

BIODIVERSITY SECTOR RESPONSE TO CLIMATE CHANGE

Climate Change Breakfast Briefing
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environmental affairs

Department:
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Introduction

- South Africa is home to a **significant portion of global biodiversity** (Cowling et al. 1996, Myers et al. 2000), and many of **its natural ecosystems are relatively intact** (Scholes & Biggs, 2005), despite the changes in **land cover that have accompanied societal development.**
- Anthropogenic climate change is likely to cause increasingly **adverse impacts on the country's ecosystems and biodiversity** (Midgley & Thuiller, 2005)
- **Impacts of climate change on species, and their adaptation interact strongly with human activities.**
- The **National Climate Change Response White Paper** identified the Biodiversity and ecosystems Sector one of the sectors vulnerable to climate change.

Impacts of climate change on Biodiversity

- **SA's biodiversity and ecosystems** are increasingly under pressure from accelerated climate change (i.e. temperature increases, changes in rainfall patterns, etc.)
- **As per the vulnerability assessment of SA biomes (2012):**
 - The Grassland biome appeared to be at most risk of significant change under all scenarios (i.e. low, medium and high risk climate scenarios until approximately the year 2050).
 - Eastern and northern sections of the Fynbos biome are most likely to be under climate stress.
 - The Forest biome is projected to be affected by frequency of fire incidence due to changing climatic conditions.



Impacts of climate change on Biodiversity (cont.)

- The climate projections show that the Nama-Karoo is likely to resemble an arid Savanna, and might resemble a Desert biome under the worst case scenario.
- The Indian Ocean Coastal Belt increases under the best case scenario with the warm moist conditions which favour this biome expanding but the Indian Ocean Coastal Belt shifts to a Savanna biome under worst case scenarios.
- The Succulent Karoo largely persists under all the scenarios. This contrasts with previous projections from the mid-1990s as newer climate models indicate far smaller impacts on winter rainfall biomes than projected by early models.



Reducing and managing vulnerability

- Development of a Policy Framework for Biodiversity and Climate Change to guide Biodiversity sector response.
- Policy Framework guided by ten principles that will inform the policy directions and key elements of the sector response. The principles are as follows:
 - **Manage further loss and degradation of natural ecosystems** in priority marine, coastal and terrestrial areas for climate change resilience,
 - **Avoid** strategies that pose a **high risk to the integrity of ecosystems to adapt naturally**,
 - **Prioritise adaptation strategies which deliver multiple benefits across several sectors** (for example, benefits for the safety of human settlements, benefits for agriculture, as well as benefits for natural ecosystems),



Reducing and managing vulnerability (cont.)

- **Prioritise adaptation strategies that facilitate resilience** both to increased climate variability and to long-term climatic shifts,
- **Prioritise cost-effective adaptation** measures where possible.
- Address **adaptation to climate change at landscape, ecosystem, species and genetic levels,**
- Where possible, **integrate climate change adaptation and mitigation responses** into existing programmes and institutional arrangements rather than creating new programmes and institutional arrangements,



Reducing and managing vulnerability (cont.)

- Ensure **ongoing generation of scientific knowledge to support climate change adaptation and mitigation**, and **facilitate strong links between science, policy and implementation** to ensure that the best available science informs the biodiversity and climate change response strategy and action plan,
- Draw on **indigenous and traditional knowledge to support climate change adaptation and mitigation** through biodiversity and ecosystem strategies.



Role of the sector in reducing exposure and vulnerability

- Supporting the National Climate Change Policy perspective, using various legislative and policy tools, namely;
 - ✓ A Framework Policy for Biodiversity and Climate Change Response (undergoing an approval process),
 - ✓ The core elements were incorporated into the National Climate Change Response White Paper including;
 - Accounting for the value of biodiversity and the ecosystems it supports,
 - Adaptation measures for biodiversity should be explicitly linked with the wider benefits that they bring,
 - Impacts of Climate Change and Biodiversity loss affect different economic sectors.



THE ENABLING LEGISLATIVE ENVIRONMENT

- NEMA
- NEM: Biodiversity Act
- NEM: Protected Areas Act
- Marine Living Resources Act
- Integrated Coastal Management Act
- World Heritage Convention Act

MULTILATERAL ENVIRONMENTAL AGREEMENTS

- Convention on Biological Diversity and the Programme of Work on Protected Areas
- World Heritage Convention
- United Nations Framework Convention on Climate Change
- United Nations Convention to Combat Desertification (UNCCD)
- Convention on the Conservation of Migratory Species (CMS)
- Ramsar Convention on Wetlands

Policy Tools

- National Biodiversity Strategy and Action Plan
- National Biodiversity Framework
- Protected Areas Register
- National Protected Areas Expansion Strategy
- National Action Programme to Combat Desertification
- Regulations on Threatened or Protected Species
- Draft Regulations on Alien and Invasive Species
- Guidelines for Bioregional Plans
- Listed Threatened Ecosystem
- Norms and Standards for Species Management Plans
- Framework for Assessing Risk of GMOs
- Regulations on Bioprospecting, Access and Benefit Sharing
- Fiscal incentives for biodiversity management
- Regulations for proper administration of special nature reserves, national parks and World Heritage Sites
- National Climate Change Response White Paper



Promoting synergy and strengthening engagement across governance spheres

Institutional arrangements:

- Sector Participation in IGCCC, NCCC, MINMEC, MINTECH
- Oversight over SANBI, SANParks, iSimangaliso
- Bioregional Programmes
- Outcome 10 Process
- Interaction with NGOs (Climate Change Adaptation Network)
- Support from SANBI and GIZ



Promoting synergy and strengthening engagement across governance spheres (cont.)

- **Making a case for Biodiversity-** Raising Public understanding of the role of biodiversity in climate change responses, enhancing participation & increasing Treasury funding for the sector.
- **The Economics of Ecosystems and Biodiversity (TEEB)** programmes developed as part of sector contribution to Green Economy.
- **Community-based Natural Resource Management.**
- **People and Parks-** aims to conserve natural resources by protecting and upholding the rights of communities in the conservation of our rich natural and associated cultural heritage resources.



Promoting synergy and strengthening engagement across governance spheres (cont.)

- **LandCare programmes-** include aspects such as yield management, controlling bush (unpalatable species) encroachment, preventing overgrazing, fostering land-user empowerment and commitment to sustainable land management.
- **Promoting Ecosystem-based Adaptation (EbA)** to climate change by highlighting the benefits of EbA as follows:
 - Generation of multiple social, economic and cultural co-benefits for local communities,
 - Contribution to the conservation and sustainable use of biodiversity,
 - Contribution to climate change mitigation, by conserving carbon stocks, reducing emissions caused by ecosystem degradation and loss, or enhancing carbon stocks.



Implications of the LTAS Sector Report on the Biodiversity Sector

- The **latest set of climate change scenarios** used in the **LTAS process** provide a **clearer understanding of the potential future changes in biome distribution** and the implications for continued ecosystem service delivery for most biomes.
- The **Biodiversity Sector** will **draw on the outcomes** of the **LTAS process** to **prioritise** the most **threatened biomes** and to **develop** appropriate **climate change response measures** for the country's biodiversity and ecosystems.
- The **LTAS process** further **justifies** the need to apply **EbA approaches**, using biodiversity in assisting societal adaptation to the adverse impacts of climate change.



Conclusions

- There is growing recognition of the interface of biodiversity, climate change and society.
- Changes in biome distribution affect production services such as wool, meat and grassland products.
- Monitoring efforts and some key experimental studies at national and sub-national scale will be critical for evaluating future risk, for improving model projections of impacts,
- There is increasing awareness of the value of using biodiversity in assisting societal adaptation to the impacts of climate change.



Thank You



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