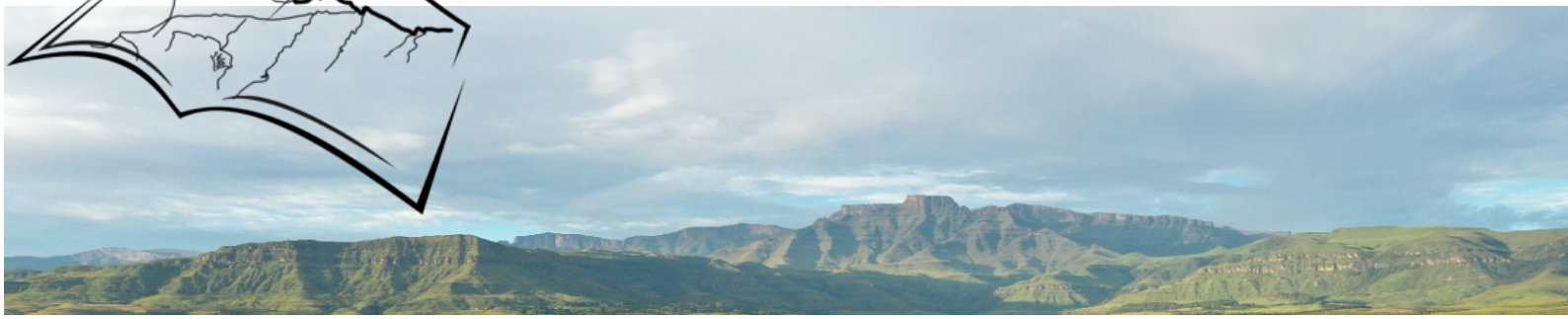

Maloti-Drakensberg Safeguarding and Preservation of the Dragon Heritage

Indaba and Workshop
11 to 14 December 2022

Maloti-Drakensberg
Safeguarding and Preservation of the Dragon Heritage

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Safeguarding and Preservation of the Dragon Heritage

Introduction

The project, "Maloti-Drakensberg, Safeguarding and Preservation of the Dragon Heritage", for which funding was kindly granted by the German Embassy Climate Fund, had as primary goal, "*To enhance the growth of an African-based research 'Community of Practice' of high excellence, to identify and develop solutions at the local level to contribute to the protection and preservation of the Maloti-Drakensberg*". In pursuit of this goal, it was important to identify key partners in academia, elected and traditional leaders, practitioners and local community members. In bringing influential representatives together in such a forum, the intent was to foster trust and develop capacity for sustainable solutions and capabilities, in terms of knowledge production through research, implementation on the ground of such knowledge, and a platform to inform policy and national goals within an African perspective.

The Workshop was held at the Champagne Sports Resort in KwaZulu-Natal from 12 to 14 December 2022, with 53 participants, from a very diverse range of stakeholder groupings. (See attached List of participants). The Workshop was preceded by a consultative meeting ('Indaba') with local community members and representatives of the Royal Households , held on 11 December 2022 in Phuthaditjhaba in the eastern Free State.

Executive Summary

In general, this workshop built on the successful first "Southern African Mountain Conference" organised back in March 2022 (https://www.samc2022.africa/). As was anticipated, this workshop would be a first step towards a longer-term initiative, and not an end in itself. At this stage, key deliverables are mostly intangible in the creation of strong networks going forward, and in presenting and promoting the achievements, use is made of platforms such as video footage and social media opportunities to spread the impact and the messages emanating from discussions. Continued collaboration between the members of the newly formed Community of Practice (CoP) is a primary outcome of the workshop, in which all parties agreed that there are gaps between research, implementation and policy, and that these gaps can only be bridged by breaking down walls between individual silos and continuing to engage on an ongoing basis.

It was encouraging to observe the broad willingness to participate and engage with real issues at grass roots level, with clear recognition of the informative role of research and the importance of strong and committed leadership, both traditional and elected.

Key take-aways can be summarised as follows:

1. Issues related to climate change and environmental challenges do not respect borders.
2. Acknowledgement of the long-term perspective initiated through this workshop to build trust among partners of the CoP, to initiate changes, and to see positive impacts of related activities.
3. Solutions proposed as result of research must be practical and be inclusive of local and indigenous knowledge, and recognise that indigenous knowledge is not only old, but continuously evolving.
4. Funding for research, implementation, education and restoration is paramount to all activities and all sources of such funding – local and international – must be identified to contribute to solutions.
5. For people on the ground, climate change exacerbates existing problems caused by poor land and water management practices, which in themselves were unsustainable. Addressing climate change alone will not solve the management shortcomings, nor the societal impacts thereof, inferring that a holistic approach is imperative.

6. Focus is required on strategies to counter and produce alternatives to the intuitive strategies implemented by communities, which include rural-urban migration and crime, leaving the vulnerable elderly and children at greatest risk.
7. The private sector is insufficiently involved, and some effort should go into educating downstream water users of the role of ecosystem goods and services and the importance of preserving and maintaining our water towers and soliciting financial support from the business sector.
8. Agriculture is the primary economic activity in mountainous areas and ill-informed practices contribute substantially to land degradation. Educating by practical means with due consideration of local knowledge and culture, should be devised to alter such practices to the benefit of both the environment and society.
9. Knowledge exchange must take place at all levels, amongst and between sectoral stakeholders, and across borders.
10. Stakeholders tend to have different mandates and the need to find common ground between such mandates is evident, but not without its own challenges.
11. Research is ongoing in communities on hydrology, changes in vegetation and alien invasives, societal impacts, soil erosion, fire management, waste management and others. Research would benefit from greater interdisciplinarity, in order to tack wicked problems holistically.
12. There is, however, a general need for better communication of research results to practitioners and local communities.

Clearly there is an enormous amount of detail and intricacies around each of the issues raised above, and there is no silver bullet solution to any one of these. The desired outcome is in ongoing engagement and keeping the newly-formed, multi-sectoral CoP active for as long as it takes to establish a large community of champions in each sector to change the culture in each: Academics to be more engaging and practical, traditional leaders to expand their practices and involvement with science, elected leaders to focus less on political role-playing and more on service and mitigation, and the community to take greater charge of their own futures with a long-term, sustainable view, looking after their children while still respecting their elders.

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Indaba

The Indaba was held at the Qwaqwa Campus of the University of the Free State on Sunday, 11 December 2022. This consultative discussion was organised in order to add a strong people's voice to the discussions of the Workshop. The 39 participants in the Indaba included representatives of the Bakoena and Botlokoa Royal Houses and Royal Councils, community group representatives, practitioners and researchers.

Participants who are directly involved with working with the communities (e.g. members of the Royal Households and Councils, community representatives, community workers and practitioners) engaged with the researchers and academics regarding what, in their views, were currently the most important issues. These included:

- Overstocking – leading to loss of biodiversity, soil erosion and run off– but some communities being resistant to changing animal husbandry practices
- The transboundary nature of the area resulted in complex levels of governance – shared international (Lesotho/South Africa) governance of the Maloti-Drakensberg, the South African system of Traditional Authorities and elected government, and the Lesotho chieftainship system.
- Water – exported from Lesotho to primarily the industrial areas of South Africa, resulting in limited water available in the Maloti-Drakensberg in both countries, with an increasing reliance on catchment and river water. As reported by Dr Lefulesele Lebesa *"I am from Lesotho and our gold is white, but there is no water in my house because it is being sent somewhere else."*
- Waste management.

In discussing solutions, a number of success stories were shared, notably from:

- Sissie Matela, co-founder of the NGO Environmental and Rural Solutions. Working with the chieftainship and headmen in the area, this group had achieved remarkable environmental recovery through managed grazing.
- Lefulesele Lebesa, on government-instituted programmes in Lesotho.
- Serero Modise, on environmental education programmes for local communities.

The participants recognised that development cannot simply be transplanted from one area to another. Complex relationships, histories, local roles and responsibilities and contexts need to be taken into account. However, we can learn from each other and from other mountain communities.

In looking for solutions it is critical to work with the local indigenous communities who are custodians to a wealth of indigenous knowledge, which is by its nature holistic. Communities are weary of researchers entering an area, collecting the data and disappearing. A circular approach to research is required, which makes a positive difference in the lives of affected communities, together with two-way continuous education and awareness building. Sustainable development requires sustainable relationship with communities.

In summary, the key points emerging from this unique, heterogenous indaba were:

- The transboundary nature of the Maloti-Drakensberg has its own complexities and challenges.
- Tangible solutions that are implementable.
- The importance of co-learning and co-sharing
- Education and awareness
- Clarity in terms of governance (roles and responsibilities)

In summing up the importance of the mountains to him, Chief Ntsane Mopeli of the Bakoena Royal House, presented a call to action and change – saying "When I am here near the mountain, I feel myself. Me and the mountain, we are one thing. If there's no water, there's no life. ***But we can talk until we are this short or this tall, but if we don't find solutions that can help us, it will be useless".***

The Indaba culminated with a celebration of the United Nations International Mountain Day, with a short video recorded at Witsieshoek Mountain Lodge, and distributed on various networks. Original plans to record the video on The Sentinel had to be changed due to inclement weather which made the helicopter flight impossible.

Keynote Addresses

The United Nations climate change regime: Implications for mountain regions **(Day 1)**
Mr Motsomi Maletjane, UN Climate Change Secretariat

Mr Maletjane outlined the key aims and functions of the United Nations Climate Change regime as they pertain to developing regions, which included strengthening multilateralism to tackle climate change and promoting low carbon climate resilient development. The UNFCCC support for developing country Parties includes a Financial Mechanism, a Technology Mechanism and Capacity Building to support developing countries and countries with economies in transition.

The climate change adaptation priorities in mountain regions include disaster risk management, energy security, food production and nutrition security, freshwater resources, human health, infrastructure, and terrestrial and wetland ecosystems. Addressing these issues would require systems approaches, regional cooperation and leveraging knowledge from all sources and in all its forms (scientific, local and indigenous).

Interactions Between Nature's Footprint and the Human Footprint in the Present and Future Hydrology of QwaQwa within the Maloti-Drakensberg Region **(Day 1)**
Prof Roland Schulze, Emeritus Professor, University of KwaZulu-Natal

Prof Schultze explained that hydrologists consider agricultural, residential, hydrological, industrial, degradational and infrastructural indicators. These indicators show that (i) considerable changes have occurred since the industrial revolution with CO_2 radiative forcing increasing by about 20% in the past 10 years, (ii) there are increased greenhouse gas emissions being measured in the atmosphere, and (iii) temperatures are rising. The assessment of Nature's Footprint (i.e. what Nature has provides us with, including properties of topography, soils, natural vegetation, climate and runoff) for Qwaqwa in terms of the projected impacts of climate change show that rainfall is predicted to increase, there will be increases in flows (due to increases in average rainfall), owing to increases in extreme events, there will be a considerable increase accumulated in sediments. Based on the model, the Human (or Anthropogenic) Footprint on water resources, now and into the future, can be significant. Actual land uses considerably increase local stormflow responses and local sediment yields; in both cases they are higher in areas actual land use than those with natural vegetation.

In summary, it appears that hydrological responses are moderately sensitive to Nature's Footprint via local climates but are very sensitive to Human Footprint via local land uses. Measuring land use impacts on water responses requires a fine spatial scale, but climate change complicates those hydro responses, but on a broader scale

Digitalization Of Oral Traditions For Promoting Mountain Biocultural And Spiritual Resource Diversity And Associated Indigenous Knowledge Systems For Climate Change Literacy And Action: The Case Of Establishment Of IKS-Based Oral Traditions Digital Libraries And Labs **(Day 2)**
Dr Mayashree Chinsamy, Research Manager: DSI/NRF Centre of Excellence in Indigenous Knowledge Systems, University of KwaZulu-Natal

Dr Chinsamy explained that the project aimed to advance sustainable community livelihoods, global social and epistemic justice, including the democracy of knowledge systems within the context of climate change literacy and action. Investment in indigenous mountain communities is critical for achieving the Sustainable

Development Goals (SDGs), and for implementing the Paris Agreement, the Convention on Biological Diversity (CBD) and the FAO Treaty on plant genetic resources for food and agriculture. The dominance of western science, which tends to separate biological from cultural and spiritual diversity, marginalizes the promotion of the symbiotic relationship between biocultural and spiritual resource diversity use and conservation discourse, as part of climate change literacy. The promotion of mountain ecosystems' biocultural and spiritual resource diversity including associated IKS, for climate change literacy and action, is not only about conserving species, genetic resources, and ecosystems, but also for sociocultural, spiritual-ecological processes that are highly gendered. Mountain ecosystems are an important part of the response to climate change mitigation because they sequester carbon, capture and store water. Therefore, sustainable community development efforts in mountain ecosystems must be aimed towards three interrelated goals, namely, (i) effective biocultural and spiritual resource diversity conservation and protection; (ii) addressing multiple needs of biocultural and spiritual resource diversity dependent cultural communities and social groups, especially women, girls, men, and children and; (iii) achieving socially inclusive and equitable development outcomes for these marginalized cultural communities and social groups, in these ecosystems.

Studies, across mountain cultures and ecosystems, within and outside Africa, reveal that in order to conserve fragile ecosystems such as mountain ecosystems, cultural communities around mountain ecosystems are increasingly recognizing the significance of interfacing indigenous and other knowledge and technology systems to meet increasing global challenges such as climate change, poverty and pandemics. AIIKS partner institutions have initiated the Establishment of IKS-based Oral Traditions Digital Libraries and Labs for Promoting the significance of Biocultural Diversity and Associated Indigenous Knowledge Systems Conservation for climate change literacy and action. This contributes to the mitigation of the marginalization of IKS in the global pool of knowledge, especially through the interface of digital technologies and oral traditions for promoting sustainable conservation of biocultural and spiritual resource diversity for climate change literacy and action.

Themed Sessions

The workshop programme was divided into the following themes:

- The Weather
- Water Resources, Ecology and Environment
- Land Use
- Human Life

Themes were briefly introduced by an expert and break-away groups, which were constituted differently for each session, discussed key issues.

DAY 1: 12 December

The Weather and Climate Risk

Introduced by Dr Mark Tadross, Climate System Analysis Group, University of Cape Town and Technical Advisor to UNDP on climate information and early warning systems.

Key points:

- The climate is an average of the weather. Climate is what we expect, weather is what we get.
- Risk is a measure of the likelihood and severity of the impact on people, assets/livelihoods, infrastructure and emerges from the overlap of climate hazard(s), vulnerability and exposure.
- In managing the interactions of climate, environment and society, a systems approach is needed; you cannot deal with any one thing in isolation.
- The South African Weather Service (SAWS) uses a matrix to characterise the combination of likelihood and severity of the impact.
- Predictions for eastern South Africa:
  - Increase in maximum and minimum temperatures
  - Decrease in annual rainfall, though with potential increases during summer
  - Increases in maximum rainfall during summer
  - Increases in heatwaves
- How can we reduce risks to climate (variability and change)?:
  - Hazards: Which climate/hazard thresholds are important?
    - Heat tolerance for livestock (maximum temperatures)
    - Chill units for fruit (minimum temperatures)
    - Health and productivity of people and farmworkers (temperature)
    - Flooding and siltation (intense rainfall)
    - Land/mud slides (intense rainfall)
    - Changes in snow cover (precipitation and temperature)
  - Reduce exposure: Where people and systems are increasingly exposed
    - Building on floodplains
    - Overgrazing and overstocking
    - Cropping on steep slopes
  - Reduce vulnerability: How can vulnerability to climate hazards be reduced?
    - Shaded areas for livestock
    - Stabilising vegetation along water courses
    - Terraced cropping, managed runoff

- Developing alternative livelihoods and income

Four randomly selected breakaway groups were formed, to address a topic of their choice arising from the presentation. The following is a summary of the feedback.

- **Availability of water** is a key area of concern with clear reduction in water flow and springs dry for the first time in living memory. This results in a reduction of water quality, livestock have to travel further for water, and rangeland stress leads to conflict and stock theft. Mitigation strategies should include livestock breed selection, use of wildlife species, feedlotting and reassessing cultural practices, include veterinary services. Give people a basket of options depending on individual and local circumstances.
- **Livestock ownership and management** is a complicated issue, with strong top-down management. Overgrazing in the highlands causes erosion, downstream sedimentation and reduced water quality. Changes in the composition of vegetation, including invasive species, reduces grazing capacity. Due to urbanisation, the owners of livestock live in towns and not where their animals are grazing. This is left to paid herders who lack the incentives and the knowledge to implement conservation practices. This is not only an economic question but a cultural one and the solutions must include changing the mindset of people to become custodians of the land. Due to the topography, there are limited alternatives.
- **Human settlements** in and around wetlands are at increasing risk of flooding. People living in floodplains are aware of their vulnerability but are prepared to take the risk. Rural housing is not adequate, including human waste management, placing households at risk leading to greater disease risk. Land allocation by traditional leaders is often in inappropriate areas leading to increased runoff and hazards. Risk can be reduced by ensuring safe land is available, proper spatial planning and creating greater awareness. Importantly there needs to be honest collaboration between chiefs and councils in the interest of communities with decisions based on long-term understanding of trends.
- **Soil erosion** is caused by a combination of land management practices, infrastructure destruction, mining and climate changes (dry riverbeds and loss of wetland capacity). This results in loss of agricultural land, which impacts food security. Solutions could include planting of trees (fruit and indigenous) in suitable climatic belts, intercropping, innovative conservation agricultural practices, better governance and integrated planning and a better understanding by authorities of the interaction and interdependence of economics and the environment.
- "*Continue to think what you think, and you will have what you have today*."

DAY 2: 13 December

Day 2 of the workshop introduced a departure from the initial programme as it was clear that the different representative groups needed to discuss and communicate the issues that they are most concerned about, so that each group could have a view of the other's perspectives. These homogenous groups were tasked to identify the priority problems and actions required and how other groups within the Community of Practice could/should assist them.

Stakeholder Group Perspectives

Community

Community representatives raised the following key points:

- A holistic approach is required to address both community development and environmental management.

- Stakeholders need to engage in multi-stakeholder platforms with a holistic view of the issues at hand. More social/informal engagements are needed as it is easier to share in such situations than in formal sessions.
- Issues on the ground relate to access to water for living and producing agricultural products, provision of basic waste and sanitation services, and shortages of rangeland.
- Community-based solutions require leadership development, different skill sets, organisational structures, capital, knowledge exchange at all levels. Leadership is not only traditional and elected, but there are leaders in smaller interest groups that could play a part as champions for change.
- The message to researchers is that knowledge is multi-dimensional and intertwined with the community and does not only relate to theoretical questions considered important by scientists themselves. Knowledge needs to get back to the communities from whence it was collected, and not to disappear into journals. Research teams tackling community-related issues must be multi-disciplinary (including both natural and social scientists) and involve the community from the start.
- Integrate different knowledge systems, working from what the community have and know
- More discussions are required between project participants to understand the different roles of researchers, educators, funders and leaders. Each has a different mandate, and each should be respectful of each other's mandate. Lines need to be blurred and healthy relationships need to develop.
- Funding is required to support a wide range of actions to upskill and provide life trajectories.

Academics and Researchers

As they were a very large group, the academics and researchers were split into two groups. Their combined inputs are summarised below.

- There are a number of obstacles to collaboration:
  - Currently there are two silos – South Africa and Lesotho with multiple other silos within those.
  - Different funding cycles and timescales
  - Sharing of data and data availability across institutions and disciplines
- Access to and building long-term relationships with communities is complex due to language and cultural barriers, and territoriality. There is also fatigue in communities with repeated, similar interventions by different research groups.
- Priority to flatten silos and academic boundaries and understand what is critical to the people on the ground.
- To address collaborative barriers
  - Develop a research agenda to bring all stakeholders together, addressing priority areas such as:
    - Water quantity and quality
    - Mountain agriculture
    - Mountain livelihoods – especially communal areas. How they live, what are their assets, how do they survive
    - Ecosystems - integrity and services
    - Land management, degradation, erosion, soil health (especially Lesotho)
    - Extreme climate events
    - Mining
  - Develop and maintain an online database of researchers active in the Maloti-Drakensberg (use SAMC as a starting point)
  - Develop an open source/shared data centre of data sets and publications.
  - A large body of knowledge already exists (including 30 years of research outputs from MDTP and LHDA) and should be accessed and used to develop research proposals and solicit funding

  - There needs to be transboundary regulations to make research across border more accessible and collaborative and politicians should put measures in place to make mountain management possible as a single non-boundary system.
- To strengthen connections with communities:
  - Develop training material for researchers as a baseline, but recognising that communities are not homogenous, and each community has its own context.
  - Share success stories
  - Participatory planning
  - Include indigenous knowledge (IK) and practices
- Immediate action should be taken to activate the Lesotho Highland Development Authority (LHDA) Consortium (a partnership between the LHDA, University of the Free State [UFS] and the National University of Lesotho[NUL]) , develop proposals, engage with the community even if it is non-research but implementation related.
- A Community of Practice should not only include academics and communities, but also political players (to address political gridlocks) and the private sector.

Elected Leaders

This group was made up of representatives of government departments and government-funded entities. They identified the priority problems as being the lack of political will, lack of policy enforcement, lack of capacity, a lack of broader stakeholder involvement and a continued 'silo' approach among government departments, characterised by lack of collaboration. Meeting these challenges requires:

- an effective stakeholder engagement strategy for how government should engage with other stakeholders.
- Recognising that community engagement is a multi-layered process, and mobilising resources to facilitate/host these processes.
- Change the way research gets done – more transdisciplinary research with involvement of non-academics, and co-designing projects with communities. Proposals should include stakeholder and community engagement activities
- More robust advocacy and awareness strategies
- Accountability of elected leadership
- For all parties, working with the community cannot be a box-ticking exercise. There has to be will and commitment from all sides.

Traditional Leaders

Participants in this group raised the following issues:

- There is a dire need for academia to share their knowledge and in a manner that is useful and implementable to communities, also for them to take local knowledge into account.
- Enablers should devise mechanisms to incentivise participation by the community by practical and tangible means.
- All levels of the community should be involved.
- Practically demonstrate benefits of following particular advice
- Stock theft is seen as a major challenge
- Cultural transfer of knowledge has been lost which necessitates more collective community engagement of academics, leaders and funders.
- Return of teaching indigenous knowledge in schools would be of benefit
- Traditional leaders recognise that climate change is a reality, and all are called to contribute towards solutions.

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The morning session of Day 2 was considered to be a breakthrough session for the Workshop in terms of getting a holistic understanding of the priorities from homogenous groupings and forming the basis for building a strong Community of Practice. This shared understanding was taken into subsequent sessions, where, as on the previous day, groups were randomly selected across all types of participants.

Environment, Ecology and Water (Sessions combined)

Dr Ralph Clark (Afromontane Research Unit) Dr Sonja Krüger (Ezemvelo-KZN Wildlife) and Dr Michele Toucher (SAEON) presented on the Maloti-Drakensberg – Environment, Ecology and Water.

- Key characteristic features of the Maloti-Drakensberg include:
  - It is the only Alpine area south of Mt Kilimanjaro
  - It is the centre of plant and animal endemism with more than 200 endemic plants.
  - It is a primary grassland with important montane forest pockets.
  - It is a stronghold of many threatened species, with high levels of native fauna extinction across the system.
  - It is the primary water tower for southern Africa, supplying 30 million people across four countries.
  - It includes major UN/UNESCO-recognised and RAMSAR conservation areas
  - There is complex landform-atmosphere interaction
- In terms of water resources:
  - There are clear changes in the nature of rainfall -overall less with greater daily rainfall.
  - Only 9% of our rainfall ends in rivers – a large proportion lost to evapotransportation and run off.
  - Any impact on mountain land impacts strategic water sources.
  - 50% of our water is produced from 9.8% of the land area of the sub-continent. Yet only 11% of the Southern and 10% of the Northern Drakensberg is protected.
  - Restoration for ecosystem resilience requires that carbon, biodiversity and water must be linked with social impact.
  - There is a mismatch between water governance and water management where the easiest short-term solution is often preferred, rather than the right solution.
  - A sustainable and enabling environment is required with good outcomes and good intentions.
  - Water is becoming an increasingly scarce resource in increasingly high demand, making the need for hydrological data very important. Unfortunately, data required to ground truth is not available due to declining national networks and field-based studies.
- In terms of ecosystems:
  - Sehlabathebe is the largest protected site with climate change as part of the plan as mandated by the World Heritage Commission.
  - Potential responses to climate change of 5 538 species in the Drakensberg region (uKhahlamba Drakensberg Park) were assessed as part of the Stratospheric Processes and their Role in Climate (SPARC) project. They found that:
    - Few species (primarily plants) are predicted to no longer find climatically suitable areas as increasing temperature leaves some species with nowhere to go.
    - The Park is expected to experience 25% change in vegetation composition – as a result of a shift from grassy to woody.
    - Potential changes between C4 and C3 grasslands
  - Key anticipated impacts included reasonably dramatic vegetation transformations, changes in fire patterns and behaviour, marked impact on hydrological functioning and intensified direct human threats and impacts.

- In terms of species distributions there is expected to be an increase in alien invasives and human wildlife conflict.
- Pure Afromontane forests are diminishing; the only new areas are in riparian areas where there is a good water supply.

The four breakaway groups discussed selected issues from the presentations:

- Monitoring Plan
  - Different types of monitoring are needed by different people
  - Need long term datasets (on infrastructure, skills, vegetation change, income sources, human-vegetation interaction, land use, emerging aliens, soil erosion, soil organic carbon, water [quantity and quality]) to provide clarity and inform decisions.
  - Hydrological and meteorological long-term monitoring is ongoing at government level.
  - Several other programmes in place – some ad hoc and others on which there has been no consultation and little information forthcoming.
  - Infrastructure and funds required for continuation of various long term monitoring activities.
  - Several comments referred to the need to collect data of several change indicators and for its documentation in ways it can be used.
  - There seems to be a lack of public domain data and existing data is not sufficiently centralised as to be usefully accessible.
  - Citizen science programmes can play an important role – focusing on schools and high school graduates
    - Consider various variables
    - Use photographs, mobile phone apps
    - Make payments through data purchase
    - Develop a combined sharing platform (such as iNaturalist, SANBI)
    - Information can be used for research management
  - Legacy data on climatic variables is very important for mountainous areas. Some legacy data is available but others not. Institutions, such as WRC, should make data available as open-source raw data.
  - Open access platform needed – which includes MDTP, NUL and LHDA datasets.
  - Lack of connectivity at high altitudes makes deployment of new IoT technology impossible.
  - Capture photographs for monitoring, using drone technology, and select photo sites and track long-term.
  - Participatory processes are important
  - Need to factor in community knowledge – empowering communities to come up with solutions

- Governance and Management
  - In general, legislation is considered to be quite good but conflicts between different laws and Lesotho/South Africa governments need to be harmonised; however, in some cases there is no harmony in legislation.
  - Many decisions are imposed on communities without input from traditional authorities. There has to be communication between chiefs and councillors with the intent of dealing with climate response measures.
  - There is conflict and lack of cooperation between tribal and political authority
  - There is a need for intermediary/second opinion in advisory role.
  - Municipalities should be included.

  - A sustainable and enabling support model is required for an improved decision-making process, co-management between private and communal tenure, and resource management (for rangeland, medicinal plants, grass harvesting, spiritualism).
  - Tribal power should be restored and resourced.
  - Participatory processes are governed through traditional leadership (communal land tenure system).
  - The interface between private and communal land must be taken into account.

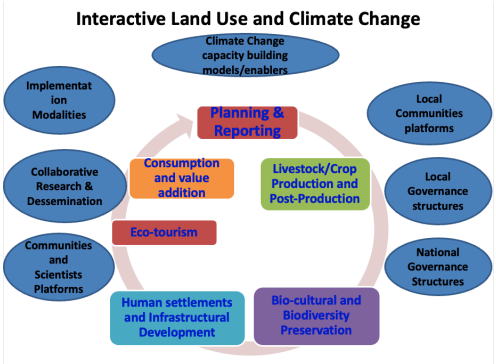
- Land restoration
  - Land restoration is needed to reduce transpiration
  - Introduce low transpiration plans and crops
  - Need to manage fire
  - Need feedback from research to inform actions
  - Make information accessible and relevant

DAY 3: 14 December

Land Use

Dr Lefulesele Lebesa, Director of Agricultural Research in the Lesotho Ministry of Agriculture and Food Security, introduced the theme on Land Use, with a presentation on 'Innovation Systems Approach to Land Use for Climate Change Resilience'.

- Land use in mountainous areas in Lesotho is primarily for Agriculture
  - Mainly smallholder farming, often with mixed farming
  - Crop farming is generally rain-fed, thus suffers with changing weather patterns
  - Small stock farming has advanced through exports of wool and mohair
  - Currently pursing agriculture diversification by introducing alternative crops, reliable irrigation schemes, upscaling and introducing appropriate animal breeds
  - Need to build local technical support capacity
- Wetlands are used for grazing, watering livestock, crop production and human settlements
- Harvesting of water and gravity irrigation is implemented
- Harvesting of biodiversity for medicinal and energy purposes has an impact
- Reclaiming of degraded lands is taking place
- Policy initiatives are linked with Sustainable Development Goals – viz. National Strategic Development Plan, Food Security policy. However, there is insufficient specific emphasis on mountains.
- Collaborative research and development efforts between Lesotho and South Africa based on shared resources in terms of mountain preservation and resilience to climate change, should build on existing strategic national and international instruments.
  - Tap on SA vast knowledge and experiences
  - Combine with the already existing and traditional energy through a joint venture leading to technically, environmentally and socio-economically desirable results
  - Introduce and develop strategic partnerships where key players are mobilised in the Integrated Catchment and value chain approach to benefit both countries
  - Explore opportunities for empowering communities and different groups including women, disabled and young farmers.



- By way of illustration, Dr Lebesa played a clip illustrating the work of ReNOKA, an Integrated Catchment Management movement consisting of a network of critical agents dedicated to conserving the natural resources of Lesotho and the wider Orange-Senqu River Basin as a whole.

Human Life

Prof Resetselemang Leduka, Department of Geography and Environmental Science, National University of Lesotho introduced the topic with a presentation titled 'Mountain Ecosystem Services, People and Institutions'. The key points were:

- Mountain populations in Africa are characterised by:
  - 50% of African mountain population are poverty-stricken.
  - Declining livelihood opportunities due to climate change and unsustainable land use practices and increasing reliance on non-agricultural income generating activities.
  - Depopulation from permanent and circulatory migration of especially young and able-bodied persons, with an increased burden on the elderly and young children.
  - Increasing reliance on remittances from outside the region, including state cash-transfers (e.g., old-age pensions, disability grants, child support grants, etc.).
  - Land grabbing (by marijuana and global food producing companies].
  - Increasing livestock theft.
  - Economic leakages.
- Mountains provide a variety of critical ecosystem services
  - Many African people depend on provisioning ecosystem services for wood for food and fodder, fresh water, fibre, timber, natural medicines, etc.
  - Resources are also collected for sale to supplement household income, some of which are harvested unsustainably and sold outside Lesotho
  - The Millennium Ecosystem Assessment (MA) estimates are that more than 60% of global ecosystem services have been degraded or transformed by anthropogenic activities and climate change
- Mountain people are beneficiaries as well as active managers of the ecosystems that they depend on. They are important actors with significant agency.
- By creating appropriate institutions and governance (property rights) regimes, mountain ecosystem services can be reconfigured to become important and sustainable livelihood assets for mountain populations.
- Questions that arise are: Where do mountains as resource pools fall – South Africa or Lesotho? Which property rights regime(s) should we consider as appropriate for managing mountain resources and why?

Prof Leduka presented the following typology of economic goods and assignment of property rights (adapted from Adams & McCormick, 1987):

		EXCLUSION	
		FEASIBLE (Excludable)	**NOT FEASIBLE (non-excludable)**
CONSUMPTION	**RIVALROUS** **(deductible)**	**1 <u>Private goods</u>** (market provision) **PRIVATE OWNERSHIP**	**2 <u>Common Property Resources</u>** (CPRs) • excessively harvested or depleted, • excessive congestion **MULTI-STAKEHOLDER PARTNERSHIPS (Public-Private-People Partnerships – PPPP)**
	NON-RIVALROUS **(Non-deductible)**	**3 <u>Public goods [Club goods]</u>** Classic case of private provision of public goods to club members; non-payers are excluded; Marketable **PUBLIC-PRIVATE PARTNERSHIPS (PPP)**	**4 <u>Public goods</u>** [Open Access Resources] • Non-marketable • Over-use • Free-riders **PUBLIC OWNERSHIP**

Final Feedback

The four breakaway groups were charged with discussing ways in which this Community of Practice could contribute solutions to the problems highlighted in terms of Land use and Human life.

Final break-away feedback included affirmation that continuous engagement through available and new platforms is crucial in the success of the CoP. Such engagement should not exclude community groups even if they are scientific in nature. An inclusive and holistic approach is mandatory for collaboration and successful research implementation.

A platform or grouping should be formed to bring stakeholders who work around mountain issues together and build a spider web of engagement, which identified priorities. This would require coordination.

Creative ways need to be found to share and make information available and also to translate scientific findings into practical benefits to society. Intellectual property (IP) rights should be borne in mind.

There are many different agendas – some are driven by available funding and others by the community. A middle ground needs to be found through participatory research, and CoP would be ideally placed to facilitate this process. These different agendas also impacted on feedback and evaluation of interventions and projects. Researchers have differing responsibilities, with different feedback requirements and

evaluation criteria. Projects should be designed to benefit all those involved, while meeting formal scientific criteria and stakeholder expectations. There must be a shared benefit.

Resilience and adaption to climate change go hand-in-hand with community development. However, if the latter is not addressed in the short-term, the consequences of climate change will be much more severe.

The co-construction of knowledge (transdisciplinary research and IK) brings different knowledge together and creates new methods and methodologies. The people on the ground (practitioners and NGOs) are critical in identifying the problems that need to be addressed.

Cross-border collaboration and management of catchments needed to be facilitated – and this would best be achieved by Public-Private Partnerships, plus elements of Private Ownership and Common Property Resources (as per the model presented by Prof Leduka), but taking due cognisance that contexts vary.

The way forward

The participants were unanimous that the momentum created by the Workshop and the establishment of this CoP should be maintained, and short-term follow up engagements should be planned and implemented. Academics and elected leaders are encouraged to participate in the process for raising appropriate funding, so the actual work gets done.

The German Embassy also indicated their willingness to continue supporting the initiative and organisers will explore possibilities with them.

It was felt that apart from the goals achieved during this project, a grass roots engagement with the local community and traditional leaders should take place with a smaller sub-group of the CoP to better understand the real issues, to listen to their needs and to build new relationships that will inform implementation initiatives. This should happen as soon as practically possible in 2023 and also serve as a springboard for further collaborations in the same year.

In the initial activities, an objective would be to identify those individuals who will champion and coordinate the various stakeholders and serve as a communication channel especially between those who have easy access to technology and those that do not.

There were a number of requests to set up Maloti-Drakensberg-specific data portal – with freely available, relevant and up-to-date information on research (projects being undertaken, completed and results), opportunities for collaboration, funding opportunities, etc.

Conclusions

In terms of the upfront measurable outcomes set for the project funded by the German Embassy, all have been addressed although some require further development.

1. The first was the successful conclusion of the workshop and that was unequivocally achieved.
2. The second measurable is this report which is distributed and contributed to by all participants, serving as a reminder and a guide to future work to be done.
3. Thirdly, the development of a model to promote Sustainable Development Goals through traditional authorities, is in its infancy with the workshop laying solid foundations for further engagement with traditional authorities to formalise and communicate such a model.
4. As fourth measurable, capacity building and capacity development measures are instigated to contribute to the growth of an African-based research 'community of practice'. It is strongly asserted that such a CoP has now actually been created, and we have started the process of designing what activities each partner group must be responsible for in the long-term plan.
5. And lastly, a video trailer is in production that will serve as one of the means to transport key messages to all stakeholders and relevant parties.

The important take-away message from the Workshop can be summarised by saying that for decades many of these topics have been highlighted, but various actions have not been conclusive in attaining sustainable solutions. Yet the expertise for both short- and long-term wins exists within the COP. The COP should not merely continue the same conversations - the members have the ability and the expertise to see tangible impact on the ground for sustainable social-ecological systems in the Maloti-Drakensberg.

In conclusion, we express our appreciation to the German Embassy for providing the funds to make the Workshop a reality, and to all the representatives from the Royal Households of the Bakoena and Batlokoa, the community in Qwaqwa and Matatiele, the United Nations University through GLOMOS, University of the Free State through the ARU, the National University of Lesotho, the University of KwaZulu-Natal, Government Ministers from Lesotho, the Department of Science and Technology and the National Research Foundation and UKZN Wildlife for their active participation.

"Ntja pedi ha e hlolwe ke sebata"
Sesotho proverb meaning "Two dogs can bring a beast down"
In other words, "Working together, we can achieve great things"!

Maloti-Drakensberg
Safeguarding and Preservation of the Dragon Heritage

The Partners

The three primary partners who worked together to organise the Maloti-Drakensberg Workshop, and who will continue to champion the cause of sustainability in the Maloti-Drakensberg, were the Global Mountain Safeguard Research (GLOMOS), the Afromontane Research Unit (ARU) and The Peaks Foundation.

Global Mountain Safeguard Research (GLOMOS) is a collaborative programme and scientific alliance between the United Nations University Institute for Environment and Human Security (UNU-EHS) in Bonn, Germany, and Eurac Research based in Bolzano, Italy.

GLOMOS represents an interface between the international mountain research community and the UN system. Conducting applied and transdisciplinary research to support livelihoods and sustainable mountain development GLOMOS also facilitates a greater recognition of mountain-related topics within international frameworks and the 2030 Agenda for Sustainable Development.

The goal of GLOMOS is to contribute to the development of resilient mountain communities towards natural and man-made hazards and disaster risks, to protect the wealth of biological and cultural diversity, and to support adaptive solutions and sustainable transformation processes within these highly sensitive social-ecological systems, first and foremost in the Global South.

The **Afromontane Research Unit (ARU)** is the flagship research group of the University of the Free State (UFS), Qwaqwa Campus, with research affiliates throughout UFS Faculties, the broader South African research community, and internationally.

Situated at the base of the majestic Maloti-Drakensberg, the ARU's Vision is to become a continental leader in African mountain research, with an immediate focus on the sustainable development of the Maloti-Drakensberg.

The ARU's mission is to facilitate the development and capacity-building of a high-excellence Africa-based mountain research 'community of practice' that informs global mountain research theory and practice and contributes to mountain related policy and governance from an African perspective, thus balancing a predominance of mountain research driven from the Global North and Northern Hemisphere.

The Peaks Foundation is a Non-Profit Company with the aim of developing young and promising researchers and promoting science as an essential component of sustainable futures. Our mission is to create opportunities for young and promising scientists from all disciplines to participate in research events, to have them inspired by established researchers and to provide financial relief for those with limited resources.

One of the main vehicles for doing this is by organising conferences, workshops and training opportunities, with like-minded partners.

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