

# Knowledge and attitudes in the rural Western Cape towards pesticides in water sources

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## Abstract

There is a need for pesticide water monitoring in South Africa and for community awareness with regard to chemical contamination of rural water sources.

The results of two descriptive studies in the rural Western Cape are reported. One assessed water usage and the knowledge, attitudes and practices in relation to water of farm residents (229 participants from 60 farms) in the Slanghoek Valley, Hex River Valley and Grabouw (KAP) and the other (monitoring capacity survey), investigated water usage and the capacities of rural communities (63 farm residents from 16 farms in three local authorities and 8 environmental health officers (EHOs) from 7 local authorities) to conduct monitoring of pesticides in rural water sources.

Most farm residents in both surveys identified protected sources such as groundwater from springs and boreholes (30 to 60%), and water from mountain dams (40 to 65%), as the most important sources for drinking and other domestic purposes. Many (> 40%), however, also reported farm dams. For use in the field (both drinking and other), potentially contaminated sources (river, subsurface drains, dams) were more frequently reported. Forty-eight percent of participants also reported swimming in farm dams. Other water sources reported included municipal, rain and canal water. In the monitoring capacity survey, 27 % reported using untapped water. About a third of respondents in the KAP survey reported living within 10 m of the nearest site of spraying and many used pesticides at home for pest control (41%) and in the garden (33%). While almost all participants (> 90%) in both surveys were aware that pesticides and polluted water could be harmful, many did not identify health effects (20%) especially chronic effects (91%) or reported no training (37%) in health effects. In all 7 districts surveyed in the monitoring capacity survey, water sources on farms are tested by EHOs. Only 3 (37%) respondents felt that there were enough persons conducting water monitoring in their area. Only 1 respondent reported that pesticides were monitored, and only in request to a complaint. Three state laboratories, that did not have the analytical capacity to conduct routine pesticide water monitoring at low (< 0.1 mg/ℓ) detection limits, were identified as conducting water analyses.

The study found that farm residents in the Western Cape are potentially exposed to pesticides through various environmental routes including water. This emphasises the need to monitor water for pesticides in the Western Cape, but in order to do this, human and laboratory resources and capacities to conduct routine pesticide water monitoring need to be increased.

**Keywords:** pesticide knowledge, water, pollution, monitoring capacity

## Introduction

South African water pollution control legislation has changed substantially in recent years. Following a consultative process involving the publication of a White Paper on a National Water Policy for South Africa (Department of Water Affairs and Forestry, 1997), and a Draft White Paper on Integrated Pollution and Waste Management for South Africa (Department of Environmental Affairs and Tourism, 1998), Parliament enacted the National Water Act in 1998 (Department of Water Affairs and Forestry, 1998). One of the principal changes contained in the Act is the move toward management of water resources on a catchment basis, based on "demand" rather than supply, and emphasising greater conservation of water resources through measures such as an appropriate pricing system. The Act also emphasises public participation and provides for greater community involvement in water management

structures. Additionally, the Department of Water Affairs and Forestry's (DWA) White Paper recognises the lack of access of millions of South Africans to a safe water supply.

However, despite the importance of the agrochemical industry in the South African economy (National Department of Agriculture, 1998; Torres et al., 2000) and high levels of pesticide usage in the country (London and Myers, 1995a; b) relatively little monitoring of rural water sources in SA has taken place with regard to pesticide pollution (London et al., 2000). Thus, in addition to a probable lack of knowledge and capacity, opportunities for rural farming communities to participate in water catchment management are limited by the lack of data on pesticide pollution. Nonetheless, studies have increasingly begun to report on pesticide pollution arising from farming activities in SA. Weaver (1993) found atrazine present in water entering irrigation systems in the Northern Cape, resulting from runoff from maize farming. London et al. (2000) found consistent pesticide pollution of surface- and groundwater including drinking water in three rural Western Cape agricultural districts in 1996-1997. The polluted drinking water was identified mostly in dams and boreholes used by rural communities, but also in two major dams contributing to municipal

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