



SCIENCE AND  
INDUSTRY  
ENDOWMENT  
FUND



LIVERPOOL  
CITY  
COUNCIL

## STEM Community Partnerships Program

Liverpool local scenario

### Water

We are entering into an unknown future with shrinking natural resources and a growing population. The global population is projected to increase from 7 billion to over 9 billion by 2050, and our national water use is expected to double in the same time period.<sup>1</sup>

Of all the water in the world approximately 97% is salt water and 2% is located in our glaciers on the North and South Poles. This leaves approximately 1% as fresh and usable.<sup>2</sup> This small percentage is used for human consumption, households, agriculture, transportation and energy production. In many countries water scarcity is already a problem with 1 in 9 people worldwide not having access to safe and clean drinking water and 1 out of every 5 deaths of children under the age of 5 is due to a water-related illness<sup>2</sup>. Water scarcity threatens to become a problem for Australia's future too.

Across Australia, the driest populated continent on earth, consumers use on average 100,000 litres of freshwater per person, per year. Aside from domestic uses, the agricultural industry is by far the largest consumer of water, accounting for over half of Australia's water use, primarily for sheep, beef, and grain farming.<sup>3</sup> Water taken out of the system for domestic, agricultural or energy production is water that is not available for the environment. Maintaining the health of local water bodies is imperative for their future preservation.

Liverpool is home to two significant rivers: the Georges River and the Hawkesbury-Nepean River. Liverpool City Council has been involved in wastewater management projects to help maintain water quality in local waterways. A current project is the Liverpool CBD wastewater services – Phase 1 and two future projects are Wastewater services phase 2 and Elizabeth Street wastewater.<sup>4</sup>

How your Council tackles the complexity of this issue impacts you and your community, now and in the future.



<https://watersensitivecities.org.au/content/crcwsc-helps-liverpool-lga-realise-its-river-city-vision/>

## Your task

Your task is to use the information above and resources provided below as a start to identify a local problem and design a STEM-focused solution.

(Question, Design, Explore, Communicate)

## Resources

### CSIRO research

- Assessing Australia's Water Resources <http://www.csiro.au/en/Research/Environment/Water>
- Squeezing more water out of our cities, October 30, 2015 <https://ecos.csiro.au/squeezing-more-water-out-of-our-cities/>
- MAR for sustainable cities – Stormwater use options for urban water supply <https://research.csiro.au/mar/csiros-role-in-mar-research/research-to-develop-mar-for-liveable-sustainable-resilient-cities/>
- <sup>1</sup>CSIRO Global Megatrends Report Overview, 2012: <https://publications.csiro.au/rpr/download?pid=csiro:EP126135&dsid=DS2>
- <sup>2</sup>Hajkovicz, Stefan 2015, Global megatrends: seven patterns of change shaping our future, CSIRO Publishing, Victoria, Australia

### Reports

- Sydney Water South West Growth Area: <http://www.sydneywater.com.au/SW/water-the-environment/what-we-re-doing/current-projects/servicing-growth-areas/south-west-growth-area/index.htm>
- <sup>3</sup>Australian Bureau of Statistics: Water Account, Australia, 2014-15: <http://www.abs.gov.au/AUSSTATS/abs@.nsf/mf/4610.0>
- <sup>4</sup>Sydney Water – Liverpool CBD <https://www.sydneywater.com.au/SW/water-the-environment/what-we-re-doing/current-projects/servicing-growth-areas/liverpool-cbd/index.htm>
- Regional water availability report – weekly edition – 8 March 2021 [https://www.waternsw.com.au/\\_data/assets/pdf\\_file/0009/165357/Weekly-Availability-Report-8-March-2021-pdf.PDF](https://www.waternsw.com.au/_data/assets/pdf_file/0009/165357/Weekly-Availability-Report-8-March-2021-pdf.PDF)
- State of the Georges River 2020 report, <https://georgesriver.org.au/learn-about-the-river/the-state-the-georges-river-2020>

### Articles/Resources

- Liverpool City Council – water and waterways <https://www.liverpool.nsw.gov.au/environment/water-and-waterways>
- National Geographic, A Clean Water Crisis: <http://environment.nationalgeographic.com.au/environment/freshwater/freshwater-crisis/>
- World Water Council, Water Crisis: Towards a way to improve the situation: <http://www.worldwatercouncil.org/library/archives/water-crisis/>
- Sydney Water – water analysis <https://www.sydneywater.com.au/SW/water-the-environment/how-we-manage-sydney-s-water/safe-drinking-water/water-analysis/index.htm>
- CRCWSC helps Liverpool LGA realise its river city vision <https://watersensitivecities.org.au/content/crcwsc-helps-liverpool-lga-realise-its-river-city-vision/>
- Drones monitor Sydney's water cleanliness <https://watersource.awa.asn.au/business/assets-and-operations/drone-technology-monitor-sydneys-water-cleanliness/>

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