

## SECTION D: GUIDELINES AND PRINCIPLES FOR PLANNING, DESIGN AND MANAGEMENT

### SECTION SYNOPSIS

This section provides a theoretical background to:

- a) Suitability Analysis
- b) Regional Tourism Design
- c) Ecological Landscape Design

## 4 PLANNING, DESIGN AND MANAGEMENT PRINCIPLES

### 4.1 SUITABILITY ANALYSIS

Once an ecological inventory of a place has been conducted, and some understanding of the interrelationships between people and nature achieved, it is then necessary to make detailed studies of these interactions to present options for future use. One such type of detailed study is suitability analysis.

There are different approaches to suitability analysis. A closer view is given to the following (Steiner 1991:132):

- Soil Conservation Service Systems
- McHarg suitability analysis method

#### 4.1.1 APPROACHES TO SUITABILITY ANALYSIS

##### a) Soil Conservation Service Systems

Capability classes are based on soil types that are mapped and interpreted. They were developed to assist farmers with agricultural management practices. Groupings are made according to the limitations of the soils when it is used for field crops, the risk of damage when it is used and the manner in which it responds to management.

This classification does not take into account the other biophysical characteristics of the area and it will not be used for this study purpose.

b) The McHarg, or University of Pennsylvania, Suitability Analysis Method

In *Design with Nature*, McHarg explained suitability analysis in the following manner:

“In essence, the method consists of identifying the area of concern as consisting of certain processes, in land, water, and air – which represent values. These can be ranked – the most valuable land and the last, the most valuable water resources and the last, the most and least productive agricultural land, the richest wildlife habitats and those with no value, the areas of great or little scenic beauty, historic buildings and their absence, and so on.” (McHarg 1999:34)

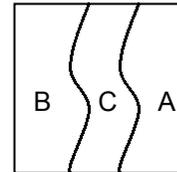
Lewis Hopkins has explained this method in the following manner:

“The output of land suitability analysis is a set of maps, one of each land use, showing which level of suitability characterises each parcel of land. This output requirement leads directly to two necessary components of any method: (1) a procedure for identifying parcels of land that are homogeneous and (2) a procedure for rating these parcels with respect to suitability for each land use.” (Hopkins 1977:386)

A simplified illustration of how the suitability analysis procedure works is provided in Figure 20 (Steiner 1991:132).

STEP 1  
MAP DATA FACTORS BY TYPE

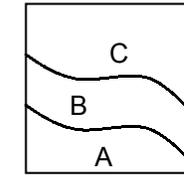
Example 1



A: 0 – 10%  
B: 10 – 20%  
C: 20 – 40%

SLOPE MAP

Example 2



A: SLIGHTLY ERODED  
B: SLIGHT TO MODERATE  
C: MODERATE

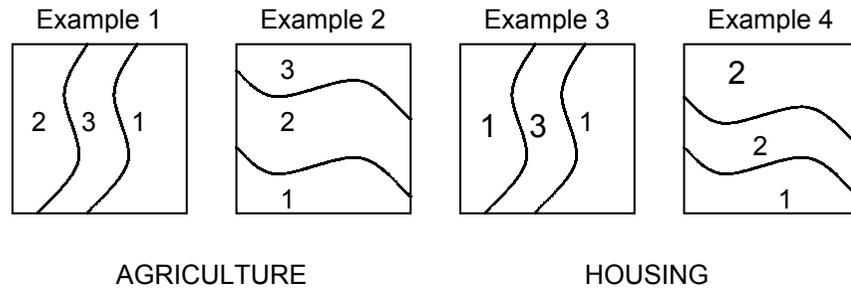
EROSION MAP

STEP 2  
RATE EACH TYPE OF EACH FACTOR FOR EACH LAND USE

Factor types	Agriculture	Housing
Example 1		
A	1	1
B	2	2
C	3	3
Example 2		
A	1	1
B	2	2
C	3	3

STEP 3

MAP RATINGS FOR EACH AND USE ONE SET OF MAPS FOR EACH LAND USE



The most attractive feature of this method is that it can be used for both conservation and development of resources and this is the reason why this procedure will be followed in this study.

STEP 4

OVERLAY SINGLE FACTOR SUITABILITY MAP TO OBTAIN COMPOSITES. ONE MAP FOR EACH LAND USE

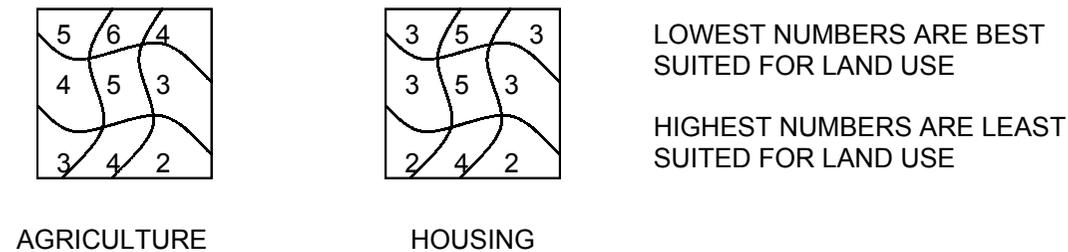


Figure 20: Suitability analysis procedure (Steiner 1991:132)

## 4.2 TOURISM

Quietly, unobtrusively, but pervasively, tourism has risen to great socio-economic heights in South Africa. Hundreds of thousands of workers depend on it for their livelihood. The government rely on its tax revenues, which help support worthwhile services, such as education and welfare. Most of all, millions of travellers gain personal enrichment through travel.

The very foundation upon which tourism rests is the land: soils, hills, valleys, ridges, mountains, streams, lakes, seas and waterfronts. It is the difference between the lands and home and those destinations that stimulates travel. Without attractions in destinations there would be no travel either for business or personal objectives (Gunn 1990:1)

Because tourists are flowing through an area, attractions require resources, design and operations for successive groups of tourists that visit throughout a single day. According to Gunn (1991:42) Travellers will visit more than one location in the period between leaving home and returning. Categories of typical activities are listed in Table 4 (Gunn 1991:42).

Table 5. Classification of travel activities according to Gunn (1991:42)

### Touring Circuit Activities Categories

- Driving for pleasure, sightseeing
- Visiting outstanding natural areas: parks, forests, scenery
- Travel Camping: tent, trailer, RV
- Water touring: boating, rafting
- Visiting friends/relatives, including duty travel
- Visiting universities, factories, processing plants, science facilities
- Visiting national, state shrines, pilgrimages, gardens
- Visiting places noted for food, entertainment
- Visiting historic, archeological sites, building, museums
- Visiting places important for ethnic foods, costumes, arts, drama
- Visiting art, craft, gift, legendary places

### Extended stay Activities Categories

- Vacationing at resorts: food, lodging, fitness, recreation
- Vacationing at camp sites: parks, forest areas
- Vacationing at hunting, fishing, other sports destinations
- Participating in programs at organisation camps
- Participating in festivals, events, pilgrimages
- Participating in conferences, conventions, professional business
- Vacationing at gaming centres: gambling, racing entertainment
- Visiting major sports arenas: domes, coliseums
- Vacationing at theme parks

Table 5 relates these categories of activities in terms of kinds of attraction places needed to support them. This list shows the difference between attraction objectives for the two classes of markets.

Table 6: Classification of attractions (Gunn 1991:42)

Touring Circuit Attractions	Longer-stay Attractions
Roadside scenic areas	Resorts
Outstanding natural areas	Camping areas
Camping areas	Hunting/water sports areas
Homes: friends and relatives	Organisation camp sites
Unusual institutions	Vacation home complexes
Shrines, cultural places	Festival, event places
Food, entertainment places	Convention, meeting places
Historic buildings, sites	Gaming centres
Ethnic areas	Sports arenas, complexes
Shopping areas	Trade centres
Crafts, lore places	Science/technology centres

The greater the aggregation of both touring circuit and longer-stay attractions, the better. Groupings provide business support for the services designed by travellers, such as hotels, food and entertainment. The list in Table 5 will be used and extended in to the framework for Management and Development for the Gourits River Catchment Area.

#### 4.2.1 DESTINATION CHARACTERISTICS

The design and development of tourist destinations could be facilitated greatly by knowing in advance the characteristics that will influence the impact of development. The key characteristics to be analysed according to Gunn (1991:55):

- Natural environmental features and processes. These include topography, mountains, lakes, rivers and sea, soil, vegetation, flora and fauna, sunshine, temperature, precipitation, erosion and environmental processes.
- Economic structure and economic development. This include the level economic development, diversity of economic base, spatial characteristics of development and patterns of investment
- Social structure and organisation. These include the demographic profile of the host population, strength of local culture, patterns of social organisation, religious affiliation, levels of health and safety, language and traditions.
- Level of tourist development. The degree of local involvement in tourist industry, rate of development, nature and diversity of attractions, types and quality of accommodation.

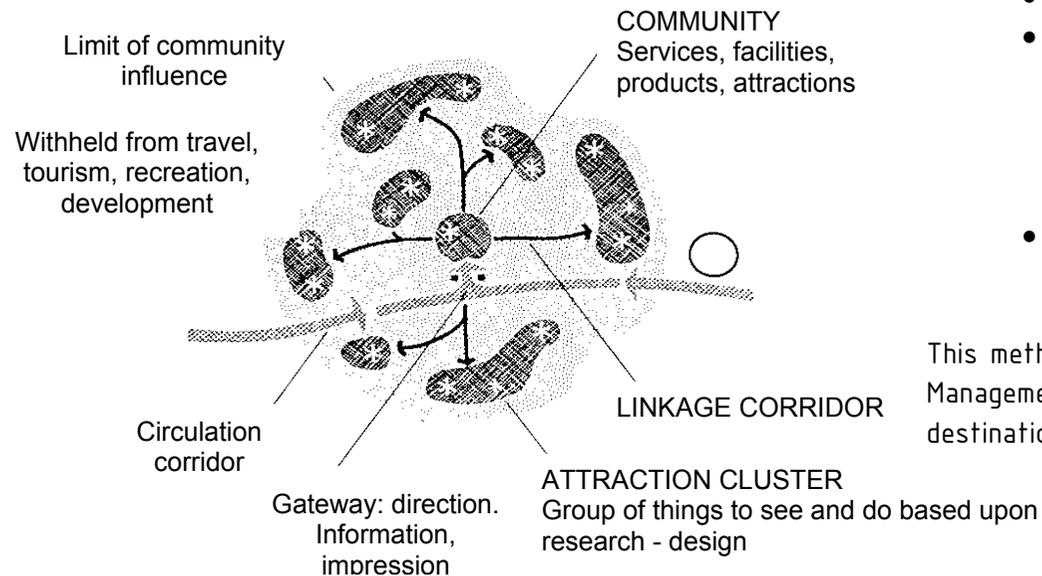
For the purpose of this study the key characteristics used for analysing the impact of development is:

- Biophysical aspects
- Human Needs

#### 4.2.2 DESTINATION CONCEPT

Design considerations must be considered as a whole, that is, grouping the attraction units described earlier, together. This procedure allows a broader perspective and stimulates greater design integration. Figure 15 (Gunn (1991:57) shows the need for integrated planning and design of destinations.

##### RADIAL DESTINATION ZONE



The following is a brief description of the major elements of destination zones.

- Attraction clusters: a thorough study of the resource potential must be done to identify the possible opportunities to develop new attraction clusters that are of interest to several market segments.
- Service community
- Circulation corridors: accessibility to community deserve special consideration. These corridors, predominantly highways, are pipelines to such services as hotels, eating places and entertainment for the tourists travelling to attraction clusters.
- Linkage corridors: these tie attraction clusters, the vital organs of destination, to community services.

This methodology will be applied in the Development and Management Framework to integrate all the major elements of the destination zones in the GRCA.

Figure 21: Radial destination zone (Gunn 1991:57).

### 4.3 LANDSCAPE ECOLOGY

“The increasingly narrow path followed by twentieth century Ecology made it less equipped to present the holistic outlook that has characteristically enabled ecology to deal with the totality of nature. Narrowing its scope to ecosystem energetics and to a trophic-dynamic analysis of the environment, ecology lost much of the emotional and ethical impetus that had characterised its earlier development” (Makhuziumi & Pungetti 1999:12).

Landscape ecology is a younger branch of the science of ecology and it gradually filled that void. It deals with man and his interrelationships between his open and built-up landscapes. The subject matter for landscape ecology is the landscape, its form, function and genesis (Makhuziumi & Pungetti 1999:12). Its integrative approach takes into consideration human-related, socio-economic and ecological processes which contribute towards a practical and more sophisticated approach.

The difference between landscape ecology and traditional ecology is that landscape ecology focuses on land or landscape as an object, utilising spatial, ecosystemic and aesthetic perspectives. It also operates within a holistic framework, understanding wholes or systems without necessarily knowing all their internal details.

According to Zonneveld and Forman (1990:35), landscape ecologists are mainly concerned with landscape from three overlapping points of view:

- Visual and aesthetic aspects of landscape
- Chorological aspect, which is a conglomerate of land attribute units of map patterns – this is the approach of geography and geomorphology, soil and vegetation sciences
- The perspective that sees the landscape as an ecosystem and combines the two previous views.

#### 4.3.1 ECOLOGICAL LANDSCAPE DESIGN: A REGIONAL CONTEXT

According to Motloch (1991:53), ecological forces operating over time create regional landscapes, that is, regionally differing sets of expressions. Each landscape is an integrated set of expressions, which holistically responds to a multiplicity of influences. As systems, they function differently, and as a visual resource they express themselves differently but each has its unique spirit of place, or *Genius Loci*.

#### 4.3.2 LANDSCAPE ASSESSMENT

There are various definitions for landscape assessment but for the purpose of this study the following definition from Makhzoumi and Pungetti (1999:60) will be used. The term "landscape assessment" will be used in a broad sense to encompass the general meaning of assessment, that is, all the ways of looking at, describing, analysing and evaluating the landscape.

According to Makhzoumi and Pungetti (1999:60), there are four phases in landscape assessment: (1) description, (2) evaluation, (3) landscape classification, (4) final analysis.

1. Landscape description: involves the collection of information about landscape components and their interaction. This should be objective as possible and geographical or ecological terms should be used.
2. Landscape evaluation: is the way to attribute values to landscape, based on criteria established in advance for specific purposes. It involves a subjective response, including landscape preference and appreciation.
3. Landscape classification: is a method of sorting the landscape into different types based on similar characteristics and should not involve personal judgment.
4. Final analysis, this sums up the features of the studied landscape. Now landscape is examined according to its natural and man-made components, ecosystems, interactions and values in order how it is made up and what it signifies.

This process will be combined with McHarg's suitability analysis (1999:34) to produce the Environmental Composite of the area.

#### 4.3.3 THE CONCEPT OF "LANDSCAPE RECYCLING"

Recycling is essential in the elimination of waste and also ensures sustainability in natural ecosystems. According to Gilbert (1991:34) landscape recycling can be defined as the reuse of existing ecosystems whether natural, semi-natural or cultural by integrating them into future landscape design and planning. The ecological and cultural integrity of the ecosystem into which the process is integrated must be observed. This implies flexibility in approach that is adaptive to the surprises inherent to the dynamics of any ecosystem (Makhuziumi & Pungetti 1999:248).

Landscape recycling can be applied regionally as well as locally and can be adopted within the framework of the ecological landscape design.

#### 4.3.4 SUSTAINABLE UTILISATION OF LANDSCAPE

Sustainable development ensures that society can benefit from its natural resources virtually indefinitely. Sustainable utilization of ecosystems and landscapes is related to the degree to which the local community is dependent on the resource in question.

Makhzoumi and Pungetti (1999:250) found that it is in subsistence societies, where these resources are most needed, that resource utilisation is least sustainable.

Landscape design and planning should appreciate that the ecological and cultural variability of the regional landscape mean that the objectives and priorities for sustainable development should not be generalised. An idiosyncratic approach to landscape design as well as landscape development is required.

#### 4.3.5 DEVELOPING THE REGIONAL MODEL

The aim of the regional model is to accommodate contemporary development while maintaining landscape integrity, sustainability and enhancing the regional character of place. These aims in turn can be achieved through maintaining essential ecological processes, life-support systems and conserving biodiversity and landscape heterogeneity. Developing the regional conceptual model will, it is hoped, illustrate the workability of the ecological landscape design paradigm and proposed methodology.