Hi-tech methods for water conservation in South Africa

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INCREASING world awareness of the value of water as a finite natural resource and trends, particularly in developing countries, of state control of water supplies have thrust the need for conservation of whatever water is available squarely in the faces of people who depend on it, especially farmers. Seldom in the planet's history has a need been more dire — global warming, desert encroachment, and burning of rain forests hardly rank against the probable consequences of a permanent shortage of usable water.

South Africa, being not well placed for reliable seasonal replenishment of water resources, is especially vulnerable, and popular belief is that recurring disruptions in season patterns could be devastating unless strong measures are taken, and soon.

With the worst El Nino in 150 years poised to strike early next year, with a promised three-month drought, the threat is rapidly becoming acute.

In 1995 a trio of Pietermaritzburg businessmen, with some 60 years collective experience in electronics, recognised the urgent need for South Africa to keep pace with hi-tech water conservation methods. They felt they could do something to alleviate certain of the current water restriction problems, and they set up their company, Aptec Controls (Pty) Limited.

The company has devoted itself to the research and development of a range of electronic components for short and long range applications, particularly in irrigation and water storage.

Sales director Reg Maud described how products have been designed to regulate levels in storage reservoirs and to safeguard borehole pumps. "The computer-driven system works on demand by the reservoir, switching on and off at predetermined levels. The borehole pump can be controlled at various depths, and it is designed to switch itself off if the borehole runs dry," he said.

Irrigation equipment is similarly programmed, said MD Bob Syder. A computer-activated transmitter sends signals to solar-powered receivers in the field, and metered quantities of water are delivered by centre-pivot control overhead sprayers, or by ground-level drip irrigation networks.

Syder explained how the systems do away with the need for hard wiring to switchgear. "Hard wiring, whether above or below ground, is susceptible to theft or damage," he said, "and it's expensive. One of our sugar-farmer customers had 1 500 km of wire in his system, at an average cost of R2 a metre. Work that out!"

He added that the systems were being increasingly used in vineyards and orchards — evaporation loss is minimal in drip irrigation systems, and watering can be accurately controlled.

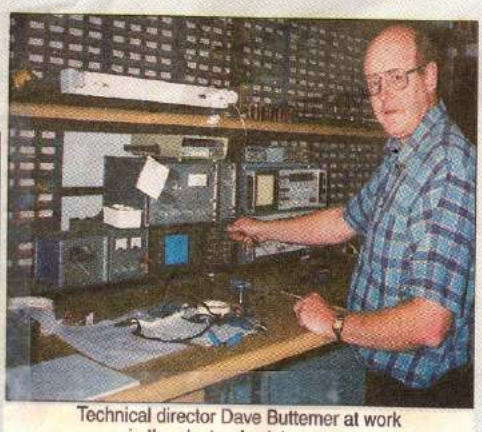
The members' combined expertise is formidable. Technical director Dave Buttemer is the electronics wizard, specialising in radio-signal switchgear. Reg Maud has been in sales most of his life, and retired banker Bob Syder provides the financial know how. Reg Maud told how the members injected substantial capital of their own into the business to get it going. "R&D was a big drain, and imported components are expensive. For most of our first two years of operation orders were painfully slow," he said, "and cash flow was tight."

In 1996 the company approached SBDC Limited for assistance. Pietermaritzburg branch manager Cronje Alberts said the business had good growth potential in both home and export markets, and shareholders could expect an above average return on investment.

"We put together an equity partner deal — SBDC took a minority shareholding and advanced a reasonably secured term loan, which took a lot of strain off cash flow" he said. "We also offered an unsecured shareholders loan at a variable interest rate, but this has not been necessary so far. The deal is still open, and further injections can be considered in the future."

What of the future? Maud says turnovers have increased steadily, and the order book is full. Major customers include a large Cape-based co-operative.

Much interest is being shown in the systems by neighbouring states and by the U.S. and UK, and the company is gearing up to export its technology under licence.



Technical director Dave Buttemer at work in the electronics laboratory.

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