



# A Climate Change Vulnerability Assessment

## building resilience to climate change in the Namakwa District

### What is a Vulnerability Assessment?

A climate change vulnerability assessment is a formal evaluation of how vulnerable the systems in a given area are to the impacts of climate change. It usually considers the predicted impacts of climate change in the future and takes into account existing pressures and stresses, available resources for responding to climate change, and natural or man-made limits or thresholds in adaptive capacity.

A vulnerability assessment is an important tool for developing policies and adaptation plans for specific vulnerable groups and sites, forming the basis of any climate change risk reduction strategy. It is, therefore, the necessary first step to guide climate change response locally.

### Assessing vulnerability in the Namakwa District Municipality

A climate change vulnerability assessment for the Namakwa District Municipality (NDM), was completed in July 2012. The assessment:

- identified climate change risks and impacts for the NDM
- profiled the social, economic, and institutional conditions that contribute to vulnerability in the NDM
- assessed local capacity to adapt to climate change

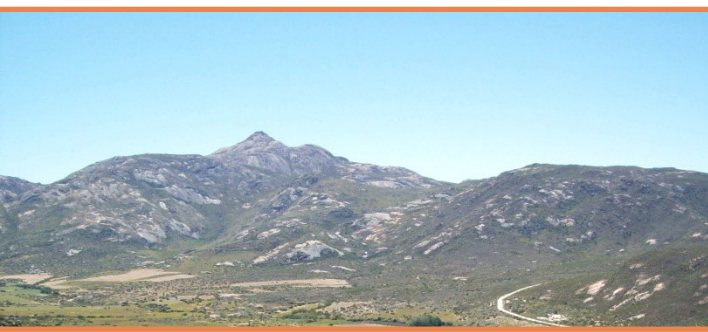
- identified priority areas for Ecosystem-based Adaptation (EbA), ecosystem services, and conservation actions
- made recommendations for EbA actions, with indicators for measuring changes in vulnerability over time.

### Key Outcomes

The NDM is particularly sensitive to climate change impacts to do with changes in temperature and rainfall. A scenario approach was used and shows that temperatures are expected to increase on average in all scenarios to 2050 and rainfall is expected to decrease on average in most scenarios to 2050.

Already hot, dry, and faced with periodic droughts and flooding, these climate impacts will exacerbate existing challenges around water availability, water quality, livestock carrying capacity, and other livelihoods issues. Climate change is likely to have an impact on biome stability in the region, but the species rich Succulent Karoo holds relatively stable to 2050, providing an important opportunity for EbA and ecosystem conservation.

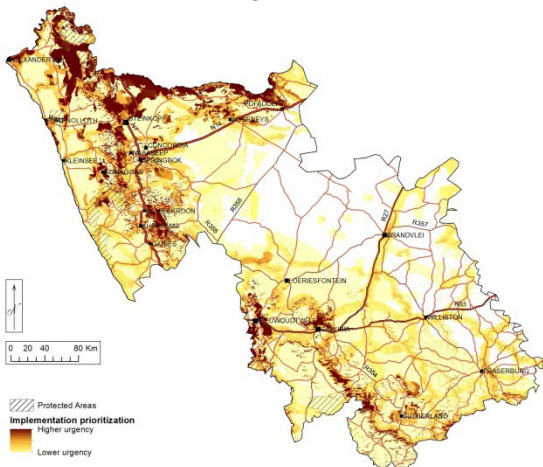
Climate change is a risk multiplier and will interact with existing pressures including poverty and unemployment. The local economy is very natural resource based and dependent on the very ecosystem services that may be affected by climate change. While powerful environmental legislation and planning exists, there are implementation, capacity, and resource challenges that will impact on the regions' ability to adapt effectively.





## A vulnerability assessment as a planning tool

While climate change response planning occurs most prominently at the national and international level, it is just as important that local leaders work on local actions in order to protect their constituencies, safeguard their investments and resource base, and ensure sustainable development. The Vulnerability Assessment is a critical first step, establishing the local climate change profile that will guide the development of a local climate change response.



**EbA Priority Areas:** An EbA priority areas map was created to identify sites in the NDM that are threatened by the impacts of climate change and are likely to respond well to ecosystem-based approaches, delivering the ecosystems services and functions that will help the District respond effectively to climate change.

The map is a spatial tool to guide land-use planning and promote sustainable local economic development. The darker areas on the map are priority areas and should be tackled first.

**Vulnerability Index:** Ecological, socio-economic, and institutional vulnerabilities were evaluated against a set of parameters and indicators to derive a summary index of overall vulnerability for the District. An analysis of the indicators suggests priorities for action and resource allocations. Currently, the NDM has a medium-high vulnerability rating. The assessment should be repeated every 5 years to assess progress made and to facilitate adaptive management of the climate change challenge.

Vulnerability Index	
<b>Ecological Vulnerability</b>	
Exposure	5
Sensitivity	3.25
Adaptive Capacity	3.3
Index: medium-high	3.85
<b>Socio-Economic Vulnerability</b>	
Exposure	3.6
Sensitivity	3.6
Adaptive Capacity	4.3
Index: medium-high	3.8
<b>Institutional Vulnerability</b>	
Awareness	2
Enabling environment	3
Governance	4
Index: medium	3
<b>Overall Vulnerability</b>	
Index: medium-high	3.5

The vulnerability assessment process should lead to participatory action planning in the next phase. Long-term monitoring of the effectiveness and cost-effectiveness of the planned and implemented adaptation actions is also necessary to evaluate change over time.

### References:

Bourne, A, C Donatti, S Holness, and G Midgley. 2012. *Climate Change Vulnerability Assessment for the Namakwa District Municipality*. Final Technical Report, August 2012

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