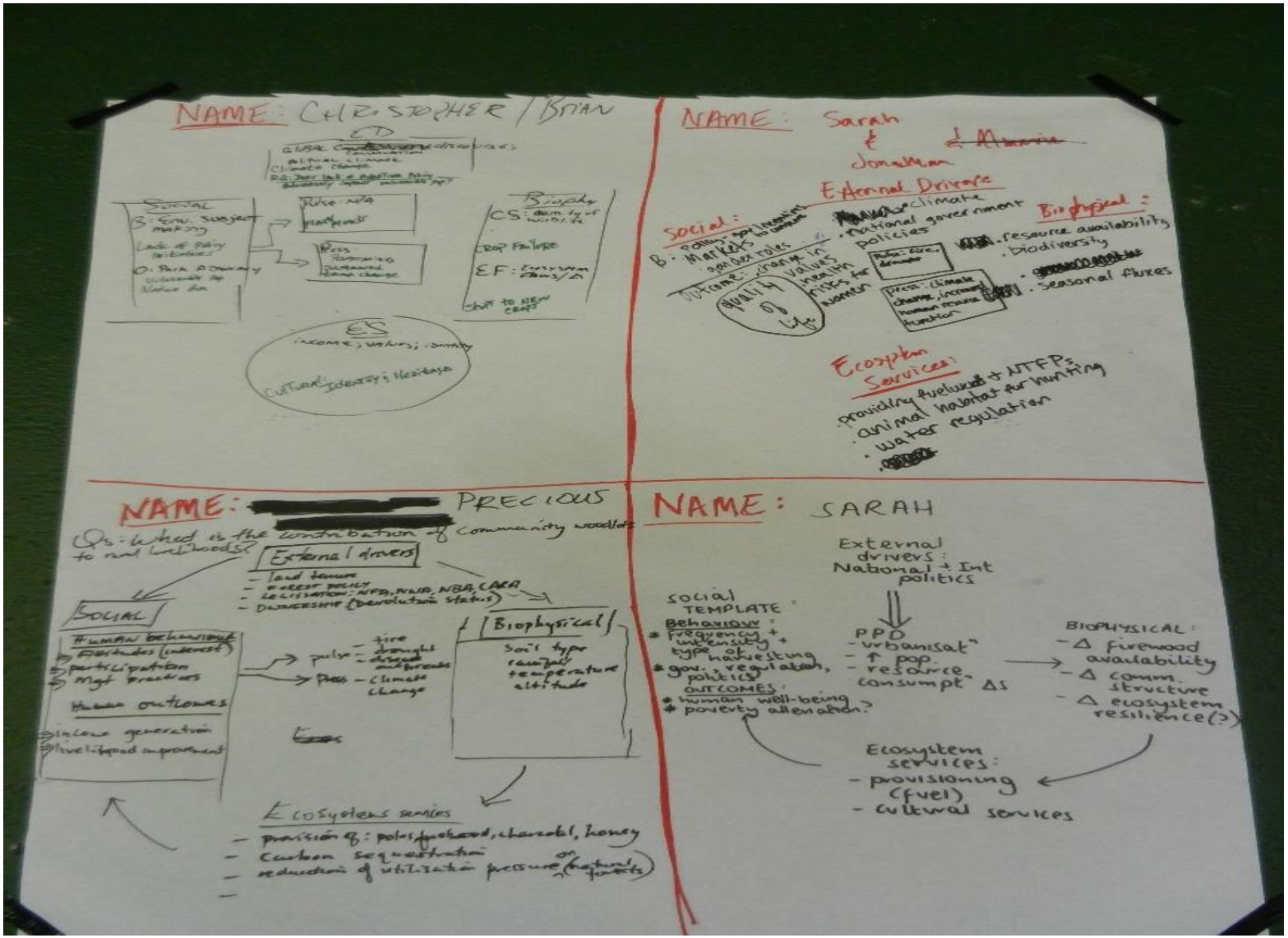
environmental history, environmental policy, hydrology,

environmental technology, political science and tourism studies

People – Place – Animals – Built environment



Photograph 1: conceptual map by social sciences graduate students



Photograph 2: Conceptual maps by natural sciences graduate students

- **Collaboratively defined the boundary/research object, research objectives as well as specific research questions and success criteria 2011**—Asset mapping was identified as a culturally appropriate boundary methodology to define the research problem from the community's perspective. 2012/13—Research questions and objectives shifted in response to learning from the community and iterative stages of data collection as we learned what worked and what did not in how to collect relevant data
- **Design a methodological framework for collaborative knowledge production and integration 2012/13**—A research design that capitalized on understanding community water quality, quantity and reliability aspects from a biophysical and social science perspective was created. We anticipated to triangulate on how the objective biophysical data matched local perceptions.

Phase B: Co-creation of solution-oriented transferable knowledge

- **Assign and support appropriate roles for practitioners and researchers 2012/13**—Biophysical scientists were tasked with conducting water quality and quantity studies. Social scientists were tasked with collecting perception data about water quality, quantity and availability. A local non-profit organization was engaged to facilitate interaction with the community. Community-based translators assisted in data collection while helping us communicate with local participants

- **Apply and adjust integrative research methods and transdisciplinary settings for knowledge generation and integration 2013**—We created greater alignment between sites where biophysical data were being collected and perception data were being collected. We needed to adjust for spatial and temporal challenges in data collection. We created the opportunity to hire and leverage community-based monitors to facilitate additional data collection opportunities

Phase C: re-integrating and applying the produced knowledge in both scientific and societal practice

- **Realize two-dimensional integration 2012/13**—We had numerous discussions about how to best integrate our data, the significance of the data and how it could be used effectively to deal with the water problems faced by the community and how it could be published

- **Generate targeted products for both parties 2013**—We developed a traffic light diagram, which served as a better communication tool for the researchers. In person meetings with simple descriptions of what we found were more effective ways to convey knowledge.

- **Evaluate scientific and societal impact** --This is an ongoing process.

- **Scientific impact is unclear.** Data was used to advance an argument for increased water storage capacity and inform decision making, as well as educate members of the community. Conveying results back to the individual villages has been delayed