



## BIOREGION DELINEATION PROCEDURE TOOLKIT

The Bioregion Delineation Procedure Toolkit is designed to guide the identification and management of bioregions within the Northern Cape. It emphasizes the integration of ecological, social, and economic factors to support sustainable bioregional planning. The toolkit provides a structured approach to delineating bioregions, ensuring that these areas are managed as distinct, integrated units that align with natural boundaries rather than political ones. The procedure promotes holistic planning that considers the complex interactions between different components of the environment and human activities.

### TOOLKIT INTENT

#### This Toolkit is to be Used to:

- Ensure all factors influencing the planning area are addressed, promoting a comprehensive approach.
- Identify overlapping areas where municipal boundaries do not align with bioregional parameters to foster collaboration.
- Treat each region as an integrated system, considering interactions among land, air, water, organisms, and human activities.
- Recognize the influence of broader and more localized systems in the planning process.
- Integrate people as an essential part of the system, considering their impact on natural resource use.
- Align economic policies with the environmental carrying capacity of the bioregion.
- Promote efficient resource use and the adoption of innovative technologies.
- Ensure that planning within each region is considered in the context of the broader area.

## COPYRIGHT, DATA, AND DATA USE DISCLAIMERS

*The Northern Cape Provincial Spatial Development Framework (PSDF) is the intellectual property of the Northern Cape Office of the Premier, the Department of Agriculture, Land Reform and Rural Development (DALRRD), and the Maswana Group of Companies.*

*While every effort has been made to ensure the accuracy and reliability of the data and information within the TOOLKIT, the Northern Cape Office of the Premier, DALRRD, and the Maswana Group of Companies do not guarantee the completeness or accuracy of the data and information. Users are advised to verify the information independently before making any decisions based on the data or information provided.*

## CONTENTS

<b>1</b>	<b>INTRODUCTION.....</b>	<b>3</b>
1.1	Crucial components .....	3
1.2	Objectives of bioregional planning .....	3
1.3	Principles.....	3
1.4	Guidelines .....	3
1.5	Delimitation Approach.....	4
1.6	Conclusion.....	5

# 1 INTRODUCTION

The Northern Cape provides directives for conceptual bioregions within the province. The main goal is to recognize and address ecological, social, and economic factors that define these bioregions, ensuring efficient bioregional planning and management.

The unique ecological, cultural, social and economic characteristics and components of each bioregion co-exist and function in an integrated, and often complex manner. For bioregions to be optimally effective in terms of their community-supporting functions, it is of paramount importance that this symbiosis of bioregional characteristics and functions be maintained and that bioregions must, as far as possible, not be fragmented by political boundaries. They should be maintained and governed as distinct units. In this regard, it is imperative that no bioregion, or any land unit, should be seen as an island in isolation from its surroundings. Each unit is an important part of the broader region within which it is situated, and the mutual relationships and linkages between adjacent units must be understood and applied when delimiting and managing these units.

## 1.1 CRUCIAL COMPONENTS

There are a number of key requirements that determine the effectiveness of bioregional planning, the most significant of which are the following:

- Information is needed to define flexible, hierarchical planning units.
- The assemblage of bioregion, watershed, ecosystem, species etc. data.
- Relationships between bioregions and people's perceptions of 'their place' (i.e. the cultural identity of communities with the area in which they live).

## 1.2 OBJECTIVES OF BIOREGIONAL PLANNING

**The objectives of the delimitation of bioregional planning units include the following:**

- Achieve holistic integrated planning, i.e. ensure that all aspects that may influence the planning area are addressed.

- Identify areas of cooperation between municipalities (i.e. overlapping areas where municipal boundaries do not correspond with bioregional parameters) to achieve holistic integrated planning

## 1.3 PRINCIPLES

The delimitation of planning units should be undertaken in accordance with the following principles:

- Treat each region as an integrated system, considering interactions among land, air, water, organisms, and human activities.
- Consider the influence of larger and smaller systems.
- Include people as integral to the system, evaluating factors influencing natural resource use.
- Relate economic policy to environmental carrying capacity.
- Promote efficient resource use and technological advances.
- Ensure resource users pay the full social price of benefits.
- Always consider the region's planning in the context of the whole.

## 1.4 GUIDELINES

### 1.4.1 Biodiversity and Activities:

- Identify significant biological diversity elements and their protection needs.
- Analyse activities affecting biological diversity.
- Identify areas requiring conservation or rehabilitation.
- Identify priority areas for conservation and sustainable use, relating them to community needs.
- Provide mechanisms for community participation and monitoring.
- Formulate coordinating mechanisms for sustainable resource use.

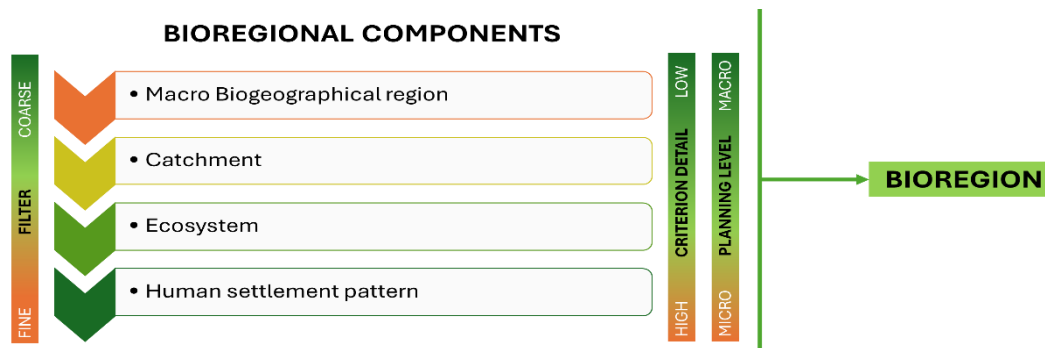
### 1.4.2 Flexibility:

- Allow for changes in land use and accommodate new knowledge, management techniques, and institutional arrangements.

## 1.5 DELIMITATION APPROACH

The purpose is to assist authorities and planners with the detailed delimitation of bioregions, which should be a fundamental part of the preparation of an SDF. This procedure is not a blueprint, but it serves as a model that can be adapted to address specific requirements and circumstances.

The delimitation process follows logical steps, or sequences, the first of which is defining and delimiting the broad-brush macro biogeographical region within which the bioregion is situated, using coarse-grain criteria. The second step is to identify the various catchments and quarternary (sub) catchments followed by the ecosystems, habitat units, etc. The level of detail required for delimiting the bioregional components, and the associated management and planning thereof, increases as the scale decreases. The most detailed component, which is used for refining the delimitation of individual bioregions, is the land subdivision. The four bioregional components are illustrated in the figure below.



### 1.5.1 Macro Biogeographical Region:

- Defined by unique biological and biophysical characteristics.
- Reflects natural fragmentation and variations in human settlement patterns and economic activity.

### 1.5.2 Catchments:

- Primary determinants of bioregional boundaries, providing essential resources for sustainable human settlement.
- Should not be fragmented by administrative or political boundaries.

### 1.5.3 Ecosystems:

- Represent distinct assemblages of organisms and their physical environment.
- Must not be fragmented due to inappropriate administrative boundaries.
- Intensive research is required to identify and preserve key ecosystems and habitats.

### 1.5.4 Human Settlement Patterns:

- Assist in determining the social boundaries of settlements.
- Domains and neighbourhood areas are identified through public consultation and mapping.
- Reflect traditional knowledge and community identity.

### 1.5.5 Urban agriculture:

- Encourage the establishment of community gardens
- Link small holding and small-scale farming activities to the Agripark programme through FPSUs

## 1.6 CONCLUSION

Bioregions are effective planning units for integrated regional, district, and municipal planning. They help bridge gaps in statutory planning processes, ensuring alignment of ecological, social, and economic factors with human settlement patterns. Effective bioregional delimitation requires detailed research, community participation, and cooperation across all government levels.

