

APPENDIX 1. Perth Case Study Overview.

Perth is a city of 1.7 million people (Australian Bureau of Statistics 2013) inhabiting a coastal strip of south-western Australia. Winter dominated rainfall, hot dry summers (Australian Bureau of Meteorology, 2012) and sandy, porous soils give Perth the highest domestic use of water in Australia (Water Corporation 2009). Since the mid-1970s south-western Australia has experienced a decrease in rainfall (Bureau of Meteorology 2010), and inflows into Perth's dams have declined significantly (CSIRO 2009). To meet demand, the city increased extraction of the region's extensive groundwater systems. However, monitoring has shown a decline in the main aquifers used to supply the city (CSIRO 2009). Further detail on Perth's management and governance responses to water scarcity are summarized in the timeline below.

- **1975 – 2000**
50% reduction in inflow to surface water storages based on pre 1975 long-term average. Various demand management water restrictions implemented. Groundwater extraction is increased to meet supply demands.
- **1986-1993**
Concept of Water Sensitive Urban Design (WSUD) emerges in research and guidelines for implementation are developed.
- **1996**
Following national water reform and competition policy initiatives, the WA water sector is corporatized into a services utility (Water Corporation), water resources development and conservation agency (Water and Rivers Commission) and regulatory body (Office of Water Regulation)
- **2001 – 2010**
Surface water storage inflows continue to reduce. Total inflow of 6.2GL for 2010 is lowest in a century long record.
- **2001**
Seasonal water sprinkler ban introduced.
- **2003**
State Water Strategy released. Sets broad agenda for sustainable water management, and acknowledged the need for governance reforms.
Various education, research, industry engagement and rebate programs to promote water efficiency established.
- **2004**
Kwinana recycling plant opens to supply fit-for-purpose recycled wastewater for industrial use.
'Security through Diversity' approach to water management adopted by Water Corporation. Includes plans for desalination, development of groundwater sources, and further demand management education campaigns.

- **2005 – current**
Mining resource boom drives high economic growth and subsequent population growth and land development.
- **2005**
Opposition loses state election largely on basis of water policy platform.
12 year catchment ‘thinning’ trials to increase run-off begin
Dedicated water policy agency, the Department of Water, is created.
- **2006**
A blueprint for water reform in Western Australia in 2006 released, providing key recommendations on governance reform.
Water Resources Legislation Amendment Bill transfers many functions and powers for water management to the Minister for Water (administered by the Dep. Of Water).
The Perth Seawater Desalination Plant, Australia’s first, is brought online to supply 45GL of Perth’s potable water supply.
- **2007**
State Water Plan released. Provides strategic framework for water resources planning and management.
- **2008**
Better Urban Water Management released. Provides guidance on incorporating WSUD into land development through State Planning policies.
- **2009**
Water Corporation’s water supply management plan, *Water Forever*, released. Plans for reducing water demand, increasing water recycling, and development of new water sources.
CSIRO Sustainable Yields research finds that groundwater systems are experiencing stress.
Capacity of the desalination plant to be expanded to 100GL, supplying approximately 50% of current potable water demand.
- **2010**
Significant water restrictions imposed.
Three-year trial of Managed Aquifer Recharge begins.
- **2011**
Water Corporation releases updated *Water Forever* plan. Emphasis on increasing recycling, desalination capacity and securing groundwater sources to offset current surface water supplies.
The Southern Seawater Desalination Plant brought online, supplying 50GL of potable water.
The WA Local Government Association develops an investment plan for the Swan-Canning Catchment, raising issues and options for drainage governance.

- **2012**
Water services legislation is passed to cut red tape, increase competitiveness and ensure service efficiencies and standards.
Relevant organizations sign partnership agreement to improve urban drainage management.
- **2013**
The Southern Seawater Desalination expansion due for completion, increasing the city's desalination capacity to approximately 50% of its potable water supply needs.
Governance reforms to water resources management legislative framework ongoing.

LITERATURE CITED

Australian Bureau of Statistics. 2013. 2011 Census QuickStats: Greater Perth. [online].

Australian Government. URL:

http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/5GPER?opendocument&navpos=220 [Accessed: 18 December 2013].

Bureau of Meteorology. 2010. Special Climate Statement 22: Australia's wettest September on record but it is not enough to clear long-term rainfall deficits. Bureau of Meteorology. Australian Government, Melbourne, Australia.

CSIRO. 2009. Factsheet 4: Water in south-west Western Australia. Water for a Healthy Country Flagship. CSIRO, Perth, Australia.

Water Corporation. 2009. Water Forever: Towards climate resilience. Water Corporation. Perth, Australia.