

# Patterns of domestic water inadequacy on the South African West Coast

K Rush<sup>1</sup>, MKR van Huyssteen<sup>1\*</sup> and J Olivier<sup>2</sup>

<sup>1</sup>Department of Geography and Environmental Studies, University of Stellenbosch, Stellenbosch 7600, South Africa

<sup>2</sup>Department of Geography, University of the North, Sovenga 0727, South Africa

## Abstract

Regional surveys aimed at identifying water inadequacies are important in providing a proper empirical base for remedial actions regarding water supply. This study examines patterns of domestic water inadequacy in the Sandveld region along the arid South African West Coast. It is based on the results of a questionnaire survey conducted in August and September 1995 amongst 62 respondent communities between the Orange River in the north and the outskirts of Cape Town in the south. Aspects of water inadequacy that are investigated include the occurrence of water shortages as well as deficiencies in water quality and accessibility. Domestic water shortage is defined at two levels; a short-term shortage is deemed to exist where less than 25 l is currently available *per capita* per day, and a medium-term shortage where between 25 and 55 l are available. The study identifies seven communities in the former category and a further 12 in the latter. Virtually all of these water-short communities are small (< 1 000 population) agricultural, service or mission hamlets of which the majority are to be found in the former so-called "Coloured Rural Areas" in south-central Namaqualand. Most of the seven communities with serious quality deficiencies in their water supply, and a majority of the considerably larger number with suboptimal accessibility conditions, occur here as well. Yet the worst-off communities in both these respects – and also in terms of overall domestic water inadequacy – occur further south in two smallish clusters west of the lower Olifants River and in the Swartland district near Cape Town respectively.

## Introduction

One of the better-known goals of the Reconstruction and Development Programme (RDP) adopted by South Africa's new Government of National Unity in 1994 was to provide "adequate" access to clean water for all citizens (ANC 1994). In the subsequent "Water Supply and Sanitation Policy" White Paper of the Department of Water Affairs and Forestry (DWA) (1994) this commitment was translated into "the practical goal of providing access to basic water supply and sanitation services to all within seven years" (Goldblatt, 1996). The immensity of this task is illustrated by the White Paper's estimate that more than 12 m. people country-wide lacked an adequate supply of domestic water at the time. Moreover, the majority of them (61%, or 7.3 m.) lived in the rural and platteland areas where distances are vast and the target population thinly spread in numerous small communities (Palmer and Eberhard, 1995). In addition, it should not be forgotten that "adequacy" implies much more than merely the provision of a minimum quantity of domestic water. As pointed out by Emmett and Rakgoadi (1993), the supply should also meet certain minimum criteria with regard to its quality, accessibility and availability/reliability, thus increasing the costs of provision.

While the latter aspects are clearly as important as the quantity of domestic water provided, it is only to be expected that in areas where water demand exceeds supply the overriding concern will be the quest for a sufficient supply. One such area is the thinly-peopled and naturally arid South African West Coast where, as in most similar regions world-wide, there is a need for supplementary water for domestic use (Postel, 1992; Bester, 1993). Potential supplies are limited, however, not only by the meagre annual

rainfall (as low as 25 mm in the Port Nolloth area) and the presence of only three perennial rivers (the Orange, Olifants and Berg), but also by the fact that borehole water in the area is often brackish in nature. Fortunately, this latter problem is now being tackled with great success through the recent commissioning of several desalination plants based on the locally developed tubular reverse osmosis membrane technology (Anon, 1996). Further improvement in the supply situation is currently being achieved through various RDP-funded projects that were begun in the 1997/1998 period, particularly in the northern parts of the region (Roberts, 1998). Few details have as yet come to hand regarding the specific nature and impact of these ongoing projects, however, or the way in which the beneficiary communities were selected. Meanwhile, research is still continuing on yet another supply possibility, that of tapping the abundant fogs along the coast (Olivier, 1997; Olivier and Van Heerden, 1999).

Whichever supply solutions may in due course be forthcoming for the various West Coast communities, it seems clear that it will require careful and innovative planning. West Coast communities are generally so small, poor and widely scattered, however, and suitable perennial water sources so few and far between, that such planning would probably best be done on a regional rather than on a local basis. A basic prerequisite in this regard – and this also applies to other water-short areas – is reliable prior information on the location and extent of existing as well as potential domestic water shortages. In view of this and as background to the fog-water research begun in 1994 (Olivier and Van Heerden, 1999), a survey was undertaken in August and September 1995 to determine the facts regarding the problem of domestic water inadequacy on the West Coast. The central purpose of the study was to map the spatial pattern of water shortage. Other aspects of water inadequacy were also examined, however, as was the general situation regarding domestic water supply in the region. It is of course likely that subsequent events may have outdated some of the findings described here. Hopefully, however, most of the material presented

\* To whom all correspondence should be addressed.

☎ (021) 808-3110; fax (021) 808-2405; e-mail: avdw@maties.sun.ac.za  
Received 13 October 1999; accepted in revised form 3 July 2000.