WATER RESOURCES

CAPABILITIES STATEMENT

Australia is facing a water supply crisis. A growing population, intense agricultural and industrial activity, and increasing attention to river health are resulting in an increased demand for water. Yet the security of water supplies in meeting this increasing demand is fragile and uncertain. It is believed that climate change will have adverse effects on both supply and demand aspects of water systems. The imbalance between supply, demand and security of supply is a serious challenge not just for Australia, but for the entire world. The Water Resources Research Group aims to undertake innovative research to address these challenges. The research group works closely with the Institute of Sustainability and Innovation.

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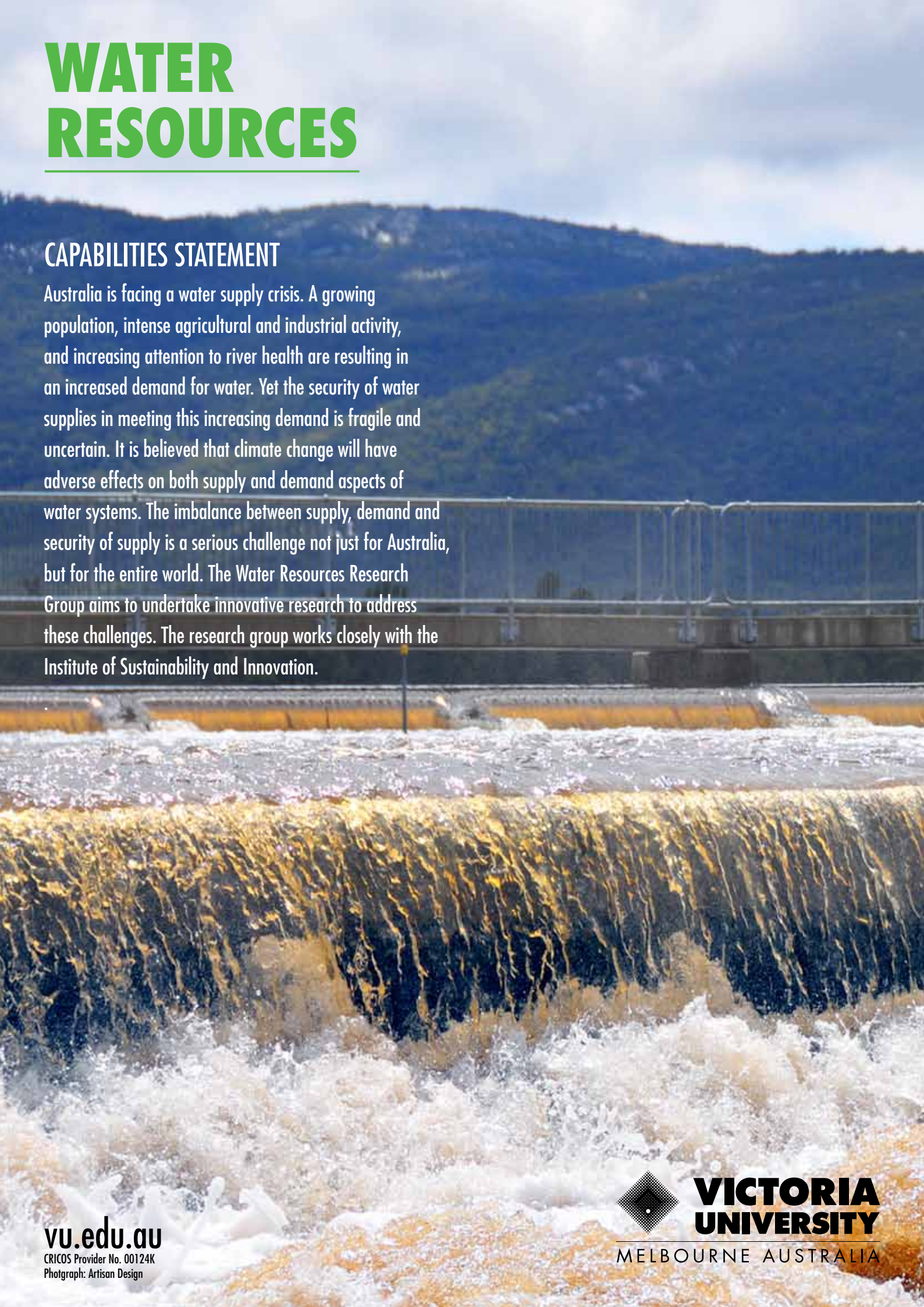

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VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

OUR RESEARCH EXPERTISE

Our research includes five main themes.

Water resources planning:

- potential impact of climate change on water resource systems
- meeting consumptive uses of water through efficient and equitable sharing of water resources
- streamflow generation techniques (e.g. using remote sensing data)
- sustainable river basin management
- protection of integrity and sustainability of ecosystems

Integrated urban water management:

- stormwater harvesting opportunities for urban development
- non-residential urban water demand modelling
- 'third pipe' issues using stormwater and recycled water
- alternative water sources (rainwater, reclaimed and treated waste water)

Hydrological modeling:

- climate change and urbanisation impacts on urban drainage systems
- short term forecasting of hydroclimatic variables
- downscaling of General Circulation Model (GCM) outputs to catchment level hydroclimatic parameters

Water infrastructure and asset management:

- deterioration models for stormwater pipes
- asset management of sewers and manholes
- monitoring corrosion in water mains using in-situ sensor
- impact of source management practices on septicity in sewerage pipe networks

River water quality modeling:

- improving river water quality (considering point and non-point source pollution)
- agricultural non-point source pollution
- septic tank pollution of rivers
- river water quality indices

TRACK RECORD AND REPUTATION

The Water Resources Research Group has attracted many research grants from external bodies like the Australian Research Council and the Victorian Smart Water Fund. Every year the group graduates at least 2 post-graduate research students. These students have taken up a wide range of positions within Australia and overseas.

The Water Resources Research Group produces a large number of publications in high impact journals and international conferences, details of which can be found on our website.

FACILITIES AND EQUIPMENT

The Water Resources Research Group have a fully equipped fluid mechanics and hydraulics laboratory. Most research projects involve field work and monitoring, using pluviometers, flowmeters, and water quality monitoring equipment. The majority of the water resource projects use computer modelling with a range of industry standard hydrological and water resources computer software packages including Resource Allocation Model (REALM) and ARCGIS.

INDUSTRY ENGAGEMENT

The Water Resources Research Group strives to develop strong relationships with the industry and thus most of our research projects are conducted in collaboration with the industry. Our past and current industry partners include Victorian Department of Sustainability and Environment, Grampians Wimmera Mallee Water, Melbourne Water, City West Water, Yarra Valley Water and various local city and shire councils.
The research group has collaborations with a selection of Australian/international universities and CSIRO.

We support the REALM water supply planning and management software tool, which is widely used in Australia. We also conduct REALM training workshops for the water industry. We provide specialised consulting services in water resources planning.

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