

6 PONDOLAND KEY AREA – WATER RESOURCE OVERVIEW, ISSUES AND STRATEGIES

6.1 INTRODUCTION

This chapter describes the characteristics of the Pondoland key area and the yield balance in the area based on the updated information that was sourced during the ISP investigation. The issues, constraints and development opportunities available in the Pondoland key area are also described. The information was obtained from interviews conducted with DWAF Regional Office personnel, the two ISP workshops and the Eastern Pondoland Basin Study that was completed in 2000. The detailed strategies to be adopted by the Department for the management of the water resources of this key area are described in **Part 2** of this ISP document.

6.2 PONDOLAND KEY AREA CHARACTERISTICS

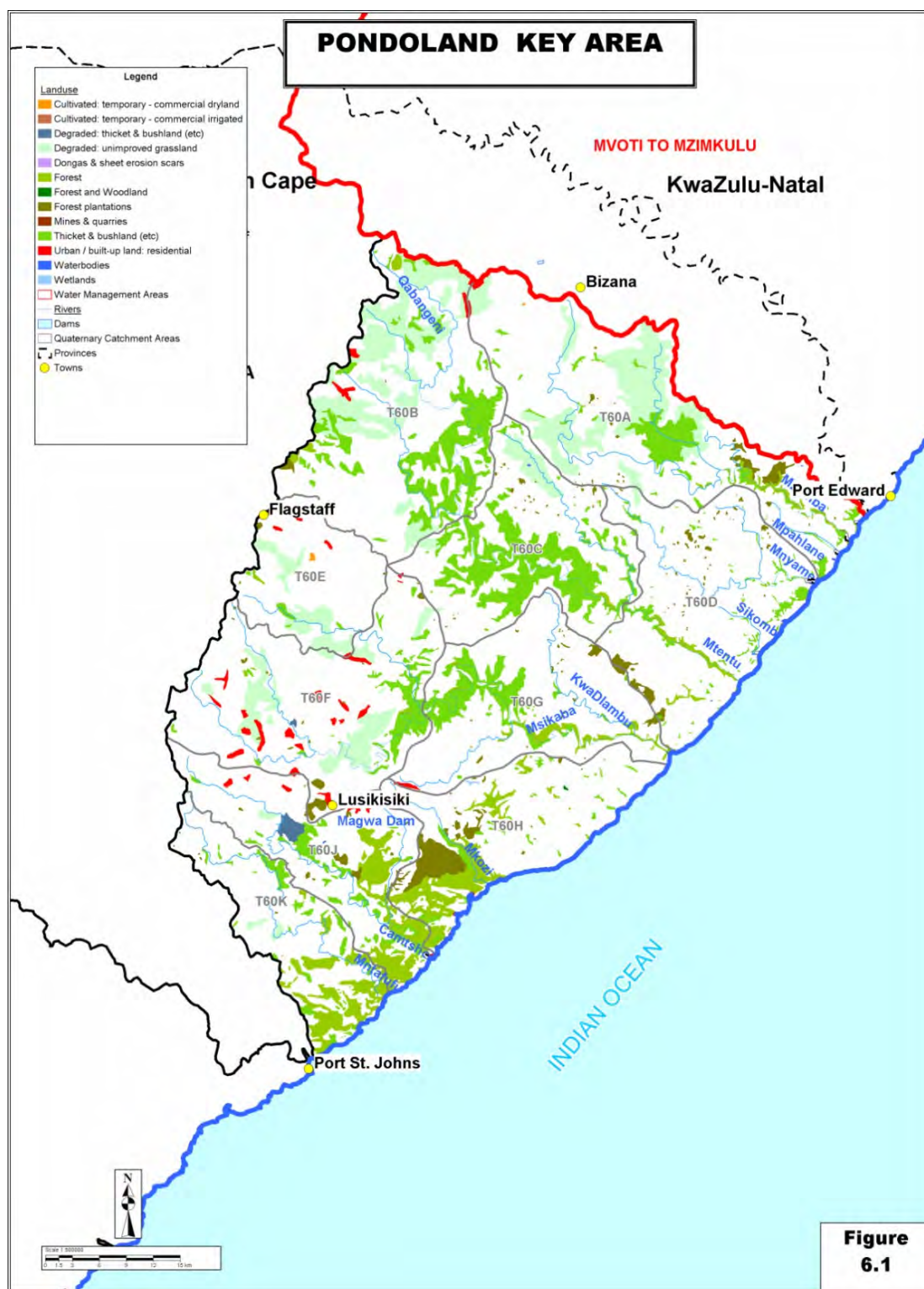
Figure 6.1 shows the main features of the Pondoland key area. The Pondoland key area consists of a relatively small undeveloped coastal area characterised by high rainfall. The main rivers are the coastal rivers of Mtentu and Msikaba.

The total 1995 population of the Pondoland key area was estimated at 380 000. According to MarkData the population is expected to decline to approximately 347 480 by the year 2025. The majority of the population (approximately 96%) is rural with 4% situated in the towns of Lusikisiki and Flagstaff. Table 6.1 shows the expected population in the year 2025.

Table 6.1: Pondoland key area population distribution

	1995 Population	2025 Population	Average annual growth
Rural	366 381	330 905	-0.34%
Urban	14 300	16 575	0.49%
Total	380 681	347 480	-0.30%

The natural environment of the key area and particularly the coastal belt, has high conservation value (DWAF; 2001). Ecological water requirements to maintain the ecosystem health are relatively large. The area includes the Mkambati Nature Reserve situated between the Mtentu and Msikaba rivers. Although the area is of high ecological importance, it is also the subject of mining development there are proposals to mine heavy mineral deposits in the coastal sands being investigated.



The main land-use activity in the Pondoland key area is commercial forestry and rainfed agriculture. There is potential for forestry expansion.

Surface water in the key area is largely unregulated with the Magwa Dam on the Mkozi River the only registered dam in the area (see Appendix A1). The Magwa Dam supplies a small plantation south of

Lusikisiki. The main water user in the key area is commercial afforestation. Water use is otherwise very limited, consisting of rural use and the Magwa tea plantation (PGDP; 2003) ⁽¹³⁾. The main town of Lusikisiki has been experiencing water shortages. The study conducted by DWAF (DWAF, 2001) as well as a study by O R Tambo District Municipality investigated options to supply supplementary water to the town. The DWAF study identified feasible and economically viable surface water and groundwater sources.

The Pondoland key area forms part of the Pondoland Spatial Development Initiative (SDI) which aims to open up the area's huge tourism potential. Poor access to the area has however always been problematic and has probably contributed much to the entrenchment of poverty in the area. As a result the National Road Agency is in the process of investigating a new route for the proposed N2 toll road in order to make the area accessible for the proposed mining of heavy minerals, tourism and commercial forestry. There is however a lot of resistance from environmental groups against the proposed Wildcoast N2 route, because it will traverse pristine rural areas.

Growth in tourism and any mining development will require additional sources of reliable water supply at a high level of assurance. Augmentation of run-of-river supplies from either groundwater sources or regulation of the rivers will be required. There is potential for conjunctive use of surface water and groundwater supplies in this key area.

6.3 WATER AVAILABILITY

The NWRS gives the volume of water available from the surface water resources of the Pondoland area as 4 million m³/a. This seems very little compared with the high MAR of 796 million m³/a although most of the available water is from run-of-river. The key area is deeply incised by the main rivers. From a topographical and geological perspective, the Pondoland key area is not ideal for the construction of dams, and there are very few dams in the area. The only significant dam is the Magwa Dam with a yield of only 2 million m³/a. There are also several farm dams in the Mzintlava River catchment.

Table 6.2: Water availability in the Pondoland Catchment (at 1:50 year assurance)

Resource category	Available/impact on yield (million m ³ /annum)
Gross surface water resource	30
Subtract:	
- Ecological Reserve (Impact on yield)	26
- Invasive alien plants (Impact on yield)	0
<i>Net surface water resource</i>	<i>4</i>
Ground water	1
Return flows	0
Total local yield	5
Transfer In	0
Grand Total	5

6.4 WATER REQUIREMENTS

The water use in the Pondoland key area is very limited. The largest user is the rural sector, which makes use of run-of-river yield.

There is some afforestation in the key area estimated at 1 000 ha, but the impact of this on the available yield is not significant.

Table 6.3 lists all the known current (year 2000) water uses in the Pondoland key area.

Table 6.3: Major water users/requirements in the Pondoland key area (at 1:50 year assurance)

User sector	Water requirement/ Impact on yield (million m ³ /annum)
Irrigation	0
Urban	1
Rural	3
Mining and bulk	0
Afforestation	0
<i>Total local requirements</i>	<i>4</i>
Transfer out	0
Total local requirements	4

6.5 RECONCILIATION OF REQUIREMENTS AND AVAILABLE WATER

The current reconciliation of the available water resource and the water requirements is given in Table 6.4.

Table 6.4: Reconciliation of the water requirement and the water resource in the Pondoland key area (all units are million m³/a)

Key area	Available water			Water requirements			Balance
	Total Local yield	Transfers in	Total	Local requirements	Transfers out	Total	
Pondoland	5	0	5	4	0	4	1

Based on the figures shown in Table 6.4, there is only a very small surplus available in the Pondoland key area. However the resource can easily be augmented by constructing a few small dams, since the runoff is high. The Eastern Pondoland Basin Study (DWAF, 2004) ⁽²⁵⁾ has identified a number of potential dam sites in this key area. It should also be borne in mind that the utilisable yield is very much dependent on the impact

that the ecological Reserve has on the natural flow. This has been determined using accepted desktop methodology. However the ecological water requirements for the estuaries are not taken into account in the calculation of the figures in Table 6.4 because, they are not available, but in all likelihood the estuary requirements will drive the Reserve requirements given the fact that the estuaries are the most ecologically sensitive areas.

6.6 WATER QUALITY

The resource quality objectives in the Pondoland key area have not been set as part of the Reserve determinations. This is because only desktop Reserves were conducted in the area. The main water quality issues and concerns are the following:

- ❑ **Lusikisiki WwTW:** This Wastewater Treatment Works (WwTW) is overloaded because it is now treating more sewage than it was designed for. The WwTW was to service the town but other surrounding areas are now being linked to the system. Some of the areas are serviced by conservancy tanks, or septic tanks. There are potential groundwater pollution problems. Groundwater development is a likely option to augment the water supplies of Lusikisiki. The siting of boreholes will be crucial to avoid areas where groundwater is polluted and this must be done according to DWAF guidelines.
- ❑ **Lusikisiki solid waste sites:** Lusikisiki is still operating an outdated solid waste site. This site needs to be closed. Leachate from the solid waste site could cause groundwater pollution if it is not closed and properly maintained.
- ❑ **Flagstaff WwTW:** There are conservancy tanks, which are taken to the commonage for emptying. That creates potential for the pollution of groundwater, which is the main source of water supply to the town. The local prison has its own oxidation ponds.
- ❑ **Water-borne diseases:** The main existing sources of supply to the rural communities in the Pondoland key area are run-of-river supply and groundwater. There have been cholera outbreaks in the Lusikisiki area. This is usually a reflection of poor water supply and sanitation in the area.

6.7 PONDOLAND KEY AREA STRATEGIC PERSPECTIVE

6.7.1 General

The Pondoland key area, as with the other key areas of the Mzimvubu to Mbashe ISP area, is well-endowed with natural water resources, but high ecological Reserve requirements will affect the volumes available for consumptive use. The area is virtually undeveloped at present. The water requirements are very limited, and consist mostly of rural water use, and use by the small town of Lusikisiki. Rural water users make use of run-of-river flow. The small Magwa tea plantation is only irrigated during infrequent periods of low rainfall.

Irrigation in this key area is not significant but there are 29 000 ha of afforestation. This does not significantly impact on the available water resources.

The strategy for this key area is to maintain the *status quo*. However, if the proposed mining development is to be pursued the necessary water use license should be carefully considered. Dryland agriculture should be encouraged because of the favourable climate and rainfall conditions of the key area.

6.7.2 Water Balance and Reconciliation strategic perspective

The current water availability in the Pondoland key area indicates a surplus of only **1 million m³/a**. Further surface water potential exists from the potential dam sites identified in the Eastern Pondoland Basin Study.

As far as future urban water is concerned only small future increases in requirements are envisaged. It has however been identified that Lusikiki needs supplementary water, as do the many villages that surround the town. The Eastern Pondoland Basin Study ⁽²⁵⁾ identified the construction of the Zalu Dam in the Xura River just north of the town and /or the development of groundwater sources, as the best augmentation options. The Directorate: Options Analysis is busy with a feasibility study of the groundwater development option. The study will be completed in 2005. The O.R. Tambo District Municipality is also investigating groundwater development for Lusikisiki. Some holes have already been drilled. Options Analysis and O.R. Tambo District Municipality should collaborate and preferably pool their efforts.

The general development of the key area, and in particular the coastal area, nature reserves and tourism will depend largely on a decision regarding the proposed new N2 toll road route. The requirements for those developments will not be significant and should not pose problems in this well watered region.

There is potential for development of dryland agriculture and forestry in the Pondoland key area. The recently commissioned Forestry SEA will provide a more detailed assessment of where forestry development can take place and what mitigation measures will be required to ensure environmental protection given the high ecological importance and sensitivity of the key area.

The Pondoland key area has been identified for mining of heavy minerals. Although DWAF has not been approached with a licence application to allocate water for this potential development, the mines should be encouraged to approach DWAF long before water is required. This should be part of the business plans. The proposed heavy metal mining development along the Pondoland Coast would require considerable volumes of water. An option to meet mining water requirements will be to import water from the Mzimvubu River.

6.7.3 Water resource protection - Reserve and Resource Quality Objectives strategic perspective

The Mkambati Nature Reserve, which is of high ecological importance and sensitivity, is situated in this key area. The ecological Reserve conducted for the Eastern Pondoland Basin Study was based on the desktop method and did not take into account the ecological water requirements of the estuaries, which are still in a near pristine condition. The protection of the resource base through the implementation of the ecological Reserve and determining the resource quality objectives of the streams in the key area are essential. This strategy is described in detailed in **Strategy No 2.2**. However, a balance between resource protection and development of the key area to improve the welfare of the communities is essential and should be considered.

Resource Quality Objectives (RQOs) for this key area have not been determined. These need to be set and a monitoring protocol established. This is also discussed in **Strategy No 2.2 in Part 2**.

6.7.4 Water conservation and water demand management (WC/WDM)

Lusikisiki urban WC/WDM: A situation assessment and a mass balance analysis undertaken for the town has identified that the water losses are high.

DWAF must encourage and provide support to the local authorities to develop their business plans which reflect targets for water use reduction based on best water-use practices for the domestic sector and the level

of service. **Strategy No. 4.1** describes the strategic approach and management actions required to address this issue.

6.7.5 Waterworks management

System Management: According to the DWAF Regional Office, Magwa Dam is not being fully utilized and only sometimes supplies water to the tea plantation. No environmental releases are being made from the dam.

Dam Safety: Magwa Dam is owned and operated by DWAF. There is a permanent leak of about 3 –4l/son the construction joints of the intake works.

Operation & Maintenance: The Magwa Dam is also owned and operated by DWAF. The dam is underutilized. It supplies water to the tea processing factories. No environmental releases are made from the dam to meet ecological water requirements downstream of the dam.