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PROTECTING THE GREAT ARTESIAN BASIN – A SOUTH AUSTRALIAN PERSPECTIVE ON THE MERITS OF A COOPERATIVE APPROACH

D. Leek and K. McShane

Arid Areas Catchment Water Management Board, GPO Box 1671, Adelaide SA 5001

The Great Artesian Basin (GAB) is one of the world's largest artesian water reservoirs, and perhaps arid Australia's most important water resource. GAB springs and soaks provide crucial habitat for rangelands animals, particularly in times of drought, when other water sources are not available.

The discovery of the Basin in the 1880s opened the rangelands of Australia to pastoral and mining development and more recently, to the cultivation of the tourism industry based on the natural beauty of the GAB oases.

Development of pastoralism in this part of Australia was based on sinking progressively more bores, and by 1918 it was estimated that 1500 free flowing bores had been sunk into the GAB, discharging 2,000 megalitres per day. (Habermahl 1980).

The regional impact of this discharge varied considerably, with pressure drops of up to 80 metres in some areas (Habermahl 1980), and the cessation or decline in flow from some bores and natural springs. The unsustainable nature of allowing water to freely flow into a climate with evaporation rates of 3,600 mm per annum, without a full attempt to recoup that water for use became increasingly apparent to all concerned. It is accepted that around 95-98% of water from free flowing artesian wells is lost to either seepage or evaporation. The costs involved with fully capturing all water from a bore for use was however, prohibitively expensive. Furthermore, the technology to cap and pipe artesian wells, with temperatures of up to 100 degrees centigrade and pressure levels of above 1,000 kilograms per area, was not available until the last decade or so. The use of free flowing bores and open bore drains also requires less maintenance and labour time from landholders, and the disincentive to convert to a closed system in terms of time and cost were significant.

South Australian efforts to control the flow of bore water from the GAB date back to 1977 when the State Government, with the support of the Commonwealth, initiated a scheme to rehabilitate GAB bores. Under this scheme State Government personnel were responsible for rehabilitating bores throughout the far north. The success of the program in water savings is unquestionable, with more than 200 wells rehabilitated since the 1970s, resulting in water savings of approximately 105 megalitres per day.

Yet it was not until the introduction of the Great Artesian Basin Sustainability Initiative (GABSI) in 1999 that landholders and local industry were directly involved (in an official capacity) in contributing to the improvement of water use efficiencies from artesian bores. While clearly many landholders had taken steps to improve their water management well before the introduction of the GABSI scheme, the financial and technical support offered through the scheme has greatly contributed to improving access to best practice technology and techniques for rehabilitating artesian bores and the associated distribution systems. It has been this cooperative partnership approach that has provided a catalytic effect for a change in the community's approach to the use of bore water.

The GABSI scheme has operated on a dollar-for-dollar basis, with the Federal Government contributing \$31.8 million from 1999 to 2004, and State Governments and landholders matching that amount in money and labour costs. In South Australia, the State Government will contribute \$1.76 million over the five-year life of the program, WMC Resources Ltd has contributed \$1.2 million and landholders have taken on the responsibility of labour costs and the installation of the extensive pipe networks and associated troughs and tanks.

The scheme has involved converting free flowing bores and open bore drains into capped and piped systems, minimising the impact of evaporation and seepage. Under the scheme, the bore rehabilitation effort has been accelerated, with nearly every pastoral property in the far north area participating in the scheme. Of the more than 300 artesian bores in the far north of South Australia, only around 30 are pending rehabilitation.

With the shared investment in the scheme has come a shared interest in the successful outcome of the program, and the subsequent shift in community attitude towards the efficient use of artesian water is palpable. The community has, in general, embraced the shift to closed bore systems.

The ability to control and spread watering points through the pipe and trough technique has also proved beneficial during the recent drought, with pastoralists able to direct their stock to specific locations on the property in a way which was not possible with open bore drains.

The bore rehabilitation and piping schemes have resulted in better management of the artesian pressures across the basin, improved water management on pastoral leases and greater security of water supply for groundwater dependant wetlands, springs and associated ecosystems.

At the time of writing, it is unknown whether a second round of GABSI funding will be allowed for in the Federal Budget, the results of which will be known by the time of the Rangelands Conference.

Whether the GABSI scheme is continued or not, the last five years have clearly demonstrated the merits of an integrated and cooperative approach to tackling environmental management issues. It has only been through the combined efforts of the landholders, the Commonwealth, State, and WMC Resources that such significant inroads have been made into improving the water efficiency in the far north of South Australia. The GABSI scheme has proven the benefits of involving all stakeholders (and that involvement is more than a token effort) in the process, and through genuine contributions from all participants the full realization of benefits extolled by the various groups have been realized. The key to this success is that stakeholders have been able to see the impacts of the water conservation projects firsthand and relate these outcomes to their own experiences.

The GABSI scheme to date has been a successful venture that should be a candidate for replication in other fields and regions.

In 2003, the South Australian Government prescribed the groundwater of the Far North Prescribed Wells Area, effectively regulating the extraction of water from the South Australian portion of the Great Artesian Basin. The Water Allocation Plan, which will determine what water can be taken from the resource and the conditions under which it can be taken, is currently being developed in consultation with the community. Once the Water Allocation Plan has taken effect, all water users in the region will require a license to extract water from the Basin. It is currently expected that the conditions of these water licenses for pastoral users will require the use of an efficient and closed bore and associated distribution system. The regulatory approach will protect the important water efficiency gains made through the GABSI scheme, and ensure that all landholders work for the protection of the resource. For the vast majority of landholders, who voluntarily participated in the GABSI scheme, such regulations should have little impact on the way in which they manage water. The details of the Water Allocation Plan continue to be developed.

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