

### Appendix 3.

**Table A3.1.** An example of the contextual scoping of Zone B based on a V-STEEP description of the Sand River Catchment.

Factors and characteristics	Detail
<b>General</b>	<ul style="list-style-type: none"> <li>- Densely-populated rural area where populations increased by 1000% in some areas due to forced removals into the area between 1965 and 1974 (Pollard et al. 2008)</li> <li>- Only 30% of households had access to fields for agriculture (Ebony Consulting International 2002)</li> <li>- Labor migration is prominent; 60% of men and 20%, of women are temporary migrants (M. Collinson, S. Tollman, K. Kahn, and S. Clark, <i>unpublished manuscript</i>)</li> </ul>
<b>Values (predominant)</b>	<ul style="list-style-type: none"> <li>- Colonization in the Lowveld was relatively recent; in mid-1800s the socio-economic landscape was transformed in favor of whites. At that time much of the Lowveld was regarded as worthless and inhospitable for permanent settlement due to erratic rainfall and high temperatures, poor soils, and endemic and sometimes fatal livestock and human diseases (Carruthers 1995). However, with the reduction in malaria and demise of the tsetse fly (due to rinderpest in 1896 and drought between 1897 and 1913) this perception changed and the Lowveld opened up for denser settlement (Pollard et al. 2003)</li> <li>- At this time nascent conservation areas were established in the drier eastern regions, and the Kruger National Park was proclaimed in 1926 but it was only in the 1970's that a wide-scale landuse transformation from livestock to conservation occurred and land values increased substantially heralding a strong conservation ethic in some (see Carruthers 1995, Beinart 2001)</li> <li>- As noted in the main text, 1948 marked the formalization of racist values in whites which entrenched so-called 'separate development' effectively denying the majority black population access to socio-economic opportunities (see Bundy 1988, May 2000). In 1994 this changed with the first democratic government under Nelson Mandela with a constitution espousing values of equity and sustainability</li> </ul>
<b>Social</b>	<ul style="list-style-type: none"> <li>- Following forced removals into the area in the '70's onwards, the population of the SRC grew substantially and patterns emerged quite unlike most rural economies. These are highlighted below:</li> <li>- Female-headed households high (68% according to Everatt et al. 2008) due to male migration in search of work (M. Collinson, S. Tollman, K. Kahn, and S. Clark, <i>unpublished manuscript</i>)</li> </ul>

- Rate of unemployment<sup>1</sup> was and remains high at 68% (Everatt et al. 2008)
- Remittances and grants are important income sources e.g. in the 80s between 50 – 75% of households were dependent on migrant remittances (Harries 1989)
- 84 % of population classified by municipality as “indigent,” earning < R1,300/ household/m
- Household with no annual income<sup>2</sup> - 37.7% (Everatt et al. 2008)
- Percentage of orphans increased significantly between 1997 and 2003 (Madhavan and Schatz 2007)
- Access to water
  - 60% of households do not have access to potable water, 16% have some access to tap water, 11% rely on boreholes and 3% access water via spring and rivers
- Education/ illiteracy<sup>3</sup>
  - Under apartheid, unequal spending on education for children of different race White : Black expenditure ratio was 4:1 (Hazlett 1988)
  - Today education still vulnerable: 21% no schooling, - 14% matriculate (IDP 2011-2016)
  - Illiteracy - 46.5% (Everatt et al. 2008)
- HIV/ AIDs
  - HIV prevalence is high (19.4%); large gender gap (10.6% for men and 23.9% for women) (Dr. Gomez-Olive, personal communication)
- Reliance on natural resources
  - 85% of households collect firewood and herbs from rangelands (Hansen 1998)
  - Natural resources contribute significantly to peoples’ livelihoods (Shackleton and Shackleton 2000, Shackleton et al. 2005)
- Vulnerability
  - Between 1992 and 2003, major demographic changes have occurred in Agincourt an area of BBR. Fertility rates have fallen dramatically (Garenne et al. 2007). Life expectancy has declined significantly as mortality has risen in certain age groups: children (0-4) and young adults (20-49), primarily due to HIV/AIDS (Kahn et al. 2007). The percentage of orphans increased significantly between 1997 and 2003 (Madhavan and Schatz 2007)
- Technical**
  - Bulk water supply infrastructure is extensive but largely inoperative (Pollard et al. 1998, Smits et al. 2004)
  - Three small dams in the catchment
- Environmental**
  - Rainfall is the primary driving force with regard to ecological and hydrological processes
  - Large areas are degraded with a conservation status of critically endangered (Nel et al. 2004)
  - However concept of degradation has been contested by (Shackleton 1993)
- Terrestrial
  - In Zone B over 60% of indigenous landcover is estimated to now been converted

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<sup>1</sup> Proportion of the economically available population who are unemployed (Stats SA Measuring poverty)

<sup>2</sup> Proportion of households with no annual income based on sub-set data

<sup>3</sup> Prop. of pop. (15+) who have not completed Grade 7

- Aquatic
  - Harvesting rates of woodland resources exceeding production
  - Flows have declined significantly over the record period (DWA 2004a)
  - River now experiences regular flow cessation
  - Estimated 80% runoff is generated in upper 20% of Sabie River Catchment (Pike and Schulze 2000)
  - Sediment production highest west of the Kruger National Park due to overgrazing and land degradation (van Niekerk and Heritage 1993)

### **Economic**

- Employment
  - Unemployment varies between 40% and 80% although accurate figures are confounded by the difficulty in distinguishing between formal and informal economic activities.
  - An estimated 50% of men are economically active outside of the catchment (Mullis et al. 2007).
- Formal
  - Livelihoods are based on migrant remittances and social welfare rather than agriculture. Indeed, natural resources and land are under such pressure that they can only form a supplementary, although critical part of peoples' livelihoods (Shackleton and Shackleton 2000)
  - Direct use values of home consumption from livestock, agriculture and natural resource harvesting are high, accounting for more than 50% of total livelihood streams (Shackleton and Shackleton 2000)
  - Estimated jobs from agriculture - 6,488 people (1.6% of population, Pollard et al. 1998). Dependency ratio of 1:6 the livelihood benefits accrue to 39,000 people (10% of population)
- Tourism
  - Tourism through the Kruger National Park and the private Sabi-Sand Game Reserve is an important contributor to the local GDP. In 1998 the latter was estimated R6 million in gross income per annum per individual concern but major part of this income may little benefit internally to the catchment due to the closed nature of the reserve's operating system (A. Spencely, personal communication)

### **Political**

- Historically large proportion of the catchment fell under two apartheid bantustans: Lebowa and Gazankulu which were incorporated into South Africa after 1994
  - Many of the apartheid-linked structures were heavily contested
  - Today there are three tiers of government: national, provincial and local. The area now falls under Bushbuckridge Local Municipality
  - Existing in parallel to statutory bodies are various forms of customary systems which are often better understood than the statutory systems (Pollard and Cousins 2014)
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