MEDIA RELEASE

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AUSTRALIA AT THE CUTTING EDGE

Evidence that Australian science and technology is competitive with the world's best is emerging from the nation's Co-operative Research Centres, as these three stories show:

A CURE FOR AGING EYESIGHT is on the way, with the development by an Australian team of a permanent lens and gel that can replace the normal lens of the eye.

Scientists at the ***Vision CRC*** are well advanced in their quest to develop an implant that overcomes both loss of focus in aging eyes - or presbyopia - and other vision problems such as short sightedness.

Its developers believe that if successful in human trials - due to begin in 2004/05 - the technique will also overcome cataracts as a cause of loss of sight.

Tests found that the implantable gel lens has around four times the focal power of a pair of reading glasses - significantly better than the researchers' had aimed for, says team leader Dr Arthur Ho. "However we have yet to test it in human patients, so we won't know for sure till then," he adds.

Work on the implantable gel lens began in the CRC for Eye Research and Technology and is being carried on in the new Vision CRC. "Our initial aim was to overcome the inability of the aging eye to focus close-up, caused by the gradual hardening of the lens," Dr Ho explains.
"This affects almost everyone aged 45 or more. In Australia, that's about 6.7 million people now - and around 9.9 million by the end of this decade, or 44 per cent of the population."

However the team also wanted to combine the ability to focus close-up with other forms of vision correction, such as distance refractive error - to provide total correct vision, short and long, for the ageing eye.

Besides inserting the soft gel lens, they also propose to insert a novel 'mini-lens' to correct other aspects of vision. This 'mini-lens' will be embedded in the gel within the human lens itself, giving both distance and close-up vision and, potentially, good vision at all distances that will last many years - maybe even a lifetime.

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VICTORIA'S FAMOUS FLEMINGTON RACECOURSE is to be the test site for a revolutionary water purification technology developed by the ***CRC for Waste Management and Pollution Control*** (CRC MWPC).

The Multiple Water Reuse (MWR) technology taps into the urban waste system to extract high quality water which can then be safely re-used on parks, ovals, farms and for domestic uses like toilets, gardens and washing machines.

MWR uses microfiltration and reverse osmosis to remove impurities from raw sewage and produce "grade A" clean water. No chemicals or biological processes are used to treat the water.

The trial plant will draw water from one of Melbourne's main sewers and yield up to 100,000 litres of clean water a day for Flemington, at a cost similar to water supplied by Melbourne Water.

CRC Executive Director Dr David Garman says that most water used by Australian cities is flushed out to sea after being used only once - a colossal waste in a nation that is starting to face critical water shortages.

"Many major cities re-use their water and Singapore has plans to re-use it several times. The MWR

approach means we can extract clean water from the waste system right where it is needed - instead of pumping water back uphill from the sewage treatment works."

Dr Garman says that with the addition of a minor further treatment it is possible to produce drinking-quality water from wastewater, though this is not proposed in this particular experiment.

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FINDING YOUR WAY around a huge sporting event, public exhibition or even a giant shopping mall is likely to be far easier in future with the development of a way-finding tool by the ***CRC for Construction Innovation***.

The way-finder is scheduled for its first outing at the Melbourne Commonwealth Games in 2006, helping visitors to locate the right event, the toilets, the bar or any other facility they need, says Construction Innovation chief executive Dr Keith Hampson.
Its development is likely to be a great boon, not only to visitors to large events or sites, but also to those with disabilities, sensory impairment or the elderly, he adds.

"It may be as simple as a mobile phone or hand-help device which locates you and then gives you simple directions, either on a map, as text or voice, to the place you want to get to," he says.

In addition the device may provide the user with hazard warnings or emergency advice.

The locators may be issued at the entry gate, or may even be accessible via your mobile phone or palm pilot.

"At the moment we're assessing what's going on around the world in mobile locators, to make absolutely sure our concept is cutting edge or beyond," Dr Hampson explains. "Phase two is to build our preferred system, and phase three is to install and trial it at the upcoming Commonwealth Games."

Down the track the uses for such devices are limited only by the imagination, with self-guided tourism, big shopping centres and expos being major potential markets.

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