

SECTION C

CHANGES IN LANDUSE:

- INVASIVE ALIEN PLANTS
- COMMERCIAL FORESTRY

C1. Removal of Invasive Alien Plants

1. THE EXTENT OF INVASIVE ALIEN PLANT INFESTATION

Within the catchment of the Berg River, it is estimated that the condensed area of invasive plant infestation (year 2000 land-use) is approximately 137 000 ha (*Berg Water Resource Situation Assessment*, 2002). Most of this lies within the lower Berg River catchment and is primarily found in the riparian zones.

1.1 Current Removal Strategy

Through the Working for Water programme, the clearing strategy is focussing on the uppermost (high rainfall) areas of the Berg River catchment. In particular, clearing efforts have prioritised a 30 m strip on either side of the river channel. In the high mountain areas, attention is focussed on light infestations to reduce the risk of spreading of seeds.

1.2 The Impact of Invasive Alien Plants on Surface Water Runoff

The impact of invasive alien riparian vegetation is most pronounced on the low flows. This, in turn, impacts on the run-of-river yield and consequently, on the yield of storage dams on those rivers. Irrigation releases in the Berg River are also reduced by invasive alien vegetation.

It is estimated that in the Berg WMA :

- the average annual reduction in surface water runoff is in the order of 87 million m³/a. Of this, about 21 million m³/a occurs in the Upper Berg River and 55 million m³/a in the Lower Berg River.
- the resulting impact on the 1 in 50 year yield from the Berg WMA, is about 2 million m³/a (Ref : Berg WMA Internal Strategic Perspective).

The potential clearing of riparian vegetation along a section of the Lower Berg River has recently been investigated in the *Pre-feasibility Study of Potential Water Sources for the Area Served by the West Coast District Municipality*. The draft report concludes that downstream of Voëlvelei Dam (between Zonqwasdrift and Misverstand Weir) there is about 380ha of riparian invasive alien plants. It further suggested that the average annual yield at Misverstand Weir could be increased by as much as 1.4 Mm³/a if this riparian alien vegetation were to be cleared. The equivalent impact on the yield at a 1 in 50 year assurance would need to be assessed for comparison with the ISP estimate indicated above.

2. COSTS OF CLEARING

Clearing costs vary, depending on the species and density of the infested areas. An order of magnitude for clearing is as follows:

Infestation Density	Pinus	Acacia	Eucalypts
	Clearing Costs (R/ha)		
Light (5 - 25%)	644	1 473	2 823
Moderate (25 - 50%)	1 154	1 587	3 042
Dense (75 - 100%)	3 503	4 204	3 139

(Ref : *Pre-feasibility Study of Potential Water Sources for the Area Served by the West Coast District Municipality*).

3. ECOLOGICAL

The following environmental benefits are associated with clearing of invasive alien plants :

- improved biodiversity;
- control of erosion and reduction in fire hazard.

4. SOCIO-ECONOMIC

The main socio-economic benefit associated with clearing of invasive alien plants is job creation.

5 THE WAY FORWARD

The prevention of further spread of invasive alien plants is to be encouraged. From a water resource perspective, clearing activities should continue to focus on those areas in which maximum benefit from increased surface water runoff will be achieved. The benefit of clearing within the riparian zone, upstream of storage dams appears to be favourable.

C2. Removal of Commercial Forestry

1. THE EXTENT OF COMMERCIAL FORESTRY

The extent of commercial afforestation in the Berg Water Management Area (WMA) and in the Breede River catchment is estimated to be as follows :

- **Berg WMA (11 970 ha) :**
 - 7 710 ha in the Berg River catchment with 7 500 ha lying upstream of Voëlvlei Dam
 - 240 ha in the Diep River catchment
 - 1 120 ha in the Cape Peninsula
 - 2 040 ha in the Kuils/Eerste/Lourens/Sir Lowry's Pass River catchments
 - 860 ha in the Steenbras River catchment
- **Breede River Catchment (5 800 ha) :**
 - 1 340 ha in the Upper Breede catchment, upstream of Greater Brandvlei Dam
 - 2 220 ha in the Riviersonderend River catchment, most of which lies in the catchment of Theewaterskloof Dam
 - 2 280 ha in the Lower Breede catchment, to the north of Swellendam
 - the remainder spread sporadically throughout the rest of the Breede River Basin.

1.1 Current Strategy

Mountain-to-Ocean (MTO), formerly SAFCOL, together with the Department of Water Affairs and Forestry have determined that commercial afforestation is not economically viable in most forests of the Western Cape. Current plans envisage that this will be phased out by (date ?). It is likely that some of the areas will be reduced to their natural state while others may be utilised for agricultural development by Resource Poor Farmers or commercial agriculture.

1.2 Impact on Runoff

Within the Berg WMA, for example, commercial afforestation is estimated to reduce runoff by about 26 million m³/a. This has a resulting impact on the 1 in 50 year yield from the WMA of about 6 million m³/a (Ref : Berg ISP).

Within the Upper Breede and Riviersonderend catchments, the reduction in runoff is estimated to be about 7,5 million m³/a with a resulting impact on the 1 in 50 year yield of 1 million m³/a (Ref : Breede ISP).

Although current practice is not to plant trees in the riparian zone, afforestation's greatest impact is on low flows and therefore on the run-of-river yield.

2. COSTS OF REMOVAL

There should be no direct costs associated with the planned removal in commercial forests as this is already being implemented. It is envisaged that follow-up clearing and removal of the invasive alien regrowth will also be undertaken.

3. ENVIRONMENTAL

There will be significant environmental benefits where commercial forests are removed and returned to natural vegetation. There will be no such benefits where these areas are used for agricultural purposes, except perhaps the reduced likelihood of invasive alien trees establishing in the adjacent natural fynbos areas.

4. SOCIO ECONOMIC

The decision to discontinue commercial afforestation will reduce employment opportunities, both in logging and the associated sawmills. However, the phased withdrawal will include placement of staff in alternative employment.