



Charles Sturt
University

A photograph of two female scientists in a laboratory. They are both wearing white lab coats. The scientist on the left is looking at a microscope, while the scientist on the right is smiling and looking towards her. There are several potted plants on the lab bench. The background shows laboratory equipment and a sink.

2022 Sustainable Development Goals Report



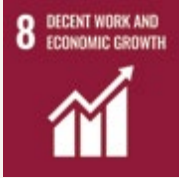


Acknowledgement of Country

We respectfully acknowledge the traditional owners and custodians of the lands and waters on which we live and work together. Charles Sturt University and its staff pay respect to Elders within First Nations communities and acknowledge the continuity of cultures, languages, leadership and knowledge.

We acknowledge First Nations peoples' continuous connection to Country, recognising the unique, diverse identities and cultures of peoples in our communities, regions and nation. As such, we value the collaboration to strongly position First Nations peoples in our university, through languages, leadership, cultures, knowledge, research and ceremonies.

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The following icons are used throughout this report



Research



Partnerships and engagement



Learning and teaching



Facilities and operations

Related impacts



Social impact



Economic impact



Environmental impact

Vice-Chancellor's foreword

At Charles Sturt University we are guided by the ethos yindyamarra winhanganha, a Wiradjuri phrase meaning the wisdom of knowing how to live well in a world worth living in. Students and staff are empowered to become sustainability champions, actively engaging in research, teaching, and community outreach endeavours with a commitment to enhance the well-being of all citizens.

The staff and students at Charles Sturt University have much to be proud of. As Australia's leading regional university and first certified carbon neutral university, everyday our people are undertaking important work to progress the 17 United Nations Sustainable Development Goals.

In 2022 Charles Sturt marked a number of significant milestones towards the 17 goals, including:

- The Gulbali Institute launched new impactful research focused on agriculture, water and the environment.
- The Collaborative Teacher's Aide Pathway enrolled 175 teacher education students to address the critical teacher shortages in New South Wales and support the broader delivery of quality education across Australia.
- Our commitment to reducing Charles Sturt University's carbon footprint improved as a result of expanding the solar panel program on the Bathurst campus and procuring more electricity from renewable sources.

Sustainability in all its forms is a core value embraced by Charles Sturt University staff and students, who passionately lead a variety of initiatives. These efforts include leading community resilience workshops and facilitating access to bicycles for international students to leading global conferences on sustainable development. The 2022 Sustainable Development Goals report is a testament to the unwavering commitment of the university community to promote and live these goals.

I continue to be inspired by the leadership the university demonstrates in support of the United Nations Sustainable Development Goals and I hope that the stories shared here encourage us all to take further action in our everyday lives in support of the 2030 Agenda.



Professor Renée Leon PSM
Vice-Chancellor and President



Hear more from
Vice-Chancellor
Professor Renée Leon
about Sustainability
at Charles Sturt.





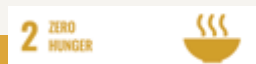
Our commitment at a glance

In September 2019, Charles Sturt University became a signatory to the University Commitment to the United Nations Sustainable Development Goals (SDGs). This commitment recognises the important role universities play in progress toward achieving the goals. Through our commitment, we agree to:

- support and promote the principles of the SDGs
- report on our activities in support of the SDGs
- provide the educational opportunity for our students to acquire the knowledge and skills needed to promote sustainable development
- contribute to achieving the SDGs by ensuring our campuses and major programs are environmentally sustainable and socially inclusive
- undertake research that provides solutions to sustainable development challenges.



Approximately 2,000 students were identified as disengaged and contacted and offered support. Students who accept support are 25% more likely to receive a pass or credit grade.



Offered over \$1.3 million in scholarships to students from First Nations and low socio-economic backgrounds studying in the areas of agriculture and horticulture, therefore investing in regional communities, young people and the durability of food production.

3 GOOD HEALTH AND WELL-BEING



Charles Sturt welcomed Marathon Health to campus with 40 staff co-located on our Albury-Wodonga campus, growing the allied health workforce and opportunities for students.

4 QUALITY EDUCATION



The Early Childhood Voices International conference was attended online by 1,956 delegates from 72 countries.

5 GENDER EQUALITY



Awarded an Employer of Choice for Gender Equality (EOCGE) citation from the Commonwealth Workplace Gender Equality Agency (WGEA) for the third year.

6 CLEAN WATER AND SANITATION



326,040 kilolitres of potable water consumed across Charles Sturt campuses in 2022.

7 AFFORDABLE AND CLEAN ENERGY



830 kilowatts of additional rooftop solar generation commissioned on Charles Sturt campuses in 2022.

8 DECENT WORK AND ECONOMIC GROWTH



91% of female applicants in 2022 were promoted, the highest female promotion rate at Charles Sturt University to date.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



\$3.9 million in funding received for the program 'Training Hub promoting Regional Industry and Innovation in Virology and Epidemiology' (THRIVE).

10 REDUCED INEQUALITIES



More than \$300,000 in funding received to research virtual health services delivery for disabled individuals in rural and regional Australia.

11 SUSTAINABLE CITIES AND COMMUNITIES



130 events hosted on our campuses including large conferences, industry forums, VIP visits, expert discussions, cultural and community events.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Our Port Macquarie campus became home to a plastic recycling machine 'Shruder', which has been utilised by local community organisations and students.

13 CLIMATE ACTION



12,000 tonnes CO₂-e reduced from Charles Sturt's carbon footprint in 2022 driven by procuring electricity from renewable sources.

14 LIFE BELOW WATER



Charles Sturt research was used to inform shark management practices for 50 beaches in NSW.

15 LIFE ON LAND



In its first year of operation our newly launched Gulbali Institute was home to 341 researchers across six campuses with 249 active projects valued at \$65 million.



1 NO POVERTY



End poverty
in all its forms
everywhere

United Nations goal:

SDG 1 aims to eradicate extreme poverty by 2030. It seeks to ensure that all individuals, regardless of their circumstances, have access to basic resources, services, and opportunities necessary for a decent life.

This goal recognises that poverty is not just about income; it also encompasses access to education, healthcare, food, clean water, and more. Addressing poverty requires comprehensive efforts, including social protection systems, job creation, and reducing inequalities.

45

publications based on
Elsevier queries

1.20

Field-Weighted Citation Impact

26

publications involve an
international collaboration

Figures are for 2018–2022



Related impacts



Study points to futureproofing the onion industry

Like the rest of the world, Bangladesh suffered severely when COVID-19 interrupted its supply chains. The most consumed perishable good in Bangladesh and Asia, onion, was the focus of one 2022 study involving Dr Richard Culas from Charles Sturt's Gulbali Research Institute in an international collaboration.

The study's purpose was to examine the current onion supply chain and distinguish the constraints that pre-dated COVID and those that came after.

The project identified the most critical challenges for the market, including constraints related to marketing, demand fluctuations, and storage issues.

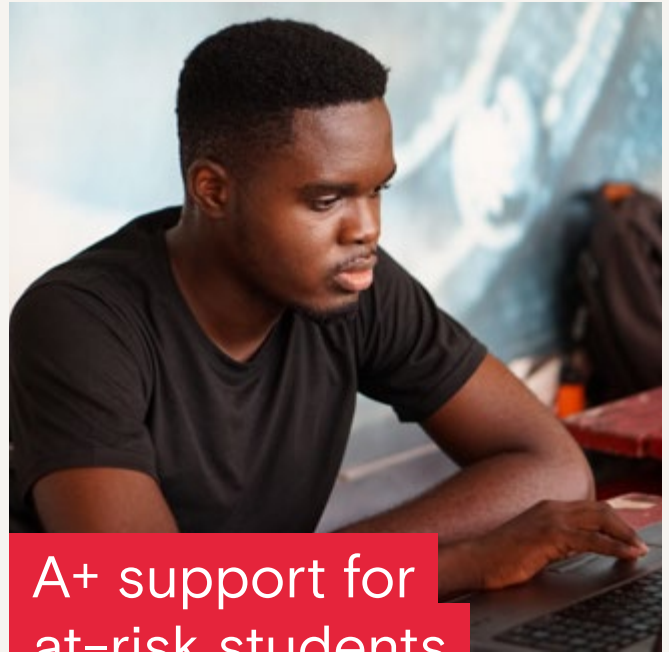
In the article published in the Journal of Agricultural and Food Research, the research team highlighted how the findings could assist policymakers to design frameworks that include procedures for expanding market infrastructure, providing training, and addressing interruptions to supply. This in turn would decrease the risk of threats to sustainability, as well as futureproof the onion supply chain to protect farmers, wholesalers, commission agents, and retailers who rely on the product for their livelihoods.



Find out more about
Supply chain constraints



Related impacts



A+ support for at-risk students

Thanks to research by our specialist retention team, Charles Sturt has an evidence-based, comprehensive approach to targeting disengaged students, particularly those from structurally disadvantaged equity groups.

The team identifies disengaged students, including those at risk of disengagement, through a number of research lenses and extensive study into the challenges influencing student engagement. Once the students are identified, the retention team works with them to provide assessment support through embedded tutors.

In March 2022, Dr Kelly Linden from the Retention Team published an article in the journal Student Success titled, "Improving student retention by providing targeted support to university students who do not submit an early assessment item. A practice report". Dr Linden's research plays a pivotal role in enabling Charles Sturt to provide first-class support for student equity groups that are over-represented at the institution.



Find out more about
Student retention



Related impacts



Funding boost for future students

More than 1000 additional Commonwealth Supported Places (CSPs) at Charles Sturt are open to prospective students from disadvantaged backgrounds for 2023 and 2024, due to federal government funding awarded to the university.

Charles Sturt was awarded 1084 CSPs, more than any other Australian university. The CSPs are allocated across two years and include 328 education places (including early childhood) and 204 nursing places.

The pre-Budget announcement made in 2022 included a total of 20,000 CSPs for students from rural and remote areas, low socio-economic backgrounds, First Nations people, first-in-family students, and people with disabilities.

Charles Sturt Vice-Chancellor Professor Renée Leon said the allocation would enhance the University's already stellar record as a driver of access to education for people who might otherwise miss out.

"Since it was founded more than 30 years ago, Charles Sturt University has led the way among Australian universities in making higher education accessible for people from regional Australia and from economically disadvantaged groups," Professor Leon said.

Image: Vice-Chancellor Professor Renée Leon and Minister for Education, The Hon Jason Clare MP pictured at the Charles Sturt Orange campus in July 2022.



Find out more about
CSP places



Related impacts



Financial support when you need it

Financial hardship can significantly affect a student's ability to study, or even force them to drop out of university. Charles Sturt offers a range of support services and programs to support students throughout their course, but sometimes life throws unexpected challenges that need emergency support.

A Student Emergency Equity Grant of up to \$1000 can assist with the costs of living, accommodation, groceries, textbooks, course materials and transport. It is open to both commencing and continuing students whose ability to study is in jeopardy due to financial distress. The university also recognises the additional challenges facing its First Nations students, therefore a separate First Nations Emergency Equity Grant is also available.

Students can apply for equity scholarships of up to \$15,000 per year to assist with the costs of accommodation, professional placements, technology, and other general costs associated with university study.



Find out more about
Equity scholarships



2 ZERO HUNGER



End hunger, achieve food security and improved nutrition and promote sustainable agriculture

United Nations goal:

SDG 2 focuses on ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture. The objective is to ensure that no one goes to bed hungry.

This involves not only increasing food production but also ensuring equitable access to nutritious and sufficient food. Sustainable agricultural practices, efficient food distribution systems, and reducing food waste are essential components of this goal.

285

publications based on Elsevier queries

1.33

Field-Weighted Citation Impact

194

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Research helps Lao goat producers to be more productive

Helping smallholder goat producers in Lao PDR to improve management and productivity was the focus of research co-authored by Charles Sturt University researcher Joanne Millar and published in 2022.

The results from a survey conducted with 70 goat-raising households in 2020 showed goats provided just under a third of household income and 40.6 per cent of total farm income, demonstrating how significant they have become to livelihoods. Disease, seasonal feed shortages and a lack of access to animal health services all impacted on productivity and income. Low-cost practices such as good housing, feeding quality forages, and avoiding inbreeding were suggested as improvements to allow families to increase goat numbers and economic returns.



Find out more about
Smallholder goat raising in Lao



Related impacts



Scholarships help grow next generation of ag workforce

Over \$1.3 million in scholarships were offered to students from First Nations or low socio-economic backgrounds studying agriculture and horticulture in 2022 through a partnership between Charles Sturt University, the Anthony Costa Foundation, goFARM Australia and Australian Farming Services.

These scholarships remove the financial barriers that exist for prospective students and inject young people from regional areas into the future of agriculture and horticulture. This program is an investment in vibrant rural communities, in the future of young rural people, and the durability of food production. Charles Sturt Emeritus Professor Jim Pratley said these scholarships aim to fill current and projected workforce capacity issues in the agricultural and horticultural sectors.



Find out more about
\$1.3 million support program launch



Related impacts



FishTech initiative to boost food security

Charles Sturt University will lead the FishTech initiative as part of a partnership between Australia and Lao to boost food security and climate resilience in the Mekong region in Southeast Asia. The initiative is part of an expansion of the Mekong Australia Partnership between the Australian Government, the Government of Lao, the Government of Cambodia, and The Australian Centre for International Agricultural Research, which will focus on the construction of fish passages in water management structures designed to improve rice productivity. With fish providing 60 per cent of all protein consumed by humans in the Mekong Basin, the investment in research in the economic, environmental, and social impacts on the region's rivers and wetlands is paramount. With involvement from the National University of Laos, local researchers are also developing valuable knowledge and skills.

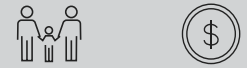
Image: Fish ladders, such as this one in Kampong Thom province, support the movement of fish in irrigation systems and dams, which also leads to stronger biodiversity production and local income generation.



Find out more about FishTech food security



Related impacts



Summit puts future farming in the spotlight

Charles Sturt University played host to the Digital Agrifood Summit in June 2022, which explored the latest in innovation and emerging commercial technologies.

Executive chairman of Bega Cheese, Barry Irvin, delivered a presentation on 'the circular economy' during which he spoke of the importance of working collectively towards a more sustainable future by reducing material use, becoming less reliant on resource intensive manufacturing, and capturing and repurposing 'waste'. Attendees took an up-close and practical look at the digital trends and technologies transforming Australian agriculture.

Image: Director of the Global Digital Farm initiative with the Gulbali Institute, Jon Medway, addresses attendees at the 2022 Digital Food Summit.



Find out more about 2022 Digital Agrifood Summit

Living the goals



“Being able to access a garden at my cottage on campus whilst studying allows me to grow fresh produce for not only myself, but my housemates and friends who live nearby. It’s great to be able to enjoy not only the process of growing the vegetables, but harvesting and consuming them. The gardens have provoked interest for many of my friends, and caused them to also become more interested in the process of growing their own food.”

Hannah Urquhart, student and resident of Wagga Wagga campus



3 GOOD HEALTH AND WELL-BEING



Ensure healthy lives and promote well-being for all at all ages

United Nations goal:

SDG 3 seeks to ensure healthy lives and well-being for all by addressing various health challenges. It includes reducing maternal and child mortality, combating diseases like HIV/AIDS and malaria, and providing universal access to healthcare services.

This goal underscores the importance of mental health and aims to achieve health coverage that leaves no one behind.

588

publications based on Elsevier queries

1.89

Field-Weighted Citation Impact

331

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Strong start for Rural and Regional Health Research Institute

The inaugural Executive Director, Professor Allen Ross, MD, PhD, of Charles Sturt University's newly established Rural and Regional Health Research Institute, is laying a solid foundation to reduce health disparities between country and city people, via a 'community-partnerships' approach.

The Institute, based on the Orange campus, has been established to conduct research addressing the rural health gap and aims to transform health outcomes through delivering world class research while driving its translation locally, nationally, and internationally.

Research from the Institute involves collaborations with Western Sydney University (WSU), the Joint Program in Medicine (JPM), NSW Health, Rural Health stakeholders and other international partners.

The institute has an 11-member Advisory Board, comprising Australian leaders in rural public health, medical research, and industry. It has also established a First Nations Table to ensure that research is conducted with communities and in a culturally appropriate manner.

Image: Professor Allen Ross, Mr Taylor Clark and Ms Anne-Marie Mephram from Orange Aboriginal Medical Services, and Ms Cherie Forgione from Gilgandra Local Aboriginal Medical Service.



Find out more about Rural Health Institute



Related impacts



Eye-opening role-play for mental health and paramedicine students

Charles Sturt University paramedicine students and First Nations mental health students participated in training scenarios as part of their preparation for work in communities throughout Australia. These role-play learning and teaching scenarios develop understanding and service integration between paramedics and mental health carers to promote better outcomes in First Nations patient health call outs.

Associate Head of School, Dr Sonja Maria from the School of Nursing, Paramedicine and Healthcare Sciences, developed this training task with Dr Jola Stewart-Bugg, the Discipline Leader for First Nations at Charles Sturt, to give students insight into the possible needs of First Nations patients and how paramedics operate when on-call.

First Nations mental health student Mr Cameron Balcombe said, "The day was a great step towards collaboration between future first responders and future First Nations mental health clinicians. The scenarios were eye-opening, to see what is involved in on-the-ground care and how collaboration between services can strengthen outcomes."

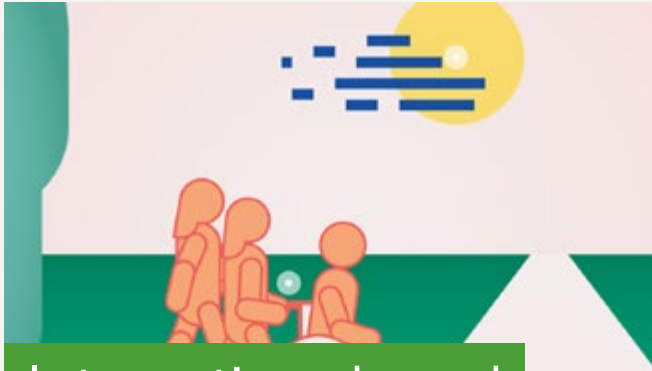
Image: Paramedicine and First Nations mental health students engaged in one of the on-campus scenarios.



Find out more about First Nations mental health student scenarios



Related impacts



Interactive shared storytelling

Researchers from Charles Sturt, La Trobe and RMIT have developed an easy-to-access, interactive physical and mental health online resource. This innovative storytelling resource uses video clips, audio recordings and written statements to explore how people have navigated their experience of physical and mental health.

This resource informs and supports individuals and families living with mental health conditions while promoting genuine conversations about physical well-being and mental health.

Hosted by Charles Sturt University and led by Russell Roberts, Professor in Management in the Charles Sturt School of Business, this project is part of the work of Equally Well Australia.

The Physical Health resources website was launched at a webinar on Tuesday 29 November where consumers, clinicians and policymakers came together in a panel session about how to maintain focus on this issue.



“This new resource is a perfect example of what can be achieved when we are all equal partners in this work; lived experience experts, clinicians, researchers, policymakers have all come together in a resource we know will have the chance to save lives.”

Professor Roberts



Find out more about

Physical Well-being and Mental Health



Related impacts



Strengthening relationships with Marathon Health

Charles Sturt welcomed Marathon Health to campus as more than 40 staff co-located to the University in Albury-Wodonga to grow the allied health workforce and increase opportunities for students. This partnership facilitates the provision of allied health workers in regional Australia by providing University students with workplace learning and graduate employment opportunities.

Albury City Mayor Kylie King praised Charles Sturt University for supporting the local health network and providing additional opportunities for students to build on their learning. “This exciting initiative will assist in building our health workforce, giving our community access to these important services,” she said.

Charles Sturt students have been completing workplace learning in speech pathology, occupational therapy, social work, psychology and human services at Marathon Health since 2019, with almost 40 per cent of those students employed by Marathon Health after graduation. This move solidifies the partnership and emphasises the commitment of the University and Marathon Health to building a strong regional health workforce.

Image: Albury City Mayor Kylie King, Charles Sturt Vice-Chancellor Professor Renée Leon, Marathon Health CEO Megan Callinan, Marathon Health Chair of the Board Annette Crothers, former Charles Sturt students Marley Pucket and Lauren McLennan and Member for Albury Justin Clancy.



Find out more about

Marathon Health’s move to Albury-Wodonga campus

Living the goals



The Early Childhood Interdisciplinary Research Group focuses on SDGs 3, 4, 8, 10 and 17 within our transformative research program promoting social justice for children, families and practitioners within early childhood. We promote children's participation in equitable, quality early childhood programs and services, children's rights, communication rights, workforce sustainability, and transformation of the social, policy and organisational conditions that enable social justice.

Image: Charles Sturt's Early Childhood Interdisciplinary Research Group brings together a critical mass of early childhood researchers including (pictured left to right) Professor Sharynne McLeod, Dr Jessamy Davies, Dr Lysa Dealtry and Professor Julian Grant.



4 QUALITY EDUCATION



Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

United Nations goal:

SDG 4 emphasises the importance of inclusive, equitable, and quality education for all. It aims to ensure that individuals have access to lifelong learning opportunities that equip them with essential knowledge and skills.

This goal involves not only improving access to education but also enhancing the quality of teaching and learning, reducing disparities in educational outcomes, and promoting education for sustainable development.

246

publications based on Elsevier queries

1.30

Field-Weighted Citation Impact

70

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Researching and scaling effective practice

Charles Sturt is co-leading the Ambassador Schools Research Centre (ASRC) in partnership with the University of NSW and University of Canberra. The ASRC is a multi-million-dollar research investment by the NSW Department of Education and a key initiative in the Department's School Success Model. Charles Sturt is working in partnership with researchers from the Universities, policymakers and executives from the NSW Department of Education, and 30 school communities across the state.

The ASRC was established with these university partners to research, identify and understand what Ambassador Schools are doing that is having the greatest impact on student achievement in their unique context. Ambassador Schools were selected for their diverse, strong performance compared with like schools across a range of measures, including reading, numeracy, attendance and HSC results and include primary, secondary, metropolitan, regional and schools from a range of socio-economic contexts. The evidence-based ASRC initiative supports improved student performance based on the identification of strengths and effective practices that enable success for students in NSW public schools. This work will deepen the evidence base about ways to maximise student academic achievement.



Find out more about
School success model



Related impacts



Growing Our Own Teachers in regional NSW

Charles Sturt was recognised by the NSW Government as a leader in providing online education for aspiring teachers by being selected as one of only two universities to deliver the Grow Your Own Teacher Program, which aims to help address the critical teacher shortage.

Accepting students from 2023, the program, similar to Charles Sturt's ground-breaking Collaborative Teacher's Aide Program (CTAP), provides a supported, flexible and online learning pathway for School Learning Support Officers (SLSOs) to become qualified teachers.

The program focuses on attracting participants to become teachers in rural, regional and high demand metropolitan areas. SLSOs who study through Charles Sturt can complete the program in as little as two years of full time study with prior qualifications.

With 75 per cent of Charles Sturt graduates staying in regional Australia to begin their careers, the Grow Your Own Teacher Training Program will help address teacher shortages in regional, rural and remote communities.



Find out more about
Grow Your Own teacher
NSW program



Related impacts



Early Childhood Voices 2022 Conference (ECV2022)

The Early Childhood Voices 2022 Conference (ECV2022) was a multidisciplinary international conference held over five days by Charles Sturt's Early Childhood Interdisciplinary Research Group. This was the second biennial conference to share research about innovative methods, theories and partnerships with children, families and practitioners.

Researchers and post-graduate students were invited to submit abstracts to share their work on innovations to improve the lives of children, families and practitioners. Children were also invited to contribute to draw their story of 'talking' that was hosted in an Online Gallery and five yarning circles were held.

ECV2022 accepted six keynote presentations and 99 oral presentations from 25 countries. The Online Gallery showcased 191 children's drawings and around 80 participants connected in the Yarning Circles to talk about topics like families, communication, children's rights and the SDGs. ECV2022 overall participation included 1,956 registrations from 72 countries, 6,431 website views from 1,358 users, and over 3,500 YouTube views of the presentations including 243 hours of viewing.

Dr Sharynne McLeod with drawings from children which were displayed as part of a Children Draw Talking Global Online Gallery which was featured at the conference.



Find out more about

Early Childhood Voices 2022 conference (ECV2022)



Related impacts



Changing the World with Charles Sturt Researchers

2MCE is Charles Sturt University's community radio station operated in partnership with the regional communities of Bathurst and Orange. It serves the social, cultural, and educational interests of both the community and the university through the provision of facilities, training, and programs.

At 2MCE, graduate research candidates (including students studying PhD, professional doctorate and Masters by Research programs) have the opportunity to contribute to the production of innovative and diverse content that serves the local community. Hands-on experience enables these growing researchers to gain professional and practical skills for the media and broadcast industries while sharing their research work as they discuss the important problems they are hoping to solve and explain how their research aims to change the world.

The program, Changing the World with Charles Sturt Researchers, showcases two students each month from a diverse range of backgrounds and highlights the variety of graduate research that contributes to economic, social and environmental sustainability and well-being and that has a broader impact on our world - regionally, nationally and globally.



Find out more about

2MCE Community Radio



Addressing the national teaching shortage with the Collaborative Teacher's Aide Pathway

Australia is experiencing a national shortage of teachers. To address this critical workforce shortage, Charles Sturt designed a ground-breaking program to fast-track the teaching qualifications of teacher's aides, School Learning Support Officers (SLSOs), Aboriginal Education officers and other school support personnel by recognising their skills from time already spent in the classroom.

"Charles Sturt is proud of its record of producing high-quality teaching graduates that meet the educational needs of Australian school students", says Vice Chancellor Professor Renée Leon.

"In recent years the University has graduated more than 900 teachers per year into the education workforce. Under this program and at a time when teachers are desperately needed, that number will only grow."

The Collaborative Teacher's Aide Pathway (CTAP) works with schools and focuses on recognising the skills and previous study of teacher's aides such as Certificate III or IV of Education Support, or a Diploma of School Age Education and Care, to support them to complete an online primary or secondary teaching degree. In its first year, 2022, 145 students were enrolled in the program.

Senior Lecturer with the Charles Sturt School of Education Dr Libbey Murray said the program had received an overwhelming response from teacher's aides and principals across Australia. "The Collaborative Teacher's Aide Pathway is proving to be a real success," Dr Murray said.

"The majority of students enrolled so far are from regional, rural, and metropolitan NSW, but we have also received enrolments from students in Victoria,

Queensland, Western Australia, and the Northern Territory," said Dr Murray.

"Just some of the areas applicants have come from include Dubbo NSW, Condobolin NSW, Nyngan NSW, Sydney NSW, Bunbury WA, Townsville QLD, and the Mornington Peninsula VIC. Some schools have multiple teacher's aides enrolled who are supporting each other through the course, which is great to see."

The program was awarded \$500,000 from the NSW Government's Collaboration and Innovation Fund, which will support students to complete their studies while continuing to work.

"The \$500,000 under the NSW Government's Collaboration and Innovation Fund will be instrumental in supporting students to complete their studies, while maintaining the critical work they already do in schools, and juggling personal and family lives," Dr Murray said.

Image: Dr Libbey Murray with current CTAP students and Vice-Chancellor Professor Renée Leon at the program launch event in Dubbo, NSW.



Find out more about
Teachers Aide Pathway



5 GENDER EQUALITY



Achieve gender equality and empower all women and girls

United Nations goal:

SDG 5 strives for gender equality and the empowerment of all women and girls. It involves eliminating all forms of discrimination, violence, and harmful practices against women.

This goal aims to ensure equal participation in decision-making processes and economic opportunities, bridging gender gaps in education and healthcare access, and promoting gender-responsive policies.

102

publications based on Elsevier queries

1.45

Field-Weighted Citation Impact

31

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Journal special edition examines women's leadership in customs

The Centre for Customs and Excise Studies (CCES) is the world's leading provider of training, education and research in the highly specialised areas of customs, excise and border management. CCES operates in partnership with Charles Sturt University to provide students in over 180 countries with further opportunities to formalise their skills in Customs Administration, Border Management, and related fields.

In March 2022, CCES published a Special Report in the World Customs Journal highlighting the principles and benefits of programs designed to strengthen the leadership skills and international networks of women customs officers in the male-dominated field of cargo control. It included contributions from 28 women customs officers from around the world.



Find out more about
World Customer Journal



Related impacts



Ground breaking course to drive social change

The newly designed Graduate Certificate in Intersectionality, Diversity and Inclusion launched in October with a public lecture delivered by course co-creator, Associate Professor Cate Thomas.

Co-designed with industry professionals, this course aligns learning objectives with real-life workplace scenarios and will be the first of its kind to address intersectionality, diversity, and inclusion relevant to all industries. Ideal for anyone wanting to drive social change, this graduate certificate is designed for online study, over 12-months in a part-time capacity; allowing students to complete their studies around other commitments such as work and family life.

An overview of the Charles Sturt Graduate Certificate in Intersectionality, Diversity and Inclusion can also be found on the 2022 Charles Sturt University Podcast Series episode 'Stereotypes Sting: Understanding Intersectionality, Diversity and Inclusion'.

Image: Rainbow stairs at Port Macquarie campus (a student driven project).



Find out more about
Graduate Certificates



Related impacts



The gender bias equation

International Women’s Day (IWD) is a global celebration of the social, economic, cultural, and political achievements of women. IWD marks a call to action for accelerating gender parity, to celebrate women’s achievement, raise awareness against bias and act for equality. This is so that collectively, we can #BreakTheBias and create a gender equal world that is free of bias, stereotypes, and discrimination.

To celebrate IWD, Charles Sturt and Athena SWAN hosted a zoom event: Women, Feminism + Finance =? What is the gender bias equation? Opened by Vice-Chancellor, Renée Leon, this event featured guest speakers Dr Bomikazi Zeka (Associate Professor in Finance and Financial Planning at the University of Canberra) and Rebecca Glenn (Founder of the Centre for Women’s Economic Safety). Mediated by Donna Bridges from the Charles Sturt Gender and Feminist Studies Network and co-sponsored by The University of Canberra, this event presented a conversational deep dive into gender biases impacting women’s economic security and wellbeing.

Image: Event speakers, Dr Bomikazi Zeka and Rebecca Glenn..



Find out more about Gender and Feminist Studies



Related impacts



Charles Sturt celebrates third year as an ‘Employer of Choice for Gender Equality’

Charles Sturt University has been awarded an Employer of Choice for Gender Equality (EOCGE) citation from the Commonwealth Workplace Gender Equality Agency (WGEA) for the third year! The citation recognises an active commitment to achieving gender equality in Australian workplaces. Criteria cover leadership, learning and development, gender remuneration gaps, flexible working and other initiatives to support family responsibilities, employee consultation, preventing sex-based harassment and discrimination, and targets for improving gender equality outcomes. Recent efforts include the removal of unnecessary gendered terms in policy and procedures, Unconscious Bias and Inclusivity staff training across all Charles Sturt campuses and continued support of Leadership Development for Women (LDW) through networking, mentoring and scholarships.

Image: Bathurst Open Day 2022 with (left to right) Susan Barnes (Community Relations Officer), Julia Andrews (Director of External Engagement), Mascot Charlie and Sandra Sharpham (Executive Director, Student Experience) .



Find out more about Employers of Choice for Gender Equality



6 CLEAN WATER AND SANITATION



Ensure access to clean drinking water and sanitation for all and sustainable management of water resources.

United Nations goal:

SDG 6 focuses on ensuring the availability and sustainable management of clean water and proper sanitation for all.

This includes improving water quality, increasing water-use efficiency, and providing access to sanitation facilities. Clean water and sanitation are crucial for public health, environmental sustainability, and overall well-being.

164

publications based on Elsevier queries

1.30

Field-Weighted Citation Impact

81

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Informing environmental water management decisions to benefit native frog populations

A love for the outdoors and being around animals led a Charles Sturt University PhD graduate and University Medal winner, Dr Anna Turner, to undertake research focused on enhancing the ecological health of freshwater ecosystems under the supervision of Associate Professor in Ecology, Skye Wassens.

During her PhD Anna surveyed populations of the endangered Southern Bell Frog to determine if they are infected with the deadly amphibian chytrid fungus and if so, how it affects their population age structure, growth rates and their survival under different water management scenarios.

The outcomes of Anna's research will aid in the conservation of the Southern Bell Frog and be incorporated into advising environmental water management decisions. They will also form part of a broader Monitoring, Evaluation and Research program Charles Sturt is delivering on behalf of the Commonwealth Environment Water Holder.

Image: Dr Anna Turner on site whilst undertaking field work as part of the frog monitoring project.



Find out more about
Dr Anna Turner



Related impacts



Developing skills for the management of riverine environments

Charles Sturt's BIO402 River Restoration and Protection subject offered through the School of Agriculture, Environment and Veterinary Studies focuses on the theoretical and practical frameworks that underpin the restoration of riverine environments following disturbance. Topics covered include principles of restoration ecology, decision analysis in deciding recovery goals, restoration constraints, methodologies and techniques, monitoring, and criteria for determining the degree of recovery and relevance assessment.

The subject, delivered as an intensive, provides students with a highly practical learning experience visiting a range of field sites where restoration works have been undertaken, including the River Murray works between Hume Weir and Yarrowonga, the Kiewa River catchment covered by the Wodonga Regional Waterway Action Plan and the David Mitchell Wetlands located on the Charles Sturt Albury-Wodonga campus. Students completing this subject develop knowledge and skills needed to make sound judgments regarding the recovery goals for a river and planned restoration efforts.

Image: The River Restoration and Protection subject provides students with a practical learning experience focused on the restoration of riverine environments.



Find out more about
BIO402



Related impacts



Improved drought resilience through optimal management of soils and water

The Southern NSW Drought Resilience Adoption and Innovation Hub, hosted by Charles Sturt University, is leading a project that will improve drought resilience through management of soils and available water. The project is led by Riverine Plains, in partnership with FarmLink, NSW DPI, Southern Growers and CSIRO and demonstrates practices from three farming system strategies that improve drought resilience. These non-conventional strategies include diverse legume rotations (to increase organic carbon, nitrogen and other soil elements), early-sowing of slower-maturing crops (to increase water holding capacity) and measuring residual nitrogen (to prevent excess application, increasing profitability and decreasing runoff into waterways).

The project involves 12 demonstration sites which will hold one field day per year to showcase the demonstrated practices, reaching a network of around 3,300 farmers. Outcomes will be communicated using 12 case studies and a range of communication channels.

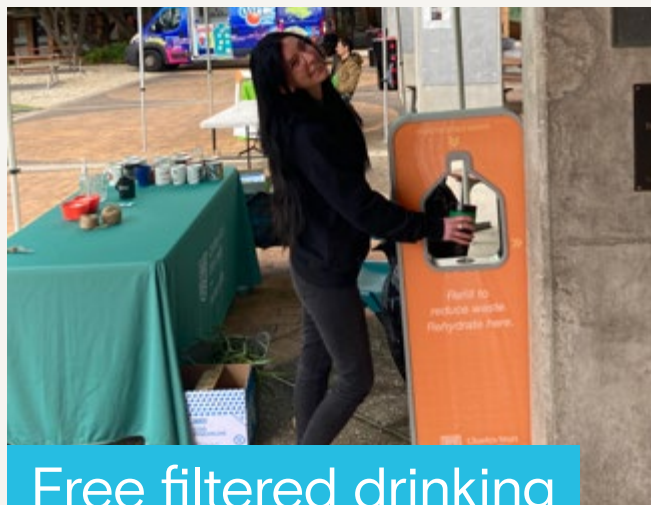
Image: An overhead photo of sheep being fed on the ground in a confinement feeding area.



Find out more about
Southern NSW Drought Hub



Related impacts



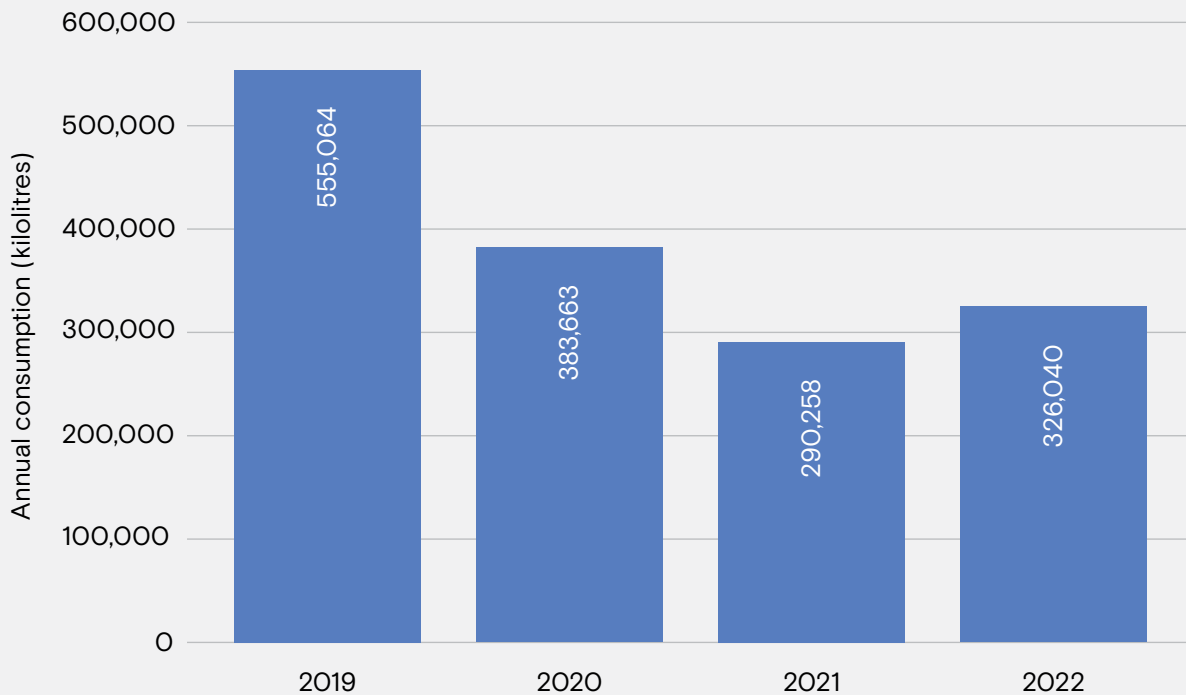
Free filtered drinking water for on-campus events

Access to free, quality drinking water at on-campus events was made even easier in 2022 with Charles Sturt acquiring a mobile water refill station to complement the extensive network of on-campus refill stations. By placing the station in a prominent location during events, it serves as a functional reminder to campus patrons to avoid the use of single-use bottled water and pack their reusable drink bottle instead!

Image: Transportable refill station used to provide access to free filtered drinking water at Charles Sturt events .

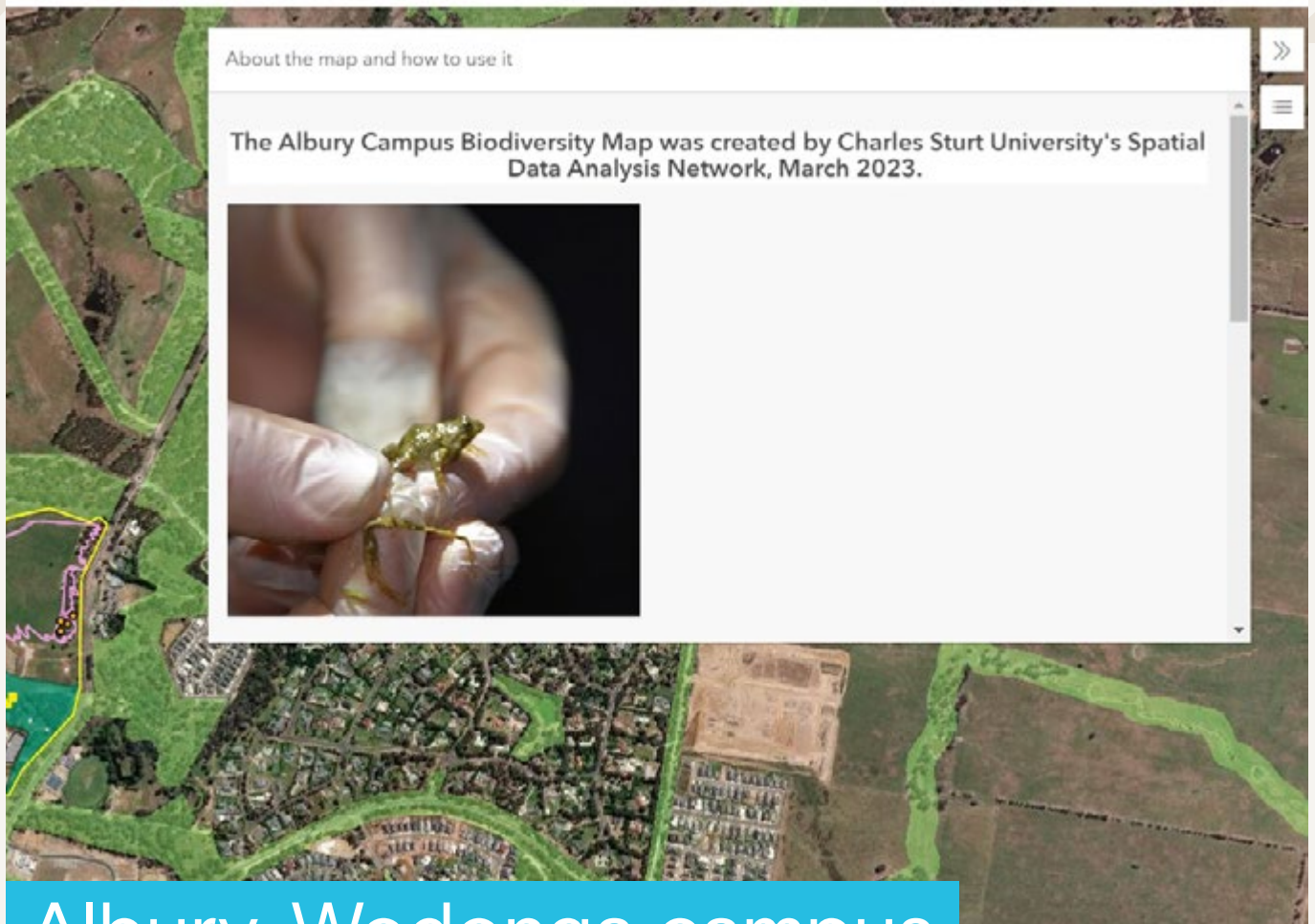


Annual potable water consumption trends



Water consumption trends for Charles Sturt campuses

Charles Sturt’s town water consumption for the 2022 calendar year period was 326,040 kilolitres. This represents an increase of 12% on the previous year despite above average rainfall persisting due to La Nina conditions during 2022. The increase in water use is attributed to a return to normal campus operations, including on-campus residential accommodation for 1,800 students, following COVID impacted activity in 2020 and 2021.



Albury-Wodonga campus critical to biodiversity

A biodiversity report has identified a substantial number of biodiversity assets on the Albury-Wodonga campus, previously a significantly disturbed site. Specifically, the area to the north of the campus (the David Mitchell wetlands) was identified as “functioning well again with good aquatic bird diversity and an apparently healthy aquatic vegetation community developing”. This wetland provides a significant opportunity for a biodiversity/wildlife corridor running from west to east across the Albury-Wodonga Campus.

The native fauna species identified on Albury-Wodonga campus through biodiversity monitoring activities includes Sloane’s Froglet *Crinia sloanei*, a small ground-dwelling frog (around 15 to 20mm). Their conservation status is listed as endangered on both state and national levels. Populations of Sloane’s Froglets are

restricted to Thurgoona, the riparian zone of the Murray River from Howlong to Corowa and there’s a small remnant population at Tocumwal. Charles Sturt University is in the middle of the Albury suburb of Thurgoona. The David Mitchell wetlands has one of the largest viable populations in the area, so Charles Sturt University is absolutely critically in the persistence and viability of this species.

Image: Flagship species Sloane’s Froglet (*Crinia sloanei*) is vulnerable



Find out more about
Albury-Wodonga biodiversity



7 AFFORDABLE AND CLEAN ENERGY



Ensure access to affordable, reliable, sustainable and modern energy for all

United Nations goal:

SDG 7 promotes access to affordable, reliable, sustainable, and modern energy sources.

It aims to enhance energy efficiency and expand the use of renewable energy to drive economic growth while mitigating environmental impacts.

57

publications based on Elsevier queries

1.30

Field-Weighted Citation Impact

38

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Performance of renewable energy-based mini-grids

Researchers Dr Bharat Poudel, Professor Kevin Parton and Professor Mark Morrison from the Charles Sturt University School of Management and Marketing have undertaken an investigation into the use of electricity mini-grids in developing countries and, in particular, in remote locations. This research integrates the sustainability aspects relating to multiple attributes of off-grid energy projects that have previously been considered in isolation. A partial least squares structural equation modelling approach was used to undertake statistical hypothesis testing of sixteen different hypothesised relationships. The two primary drivers of the social and economic sustainability of mini-grids were plant operating hours and flexibility in electricity usage. Further testing of the generalisability of these research outcomes is necessary to expand these findings to other developing economies and other technologies. It is expected that evaluation of other mini-grid schemes, including in other countries, will achieve such goals.



Find out more about
Renewable mini-grids



Related impacts



Electrification study identifies potential reduction of 245 tonnes of emissions

Charles Sturt University has partnered with Essential Energy to undertake an electrification study at Charles Sturt's campus in Orange as part of the net zero objectives under their Clean Energy Strategy 2030. While Charles Sturt purchases all electricity supplies from renewable sources, this partnership with Essential Energy has identified the opportunities for electrification as well as the cost-effectiveness and availability of equipment necessary to make such a transition.

This electrification study has identified potential greenhouse gas savings of 245.4 tonnes of carbon-dioxide equivalent. This partnership has also helped Essential Energy to understand how to better assist other customers to decarbonise and to optimise network support. Increased network utilisation will produce downward pressure on network charges, reducing costs to consumers. Utilising electricity networks more efficiently will also support the connection of additional renewables.



Find out more about
Charles Sturt Gas Conversion



Related impacts



Carbon footprint slashed in 2022

Charles Sturt University has contracted with Iberdrola Australia to supply renewable grid electricity from the Bodangora Wind Farm, 60 kilometres south-east of Dubbo. The contract accounts for more than 95% of Charles Sturt’s total grid electricity consumption and complements the university’s ongoing campus solar panel project, which includes more than 14,000 solar panels across Charles Sturt’s various campuses in regional Australia. This has led to an annual carbon emission reduction greater than 11,500 tonnes of carbon dioxide equivalents. This reduction has the same benefit as taking 5,800 cars off the road and will reduce Charles Sturt’s carbon footprint by more than 40% compared to the 2014 baseline year.

Partnering with an organisation having a presence within the Charles Sturt footprint in the NSW Orana region demonstrates the University’s commitment to sustainability and carbon reduction as part of the university’s 2030 Clean Energy Strategy.

Image: (From left) Charles Sturt Project Manager Energy Management John Martin, Bodangora Wind Farm Site Manager, Iberdrola Australia Michael Bullock and Charles Sturt Director of External Engagement in Dubbo James McKechnie.



Find out more about Carbon footprint reduction



Related impacts



Charles Sturt University on-site renewable energy generation program expanded

In 2022, Charles Sturt commissioned more than 830 kilowatts of rooftop solar PV generation capacity on the Bathurst campus. This is equivalent to an increase of 21% on 2021 of the total generation capacity across all of Charles Sturt. This project has resulted in an increase of 12% (more than 500,000 kilowatt hours) of onsite generated renewable energy, which was consumed by Charles Sturt’s facilities on Bathurst campus.

Image: Rooftop solar on our Bathurst campus.



Find out more about Bathurst campus solar



8 DECENT WORK AND ECONOMIC GROWTH



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

United Nations goal:

SDG 8 emphasises the importance of sustained, inclusive, and sustainable economic growth. It involves creating decent employment opportunities, ensuring fair labor practices, and supporting entrepreneurship.

This goal aims to reduce unemployment, particularly among young people, and address issues like informal employment and child labour.

121

publications based on Elsevier queries

1.19

Field-Weighted Citation Impact

60

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Women a force in farming sustainability

Giving women a voice in agriculture is the focus of research being undertaken by Charles Sturt University PhD student Linda Wirf. Ms Wirf's research is part of the Soil CRC program 'Investing in high performance soils' led by Professor Catherine Allan from Charles Sturt University. Ms Wirf hopes to assist farmers to create a space for transformation in agricultural practice by including women's knowledges and perspectives. "My interest in this research is shaped in my belief in the need to change agriculture to be more regenerative and environmentally sustainable and I believe that women farmers have a key role to play in this transition," Ms Wirf said. In gathering data for her research, Ms Wirf interviewed female and male farmers, from the Eyre Peninsula in South Australia, and in NSW's Central West.

Ms Wirf is completing her PhD 'Beyond adoption: gendered knowledges in agricultural practice change in Australia'. This research is supported by the Cooperative Research Centre for High Performance Soils whose activities are funded by the Australian Government's Cooperative Research Centre Program.

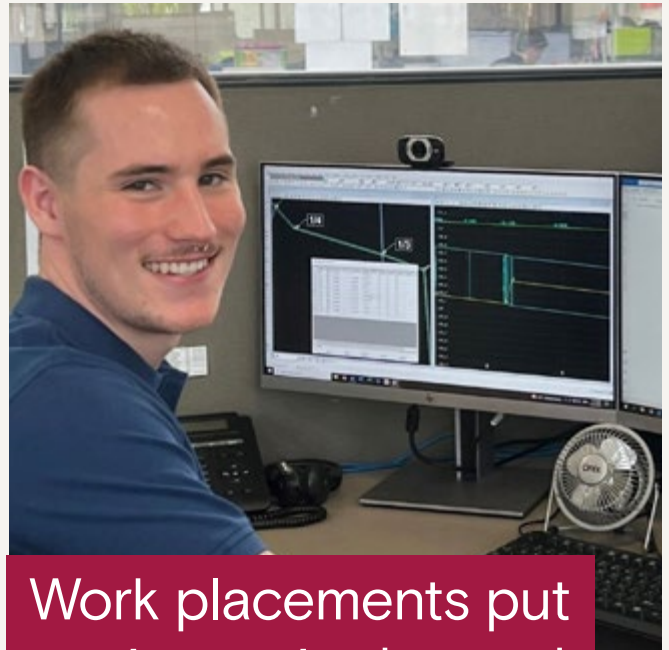
Image: Charles Sturt researcher Linda Wirf believes women have a key role to play in a more sustainable future for agriculture.



Find out more about
Linda Wirf



Related impacts



Work placements put engineers in demand

Civil engineering is an in-demand profession and Charles Sturt's cadet engineers are gaining practical experience as they study while they work in industry placements with engineering firms and projects around NSW. Fifty-three cadet engineers in the Charles Sturt School of Computing, Mathematics and Engineering are employees in a range of engineering roles with regional councils, corporate engineering consultancies, government departments and a construction company. These cadet engineers undertake four year-long placements while they study online and complete their degrees, and are based in rural, regional, and coastal areas. And for the first time one cadet is working overseas in the UK, gaining engineering design experience in Leeds while continuing his studies.

Image: Charles Sturt cadet engineer Jack McIntyre undertook his second year of work placement at Wagga Wagga City Council in 2022.



Find out more about
Engineers for the regions



Related impacts



Safety comes first in paramedic project

NSW Ambulance have engaged Charles Sturt University in a project that aims to decrease the risk and incidence of occupational violence experienced by paramedics. The ground-breaking research will collect data from the NSW Ambulance Body Worn Camera (BWC) Project to determine if the presence and use of the cameras reduces the incidence of aggressive behaviours towards paramedics, their partner, their patient, or any other person on scene.

The project also involves Charles Sturt researchers engaging with paramedics to hear their experiences and opinions of BWCs and occupational violence. The BWC trial involved paramedics in six locations across NSW wearing the BWC and, once identifying a significant risk to someone, recording a scene. When a paramedic chooses to start recording, they tell those in the immediate vicinity the camera is recording, with the hope that this provides the opportunity for the aggressive person to deescalate their behaviour or language.



Find out more about
Body-worn camera research



Related impacts



Ensuring policies are more transparent and equitable

Charles Sturt University has improved its promotions process by enhancing Equal Employment Opportunity (EEO) considerations. During this process we elevated the EEO aspect, explicitly defining the equity groups and making the personal circumstances that could be considered more transparent. This resulted in greater engagement with the EEO process, and was a deliberate strategy to ensure the EEO was appropriately considered by reviewers when assessing an application for promotion.

After engaging with First Nations staff as part of the consultation process, we were cognisant of the need to make the academic process not just as equitable as possible, but practical and culturally safe. As a result of this consultation, a First Nations person is offered the opportunity to seek a cultural adjustment to the academic promotion committee membership.

All reviewers, including external ones, must complete unconscious bias training and an advisory member from the Division of People and Culture Equity and Diversity Team ensures equity aspects are considered.



Find out more about
Academic promotion



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

United Nations goal:

SDG 9 calls for the development of resilient infrastructure, the promotion of inclusive and sustainable industrialisation, and the fostering of innovation.

It recognises the role of infrastructure and innovation in driving economic growth and enhancing the overall quality of life.

81

publications based on Elsevier queries

1.19

Field-Weighted Citation Impact

35

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



A foundation for change: using clay to lower cement emissions in construction

Dr Miao Li, a senior lecturer in the School of Computing, Mathematics and Engineering, is part of a world-leading research team that has identified a way to significantly reduce the use of cement in peat stabilisation. Cement is one of the world's biggest polluters. Its production is a highly energy-intensive process and, on average, the manufacture of one tonne of cement emits 0.87 tonnes of carbon dioxide. Using cement to stabilise peat and soft soil foundations is a traditional engineering practice, but the research team were determined to find a more sustainable approach. They discovered that using clay as a partial replacement for cement was feasible and reduced cement content by more than 40 per cent. Dr Li and her colleagues are exploring other innovative ways to work with clay in other applications. The next stage of research is to work with several soils that are problematic for engineering, including collapsible, expansive and liquefiable soils

Image: Dr Miao Li is exploring ways to find a more sustainable replacement for cement.



Find out more about
Clay lowering emissions



Related impacts



Global Digital Farm attracting the next generation of Agrifood innovators

Located on Charles Sturt University's campus in Wagga Wagga NSW, the Global Digital Farm (GDF) is Australia's first fully automated commercial farm. Established in 2022 in partnership with the Food Agility Co-operative Research Centre (CRC), the GDF is quickly becoming "a place of inspiration for the next generation of agrifood innovators," according to Food Agility's Chief Scientist Professor David Lamb.

The GDF is an integrated digital learning, innovation and research environment within a full-scale commercial, mixed farm operation. The GDF creates unique learning experiences for current and future students.

"The Global Digital Farm is becoming an education destination for the next generation of agrifood industry leaders," GDF Director Jonathon Medway said.

"When high school students see that there are careers in tech, data, science, business, engineering, sustainability, creative industries and more on smart farms, the excitement is palpable. The brightest minds in the nation are knocking on our farm gate."

Image: Students engage with cutting edge innovative agricultural practices on the Global Digital Farm.



Find out more about
Global Digital Farm



Related impacts



\$3.99 million boost for research

Charles Sturt University was last year awarded \$3.99 million in funding for the research program “Training Hub promoting Regional Industry and Innovation in Virology and Epidemiology (THRIVE): Boosting Australia’s Agriculture and Manufacturing”. The project aims to reduce the impact on the ag industry of zoonotic diseases such as avian influenza, swine flu, Hendra virus and African swine fever virus.

The research team, led by Professor Jade Forwood, is focusing on four key research pillars: epidemiology and disease modelling, molecular virology, translational virology, and rural and First Nations community engagement. The project will develop regional capacity and skills in agricultural epidemiology and disease modelling, and lead to production of rapid diagnostics, antimicrobials, vaccines, and innovative therapeutics.

THRIVE will also boost regional public engagement and understanding of virology by hosting public seminars, school outreach, and other events. THRIVE aims to foster more than 15 partnerships, including AgriFutures; Australian Pork; Meat and Livestock Australia; Rivalea; Scolexia Pty Ltd; Australian universities; Gulaay; and National Association of Aboriginal and Torres Strait Islander Health Workers and Practitioners.

Image: Professor Jade Forwood, with Gayle Paterson, Mikayla Hoad, Justin Roby and Emily Cross.



Find out more about
THRIVE



Related impacts



Investment in infrastructure to support AgriPark innovation and industry engagement

A \$37.5 million investment in the Wagga Wagga campus will provide world-class research and development infrastructure for the AgriSciences Research and Business Park (AgriPark), as well as enable Charles Sturt to host international business conferences at an upgraded convention centre.

Vice-Chancellor Professor Renée Leon said the investment in the AgriPark would expand the university’s pipeline of innovations and technologies, which will shape the future of Australian agriculture.

Furthermore, the two projects will generate up to 150 jobs during construction and another 400 ongoing jobs when completed. It is expected more than 75 per cent of those jobs will be filled by Riverina residents.

“These new facilities will grow Charles Sturt’s already significant economic contribution to the Wagga Wagga region, currently \$240 million per annum, or 7 per cent of the city’s gross regional product,” Professor Leon said.

Image: Charles Sturt Deputy Vice-Chancellor (Research) Professor Mark Evans, (former) Minister Bridget McKenzie and Member for Riverina Michael McCormack. Photo by Jackie Cooper at Jack of Hearts Studio.



Find out more about
AgriPark upgrades



10 REDUCED INEQUALITIES



Reduce inequality within and among countries

United Nations goal:

SDG 10 aims to reduce inequalities within and among countries. It involves addressing income inequality, promoting social inclusion, and empowering marginalised groups.

This goal acknowledges that inequality can hinder overall development progress and seeks to create a more equitable world.

127

publications based on Elsevier queries

1.48

Field-Weighted Citation Impact

54

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Self-compassion in mental health outcomes for bisexual and lesbian women

LGBTIQA+ women, especially bisexual women, face higher risks of depression than heterosexual women and sexual minority men. Researchers from Charles Sturt University's School of Psychology studied the role of self-compassion in lessening depressive symptoms among lesbian and bisexual women across the world.

A survey of 498 bisexual and 416 lesbian women revealed that bisexual women had lower self-compassion, more internalised heterosexism, and more severe depressive symptoms than lesbian women. Higher levels of self-compassion were directly related to reduced depressive symptoms and indirectly related via lower internalised heterosexism, irrespective of sexual orientation.

The findings suggest that despite differences in minority stress and depressive symptoms, self-compassion serves an important protective function against depression for lesbian and bisexual women.

This research highlights the importance of increasing bisexual and lesbian women's self-compassion in therapy and its potential for shaping better mental health outcomes for sexual minority women.



Find out more about

Depressive Symptoms among Bisexual and Lesbian Women



Related impacts



Fiji 'virtual' speech pathology research may offer many benefits

A Charles Sturt University's speech pathology research team is evaluating student experiences and competency development outcomes in a virtual work-integrated learning (WIL) clinic in Fiji. The team will examine the first international student-led virtual practice clinic operating from an Australian university, focusing on the transition to online clinical education of students during a virtual study abroad program in Fiji. The research aims to meet the urgent need for speech pathology services in Fiji while supporting students to become culturally responsive practitioners. This virtual study abroad placement will provide opportunities for Australian speech pathology students to learn about one of their closest international neighbours and adapt best-practice guidelines for international student placement to the online mode of service delivery. Historically, the Master of Speech Pathology students undertook their work-integrated-learning placements in sites across Australia, however this pioneering program allows students to undertake placements with international partners and to improve health outcomes in a developing country.

Image: Dr Suzanne Hopf coordinates the online Charles Sturt University Master of Speech Pathology from her home in Nadi, Fiji.



Find out more about

Fiji speech pathology research



Related impacts



Research to assist vital disability services in move online

The COVID-19 pandemic demonstrated a rapid shift in provision of services from face-to-face to virtual care and highlighted the challenges and opportunities created by providing online care. Charles Sturt's Three Rivers Department of Rural Health is partnering with Western New South Wales Local Health District and South Western Sydney Local Health District to research the increased need for virtual services delivery for people with intellectual disabilities. The project, titled "Feasibility, acceptability, resource implications and early outcome indicators of Specialist Intellectual Disability Services delivered virtually", was awarded more than \$300,000 in funding. The project aims to inform the future direction of virtual care service delivery for people with intellectual disabilities and their families, co-design resources to support the engagement of clients, families, and clinicians in virtual care, and ensure access to specialist services in areas of geographical remoteness. The project is funded under the NSW Health Translational Research Grants Scheme.

Image: Three Rivers Department of Rural Health Melissa Nott, Acting Disability Strategy Manager, Western NSW Local Health District Merryn John, Clinical Nurse Consultant and Team Leader Specialist Intellectual Disability Health Team, Western NSW Local Health District Alison Devitt, Disability Project Manager, Western NSW Local Health District Lisa Maxley and Director, Charles Sturt University Three Rivers Department of Rural Health Christine Howard.



Find out more about

Vital disability services to move online



Related impacts



Accessibility and inclusion liaison for library

Charles Sturt University Library is dedicated to ensuring accessibility for all staff and students with disabilities. This service can be accessed through the University's Accessibility and Inclusion Services team. It offers personalised support, including library website orientation, database searching, accessing resources in print and online formats, and liaising with other university services to provide materials in alternative formats. Fully captioned videos and workshop recordings regarding library services are also available. All library buildings are accessible, with mobility friendly toilets and lift access at select campuses. Three university campuses have dedicated assistive technology rooms for individuals requiring assistive equipment and software or who need a quiet study space. Three other campuses have dedicated stand-alone assistive technology computers.

Image: The assistive technology room on the Bathurst campus.



Find out more about

Disability liaisons

Living the goals



“As a member of the LGBTQIA+ community from metropolitan Sydney, seeing Charles Sturt University’s great work with initiatives such as the Wagga Wagga Mardi Gras while preparing my job application confirmed that it would be a workplace where I would be fully accepted, not just merely tolerated.”

John Burns, Reporting Officer, Division of Research



11 SUSTAINABLE CITIES AND COMMUNITIES



Make cities and human settlements inclusive, safe, resilient and sustainable

United Nations goal:

SDG 11 focuses on making cities and human settlements inclusive, safe, resilient, and sustainable. It involves sustainable urban planning, infrastructure development, and affordable housing.

This goal recognises that urbanisation is a global trend and aims to ensure that cities can accommodate growing populations while minimising their environmental impact.

127

publications based on Elsevier queries

1.67

Field-Weighted Citation Impact

48

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Strengthening disaster preparedness in human service organisations

Prepare for the worst. That was the key objective of a project led by Charles Sturt researchers Dr Heather Boetto and Associate Professor Karen Bell in partnership with a group of human service organisations in the Wagga Wagga region in 2022. Through a series of workshops and tailored activities, the researchers engaged with human service organisations to develop individual Disaster Resilience Plans. These documents involved risk assessments and business continuity plans that would minimise service disruption.

The project's results demonstrated how the human service organisations had increased their knowledge and action about disaster preparedness, developed greater clarity about their roles and responsibilities within the local community, and enhanced their independence in managing disrupted services.

The project also provided several tangible outcomes including an ULTRIS model of disaster preparedness; development of a free, online, openly accessible short course hosted by Charles Sturt using the OpenLearning platform; organisational and service user preparedness kits; and a range of resources.

Image: A highly effective workshop exercise where participants mapped their organisation's building onto a local flood map.



Find out more about
Open Learning short course



Related impacts



Workshops support leadership development and community resilience

Charles Sturt's AlburyCity Leadership and Resilience Scholarship program was developed to strengthen the resilience of communities by supporting passionate, capable leaders to guide communities through times of disruption.

In April 2022, scholarship recipients met for two days of face-to-face workshops, allowing the participants to create a support network with peers, gain a deeper understanding of topics and learn how to apply the knowledge in the real world. Participants complete two micro subjects from Charles Sturt – Leading Change and Building Community Resilience.

The 27 scholarship recipients came from a wide range of backgrounds including first responders, bankers, health professionals and SES volunteers. One participant, Paul Marshall, was the captain of the Albury Volunteer Rescue Association squad. Paul applied for the scholarship to develop his leadership skills and help squad members and the community.

Image: AlburyCity Council CEO Frank Zaknich, AlburyCity Deputy Mayor Councillor Steve Bowen, student scholarship recipient Paul Marshall, Acting Head of the School of Business Associate Professor Dianne McGrath and Charles Sturt Development Officer Brogan Finnerty.



Find out more about
ACC community scholarships



Related impacts



2022 CUP Grants
By the numbers

119
Applications

5
Grant Categories



\$63,011
Distributed



6 Regional areas in NSW including:

Wagga Wagga Bathurst
Albury Orange
Dubbo Port Macquarie

67
Projects Funded

Supporting grassroots and community projects

Charles Sturt continues to work towards the public good and supports individuals and communities to grow and flourish. Each year the university contributes to the development of our regional communities through our Community University Partnership Grant Program.

In 2022 Charles Sturt provided more than \$60,000 in small grants to 66 projects across six regional areas of NSW – Wagga Wagga, Albury, Dubbo, Bathurst, Orange and Port Macquarie.

Grants went towards community run projects including:

- A Wiradjuri yarning circle and native garden project for primary school children
- A community cultural development project about Wahluu (Mount Panorama)
- Establishing a native and edible garden and seed library for sharing in the Dubbo community
- A community health and well-being festival
- Community water testing materials for a local water watch program.



Find out more about
Community grants



Related impacts



Helping regional communities reach for the stars

In collaboration with Lockhart Shire Council and The Rock Progress Association, Charles Sturt established The Rock Regional Observatory in February 2022.

“The Rock Regional Observatory will offer a first-class facility that can be utilised by the community and educational institutions to foster interest and research in astronomy,” Head of Government Relations and Regional Engagement Samantha Beresford said.

“The university has a critical role in building strong, vibrant regional communities with infrastructure, and intellectual and social capital. We are thrilled to be a part of this new opportunity that will bring astronomical science to one of our smaller regional areas.”

Charles Sturt provided research-grade telescopes and other astronomical equipment that are now accessible to community members, visitors, researchers and students.



Find out more about
New university collaboration

Living the goals



“Before joining as an international HDR student at Charles Sturt University, I used to ride my trusty bicycle everywhere during my early university days in beautiful Bangladesh and Belgium. Soon after arriving, I was able to access a loan bicycle from the Sustainability at Charles Sturt team. Now I am burning fuels from my body, not just relying on fossil fuels; that means I am staying healthy and maintaining a smaller carbon footprint!”

**Rana Md Rahmatuzzaman, PhD Student,
School of Dentistry and Medical Sciences**



2022 Luminosity Youth Festival, Port Macquarie, NSW

Charles Sturt University celebrated its 10th year as Foundation sponsor of the Luminosity Youth Summit in 2022. Held annually in Port Macquarie, NSW, the Luminosity Youth Summit is a dynamic three-day national forum igniting creativity, excellence and entrepreneurship among young people aged 15 to 25 years.

Charles Sturt's partnership with the event is led by summit co-founder and Charles Sturt Director of External Engagement (Port Macquarie) Ms Kate Wood-Foye.

"The University is keen to provide this unique opportunity to link regional communities to the talents of students, lecturers, researchers and industry partners who will be guest speakers and facilitators at the event, among 25 other thought leaders from various fields around the globe," said Ms Wood-Foye.

Ms Wood-Foye said Charles Sturt has a long commitment to supporting its regional communities through sponsorship, industry partnerships and in-kind assistance and support of high impact events.

The summit is volunteer powered and held in partnership with more than 70 regional businesses and leading organisations enabling the high quality programming and experience that is regularly provided in a capital city, but often inaccessible to regional youth.

Luminosity supports young people from all walks of life and abilities to remove the road-blocks of regional and rural life and empower them on their journey to realise their full potential. More than 3,500 young people

have experienced the summit over its first decade, with another 450 joining the summit in 2023.

"One speaker who has made a tremendous impact on me was Nadine Champion. As a young person who has struggled with self-doubt, her demonstration on the power of 10-seconds of courage is something that I'll carry with me forever... she has made me - and by extension, every other young person in the audience - remember that we are capable of so much more than we think."

"Attending the Luminosity Youth Summit, has inspired me to think of the myriad of ways I can add value to and uplift others outside of my future role as a clinician. I have left the Luminosity Youth Summit with an increased passion for community service and a heightened interest in entrepreneurship."

John Palencia, 2022 Luminosity All Stars Attendee

Image inset: Luminosity Summit co-founder and Charles Sturt Director of External Engagement (Port Macquarie) Ms Kate Wood-Foye opening the 2022 summit.



12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

United Nations goal:

SDG 12 promotes sustainable consumption and production patterns. It encourages efficient resource use, reducing waste generation, and minimising environmental impacts throughout the lifecycle of products and services.

103
publications based on
Elsevier queries

1.37
Field-Weighted Citation Impact

60
publications involve an
international collaboration

Figures are for 2018–2022



Related impacts



Valuing environmental agriculture

Global food and water security are possible if more environmentally sustainable practices are adopted. Lifestyle choices that globally impact greenhouse gas emissions are dependent on agricultural literacy that can determine individual food choice, food production systems, and environmental impact connectivity. Dr Andrea Crampton and Dr Angela Ragusa collected primary data in rural-regional Australia to explore the salience of food and water concerns compared with their related environmental knowledge of sustainability issues and how that prompted human behaviour. The findings from an online survey demonstrated generally low environmental sustainability literacy and related behaviours, and highly educated individuals also failed to identify environmentally sustainable food and water consumption options. This research advocated the need for improving public science and health literacy about the relationships between water and food scarcity and agricultural production so that individuals can gain the necessary knowledge to facilitate a societal transition towards environmentally sustainable behaviours and positively influence future food security and agricultural food production systems and product consumption.



Find out more about
Environmental ag research



Related impacts



Food, environment and culture

As professionals, agricultural and wine science graduates will work in a dynamic environment and society, involving personal and institutional negotiations with social and ethical issues. The School of Agricultural, Environmental and Veterinary Sciences approved a new undergraduate subject Health Food, Environment and Culture (AGR202). By completing this subject, students will gain an understanding of the background issues and core skills needed to work in the agricultural and wine science sector and improve their ability to communicate these challenges in a professionally appropriate style. The subject includes ethics and ethical frameworks and models that can be used to review and analyse the complexity of ethically challenging issues in agriculture and broader social and environmental issues; environmental and social sustainability linked to economics; the major challenges facing agricultural production and food security; and how Indigenous Australian culture and values intersect with and can inform land use and management. The history of agricultural development in Australia from the perspective of Indigenous Australians and other cultures is also studied.



Find out more about
AGR202



Related impacts



Recycling Week initiative at Port Macquarie

Charles Sturt University in Port Macquarie is helping to reduce and recycle waste plastic on the Mid North Coast by embarking on a collaborative Three Phase Sustainability Project with local organisations to minimise waste plastics in the community and the environment. The project incorporates sustainability and innovation practices and education, a public lecture series, and hands-on workshops with both the community and students of all ages to come together to create a circular economy of precious plastics. For example, in a powerful exploration series presentation on Plastic Solutions and Circular Economy Principles for Regional and Remote Communities, leading plastic educator, zoologist, and science teacher Louise Hardman in partnership with Sustainability at Charles Sturt discussed the global plastic crisis, how attitudes create waste and cause pollution, and solutions for remote and regional communities struggling with plastic pollution to design out waste and use regenerative systems to set up a local action plan for communities. Together with local social entrepreneur and teacher Lloyd Godson, Charles Sturt embarked on a 20-week face-to-face on-campus innovation and education program that sought to equip future leaders with creative and critical problem-solving skills to formulate solutions to create a world worth living in with sustainability principles at the core of their learning.

Image: Louise Hardman inspires communities to be collaborators of change.



Find out more about Recycling week initiative



Related impacts



Plastic recycling machine finds home

A key phase of the collaborative Three Phase Sustainability Project launched during National Recycling Week is the Shruder Initiative, which will make our Port Macquarie campus home to a 'Shruder' recycling machine, property of the Plastic Collective.

The Shruder is a dual purpose, compact, industrial shredder and extruder, for recycling used plastics. School and community were involved in sorting and shredding single-use plastics which can then be on-sold to recyclers or made into new products.

Local sustainability champion, Mr Lloyd Godson, provided on-campus workshops for high school and university students, industry and community.

The second phase of the sustainability project encourages high school students to develop innovative uses for the recycled material through the Shark Tank eSchool program embarking on a 20-week face-to-face on-campus innovation and education program.

The final phase culminated in the students competing in a national competition where students placed 1st in the country for Innovation – Luke Aguila with his Midifier Project and Team Litterbug Placing 3rd across the state with their aquatic machine to collect litter in the Sustainability category.

Image: Students participating in the Shark Tank eSchool program using materials recycled through the Shruder.



Find out more about Sustainability grants

Living the goals



“Our Stationery Library at the Dubbo campus is a simple concept that genuinely redirects surplus office consumables that were destined for landfill and makes them available for staff and students rather than them needing to purchase the same items new. Using the stationery library makes you feel good and it contributes to a sense of community on campus.”

Sophie Mancer, Team Member

Division of Library Services and current Charles Sturt student



13 CLIMATE ACTION



Take urgent action to combat climate change and its impacts

United Nations goal:

SDG 13 addresses climate change by promoting urgent action to combat its impacts and adapt to changes.

It involves reducing greenhouse gas emissions, enhancing resilience, and mobilising resources for climate-related initiatives.

130

publications based on Elsevier queries

2.00

Field-Weighted Citation Impact

85

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Tools to support the management of internationally important wetlands

Despite the Ramsar Convention requirement to maintain the ecological character of wetlands listed as internationally important, there is little guidance for wetland managers to actually do this, let alone plan for and implement adaptation to climate change.

Research led by Charles Sturt's Gayle Partridge and Adjunct Professor Max Finlayson, focusing on the Muir-Byenup System Ramsar wetland located in south-west Western Australia, applied a participatory research approach to better understand the ecological impacts of climate change and develop a climate change adaptation plan.

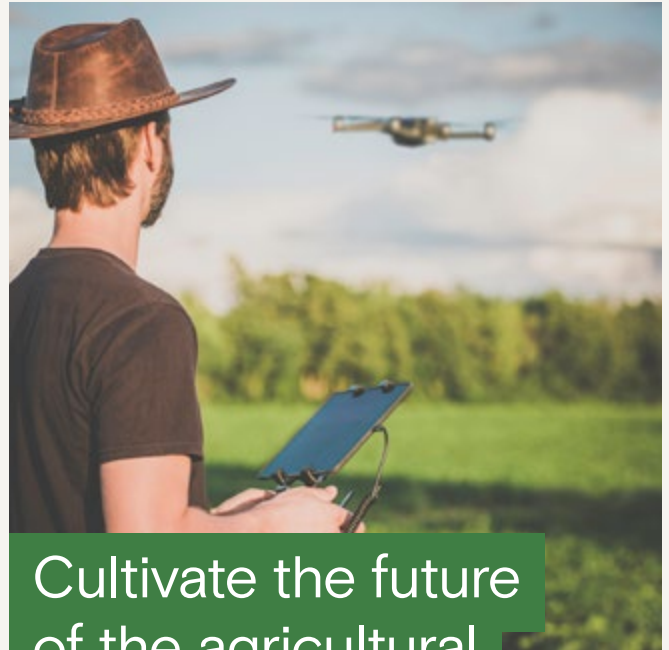
The study found that planning for climate change adaptation had not been widely undertaken for Ramsar sites and, where it had, managers mainly planned information gathering activities and "no regrets" actions rather than innovative or transformative approaches. New management approaches and policy settings that encompass the dynamic nature of wetlands are needed because maintaining wetlands in their current state will be difficult under climate change.



Find out more about
Wetland research



Related impacts



Cultivate the future of the agricultural sector through the Graduate Certificate in Sustainable Agriculture

Charles Sturt University has collaborated with agriculture industry partners to develop a suite of new postgraduate courses that will bolster the sector to become a \$100-billion industry by 2030.

One such course is the Graduate Certificate in Sustainable Agriculture. Course director with the School of Agricultural, Environmental and Veterinary Sciences Matt Hunt said graduates will be well positioned to provide leadership in policy, research and strategic management in a wide range of roles.

"Students will learn from experts in diverse agriculture disciplines who are developing sustainable strategies to combat pests, delving into geospatial research, and championing new technologies to improve farming and operational practices," Mr Hunt said.

"These new subjects will allow our future graduates to gain experience in adopting to climate change, improving food security and reaching Sustainable Development Goals, all important skills and assets in the changing industry."



Managing the risks of a more challenging climate on our workforce

A symposium hosted by Charles Sturt's Regional Work and Organisational Resilience (RWOR) Group during 2022 shared research exploring the implications of climate change for the physical, mental and emotional health and well-being of regional workers.

Modelling conducted by the group has found that by mid-century, wet-bulb globe temperature will likely cross thresholds that will restrict human physical activity for longer periods of the year across larger areas of Australia. Researchers shared the implications of climate change in the regions for diverse workforce groups including healthcare, mining and defence.

The symposium is one way the RWOR Group has collaborated with regional employers to find solutions for these emerging complications. With the additional impacts of rising temperatures and the changing frequency of droughts and floods, regional employers will need new strategies for managing workers' well-being and building resilient organisations. In addition, following the symposium, the group has embarked on research to understand and manage the effects of heat on

the delivery of the home care services that allow people to age in place.

The symposium took a practical look at how climate is changing and the implications for the regions in relation to human well-being, organisations and communities, physical work and exercise, and heat and stress.

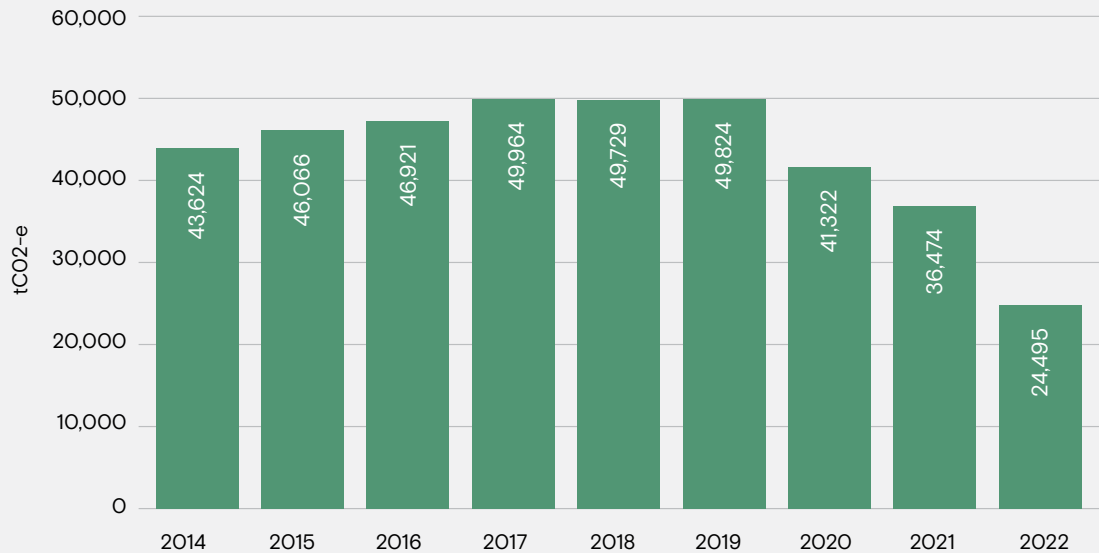
Image: NSW Member for Wagga Wagga Dr Joe McGirr and Regional Work and Organisational Resilience Group lead Associate Professor Larissa Bamberly at the Climate Change for Regional Work Symposium.



Find out more about
Climate Change Symposium



Annual organisational carbon emissions



Renewable energy delivers reductions in Charles Sturt's carbon footprint

Charles Sturt's comprehensive Clean Energy Strategy sets out a pathway for Charles Sturt to be resilient, efficient and ready for a low-carbon future.

In 2022, this plan has significantly delivered on its action to aggressively mitigate climate change by reducing its greenhouse gas emissions (GHGE) by 12,000 tonnes carbon dioxide equivalents (tCO2-e), down to 24,495 tCO2-e. This is equivalent to a reduction of 33 per cent compared to 2021, and a reduction of 44 per cent compared to Charles Sturt's Base Year reporting (2014).

Avoided emissions in 2022 resulted from the establishment of a Renewable Power Purchase Agreement with Iberdrola Australia for the supply of electricity to Charles Sturt's large market sites (96.5 per cent of savings), newly commissioned rooftop solar power stations (2.5 per cent) and campus energy efficiency improvements (1 per cent).

In 2022, Charles Sturt's GHGE attributable to electricity and natural gas emissions was 49 per cent of its total compared to 78 per cent in 2021.

The emission source that experienced the biggest increase in 2022 was travel and accommodation, which has followed the relaxation of travel restrictions following the COVID pandemic. A three-fold increase in emissions was observed in this area.

Charles Sturt purchases and retires carbon offsets equivalent to its organisational carbon footprint as part of its commitment to being a certified carbon neutral organisation under the Climate Active program.



Find out more about

Charles Sturt's carbon neutral certification



Conserve and sustainably use the oceans, seas and marine resources for sustainable development

United Nations goal:

SDG 14 aims to conserve and sustainably use marine resources, protect marine ecosystems, and prevent overfishing to preserve marine biodiversity. It recognises the importance of oceans and coastal areas for the well-being of humanity and the planet.

84

publications based on Elsevier queries

1.74

Field-Weighted Citation Impact

50

publications involve an international collaboration

Figures are for 2018–2022



Community helps guide shark management policy in NSW

Collaborative research from Charles Sturt University and NSW Department of Primary Industries Fisheries (DPI) works toward determining and adapting its Shark Management Strategy. Traditionally a policy area driven by technical and ecological expertise, the DPI has purposefully increased its attention to the needs and expectations of all NSW communities, especially beach and ocean users along the coast, allowing it to differentiate approaches and communicate effectively with different communities. It used more than 35 focus groups and surveys of beach and ocean users (surfers, anglers, tourism, small business, councils, conservation, etc.) along the NSW coast. Charles Sturt developed new research tools for listening to communities.

The main users of the research were officials and policymakers involved in the NSW Department of Primary Industries, but the research has also helped councils and shark harm mitigation efforts across the nation. The findings from the research have been published in international marine policy and scholarly journals and presented at peak industry and international environmental communication forums.

The program consistently found general preference for less invasive approaches to managing sharks over killing and culling, and support for approaches enabled by newer technologies.

The research and consequent policy changes have impacted coastal communities in several important ways. With improvements to surveillance and detection, humans en masse feel sufficiently secure to continue enjoying the ocean for recreation. In contributing to understanding of community preferences for less-invasive approaches to managing sharks, the consequent policy helps to preserve the marine environment and reduce the death and suffering of marine life caused by traditional approaches.



Find out more about
Shark management plans



Related impacts



Next generation water and engineering hub

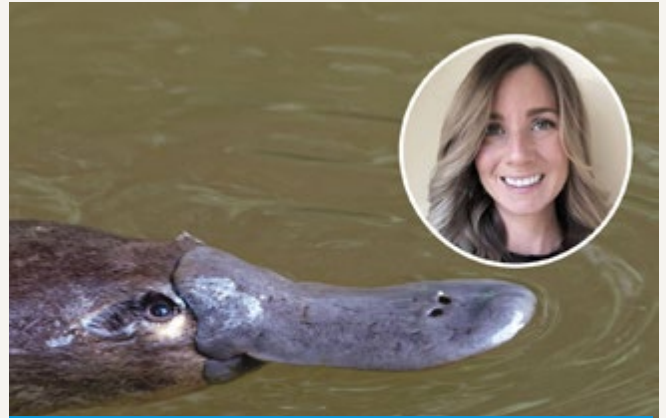
The researchers and staff of Charles Sturt University have collaborated with local industry partners and established the Next Generation Water Engineering and River Management Hub (NGWERMH). This hub aims to develop solutions to current and future problems threatening inland Australia's waterways, including poor water quality, and diminishing fish stocks. The special scholarships provided by this hub enhanced opportunities in science for outstanding graduates enrolling in a PhD at Charles Sturt University. The hub's project called "Citizen Science - Integrating community groups into basin-scale fish tagging and recovery programs" has given the opportunities to enrol more PhD students to contribute on fish detection systems which have been installed across the Murray-Darling Basin (MDB) to understand fish migrations by the Australian government.



Find out more about
Next gen water hub



Related impacts



Biodiversity of Manning Region animals and creek health

During National Science Week 2022 Charles Sturt University presented the results of a project with the Manning River Turtle Group, the University of Canberra and MidCoast Council which investigated freshwater biodiversity in the Manning River catchment in Birpai Country.

The project provided the opportunity for community members and school students to investigate the aquatic biodiversity in creeks and rivers of the NSW MidCoast. Charles Sturt was one of 35 recipients to receive funding for the project under the National Science Week grants offered by the Department of Industry, Science, Energy and Resources. Lecturer and Early Career Researcher in Environmental Science Dr Jessica Tout-Lyon (inset above) played a critical role in designing and delivering the project, which took place over three stages. "Participants took part in a workshop where they were trained in the sampling process for eDNA to collect water samples in their local waterways. This emerging technology is increasingly being used to survey the biodiversity of waterways," Dr Tout-Lyon said. "Using the new eDNA technologies, the project explored the biodiversity and distribution of animals in MidCoast waterways, including the Endemic Platypus, Australian Bass, and the threatened Manning River Turtle."



Find out more about
Biodiversity of Manning Region



Research for making a difference in water quality locally and globally

Charles Sturt University researchers are using innovative technologies to improve water quality, including artificial intelligence (AI) and data mining. They're conducting data-driven research to revise a water quality index (WQI) that will benefit communities in Australia and around the world.

The research is led by Associate Professor Azizur Rahman, Charles Sturt Statistics and Data Mining Research Group leader, and colleagues with the National University of Ireland.

The research addresses issues that have the potential for global impact. Surface water quality poses significant environmental, sociological, and economic risks in many parts of the world, including Australia.

“Due to population growth, industrialisation and urbanisation observed over many decades, freshwater usage and wastewater production have significantly increased. Both human activities and natural processes have caused a continuous degradation of surface water quality in recent decades,” said Professor Rahman of the need for the research.

“Our AI-integrated WQI model can indicate, for example, any pollutants in the water that are crucially important for the health of the Great Barrier Reef. Thus, the surface water quality assessment could be used to improve intervention-related outcomes such as better health of the reef through improved ecosystem and water.”

Many countries have adopted policies and guidelines to manage surface water quality and provide more effective water resource management to reverse negative trends. The updated WQI model and its information outputs can be used to support a range of local, state, national and international agencies to better manage water resources.

The research has been taken up and implemented by researchers and agencies in many countries including, Ireland, Poland, India, Bangladesh, Malaysia, China and Japan.

The research team's paper, 'A comprehensive method for improvement of WQI models for coastal water quality assessment', has been published in *Water Research*, the leading journal in the domain of water science and technology.



Find out more about
Water quality research



15 LIFE ON LAND



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

United Nations goal:

SDG 15 focuses on protecting, restoring, and sustainably managing terrestrial ecosystems. It addresses issues like deforestation, desertification, and the loss of biodiversity, emphasizing the need to safeguard the natural world.

383

publications based on Elsevier queries

1.52

Field-Weighted Citation Impact

191

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Island-wide rodent eradication program on threatened species

Charles Sturt University researchers working on world-heritage listed Lord Howe Island have investigated the impact of an island-wide rodent eradication program. The program was introduced because rodents had reached huge numbers and were killing native birds and wildlife and ravaging crops and gardens. Researchers, Richard Segal, Rachel Whitsed, Nicholas Carlile and Melanie Massaro, conducted studies into the program's effects on native birds, in particular, the Lord Howe currawong. To mitigate these birds being poisoned during baiting, 30-40 per cent of the population were taken into captivity during operations, while the remaining were left in the wild. Researchers studied currawong survival, nesting density and breeding success pre-and post-eradication to test how the baiting, a period in captivity, and the removal of rodents affected them.

Post-eradication, results showed that many currawongs left in the wild disappeared during baiting and nesting densities were significantly lower. These currawongs likely died of poisoning as they were not resighted for two years. The captive management of currawongs diminished the adverse effects of baiting, with those surviving showing higher success of breeding.



Find out more about
Rodent eradication program



Related impacts



Student's research leads to protecting vulnerable Australian species

In 2022, Charles Sturt Bachelor of Animal Science honours student, Ms Mikayla Green, examined the impact of the 2019/2020 bushfires on Greater Gliders in the Woomargama National Park, in southern NSW. Her honours work was part of research at the new Charles Sturt Gulbali Institute of Agriculture, Water and Environment, supported by Murray Local Land Services through funding from the Australian Government's Bushfire Recovery Program.

Ms Green explained that Greater Gliders were once a widespread and abundant species that are highly dependent on old growth forests and make use of hollows in the trees, but a combination of logging, fire, climate change and habitat degradation has seen a decline in population numbers and they are listed as 'vulnerable'.

Data from Ms Green's research indicated that Greater Gliders are in much higher densities in the unburnt areas of Woomargama National Park compared to those areas which have been impacted by burning.

"I hope that by conducting this research about Greater Gliders in Woomargama National Park that the data can be used to monitor and potentially initiate strategies to conserve the population within the Woomargama National Park," she said.



Find out more about
Vulnerable Australian species



Related impacts



Strengthening Australia's biosecurity through focused training

Charles Sturt University and the Department of Agriculture, Fisheries and Forestry (DAFF) have partnered to establish a Biosecurity Training Centre (BTC) to strengthen Australia's biosecurity. The BTC, established on Charles Sturt's Wagga Wagga campus, began operation in July 2022. The centre delivers foundational training for DAFF frontline biosecurity staff, and specialist training for development of their experienced staff.

Charles Sturt Vice-Chancellor, Professor Renée Leon, said the BTC will utilise the university's teaching and research strengths to increase Australia's preparedness against biosecurity threats.

"Charles Sturt University is a national leader in both the agriculture and biosecurity fields, with capabilities which align with and contribute to the sector's stated goal of growing the country's agricultural production to \$100 billion by 2030," Professor Leon said.

Over the next five years, the BTC will be an important feature of Charles Sturt's plan to strengthen Australia's biosecurity capabilities by providing

- training that is responsive to the shifting environment of biosecurity threats
- a focal point for harnessing the partnerships and collaborations with the research sector, with industry, and with Australia's near neighbours.



Find out more about
Biosecurity Training Centre



Related impacts



Cadets engage in 2022 EngFest and Engineers Without Borders

The Charles Sturt University Engineering program in Bathurst engaged with cadets in the 2022 EngFest, and Engineers Without Borders (EWB) Challenge. The annual celebration featured engineering lab demos and tours, and student project presentations.

Engineer-in-residence Ms Shara Cameron said, "The Charles Sturt University Engineering program focuses on teaching our students about human-centred design and sustainable practices in civil engineering..."

Ms Cameron said EWB Australia partners with grassroots community development organisations around the world to co-design a real-life challenge that has been identified by the community. Each year, the EWB Challenge presents a new design brief for first-year students to problem-solve. The briefs are meticulously scoped on location, with extensive documentation, interviews and multi-media assets provided to students to ensure a rich, deep insight into the life and challenges of that community.

"All projects are designed with the needs of the community front-of-mind," Ms Cameron said.

The 2022 EWB Challenge was set in the Cairns-Port Douglas region in Far North Queensland with the community partner Dawul Wuru Indigenous Corporation.



Find out more about
EngFest



Gulbali Institute of Agriculture, Water and Environment

The name Gulbali is derived from the Wiradjuri phrase Gulbali ngurambang, which translates to ‘to understand country’. The name was gifted to Charles Sturt from the Wiradjuri First Nation and is the guiding principle of how we do our work and create impactful agriculture, water and environment research locally and globally.

The Gulbali Institute of Agriculture, Water and Environment (Gulbali Institute) was launched at Charles Sturt University in 2022, consolidating our commitment to working with First Nations people in research and education, and driving benefits across Australia and globally.

The Gulbali Institute’s focus is on optimising farm systems for performance and sustainability, enhancing the health and resilience of freshwater ecosystems, and promoting biodiversity across landscapes. Charles Sturt will use our footprint across multiple climatic regions as a research test-bed to drive multi- and interdisciplinary research and innovation.

Vice-Chancellor Professor Renée Leon said the Gulbali Institute will help the University achieve the research goals it has set as part of the University Strategy 2030.

“The launch of the Gulbali Institute is an important milestone building on our strengths in applied research in agriculture, water and environment,” Professor Leon said.

“Impactful research is one of the cornerstones of the University’s standing as Australia’s leading regional university and we’re focused on delivering outcomes that will foster prosperous regional communities.”

The Gulbali Institute showcases our impactful research with industry leaders, partners and community through Charles Sturt-led innovation partnerships and projects including:

- The AgriSciences Research and Business Park (AgriPark) in Wagga Wagga
- The Global Digital Farm in Wagga Wagga, the country’s first ‘hands-free’ farm
- The \$8 million Southern NSW Drought Resilience Adoption and Innovation Hub.
- The \$3.6 million Next Generation Water Engineering Hub, based in Albury-Wodonga.
- The \$4 million Training Hub promoting Regional Industry and Innovation in Virology and Epidemiology (THRIVE).

In 2022, our scientists were involved in a range of ground-breaking work, from breeding threatened fish species for the first time, to helping the wine industry combat the effects of bushfires, helping farmers to plan for haystack fires, improving livestock health and developing novel solutions to enhance soil health and crop productivity.

In its first year of operations Gulbali included:

- Over 300 active researchers across 6 campuses
- \$75 million in projects under active management
- More than 200 individual research projects
- \$16 million in external income sourced in 2022.



Find out more about
Gulbali Institute



16 PEACE, JUSTICE AND STRONG INSTITUTIONS



Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

United Nations goal:

SDG 16 advocates for peaceful, just, and inclusive societies. It involves promoting the rule of law, reducing violence and corruption, and ensuring effective, accountable, and transparent institutions.

196
publications based on
Elsevier queries

1.30
Field-Weighted Citation Impact

53
publications involve an
international collaboration

Figures are for 2018–2022



Related impacts



Reports put hate crimes on radar

The extent of discrimination, racism and hate faced by Australia’s Islamic community has been revealed through a series of research reports authored by Charles Sturt University’s Dr Derya Iner in collaboration with Islamophobia Register Australia.

The four research reports, published between 2014–2022, highlight both individual and institutional aspects of Islamophobia in Australia and have led to the raising of public awareness through media coverage, policy debate and increased advocacy for the Muslim community.

One of the many outcomes from Dr Iner’s reports includes the awarding of \$385,000 in funding to the Islamophobia Register Australia in 2022 to conduct the bystander activation project. The initiative aims to educate the broader Australian community about the importance of combating hate incidents as they are witnessed.

Following the publication of Islamophobia in Australia III, then–Shadow Attorney–General Mark Dreyfus and Shadow–MP for Multicultural Affairs Andrew Giles released a statement highlighting their commitment to tackling Islamophobia in Australia. Their statement cited the research in Dr Iner’s reports. The reports have also been referenced as a key source in MP Paul Lynch’s Anti-Discrimination Amendment (Religious Vilification Bill), launched in 2021.



Find out more about
Islamaphobia in Australia



Related impacts



Trafficking victims share uncomfortable truth

The horrific realities of human trafficking captured in the documentary Trafficked to Australia, originally intended for Charles Sturt University students, is now available for anyone to watch online.

The documentary draws on interviews with victims of human trafficking, law enforcement agencies and a range of victim support organisations, revealing the terrifying experiences of victims and uncomfortable truths facing border authorities.

Chief Executive Officer of Charles Sturt’s Centre for Customs and Excise Studies (CCES), Professor David Widdowson, said during the production of the film it became evident that the stories of the victims should be shared with a wider audience.

“(The documentary) highlights that no country, including Australia, is immune to human trafficking. It is serving to dispel myths, raise awareness and start important conversations,” Professor Widdowson said.

The film’s preview took place in Canberra in May 2022 and was a collaboration between CCES and Salthouse Creative.



Find out more about
Trafficked to Australia



Related impacts



Pledge for a more respectful democracy

Professor Stan Grant Jnr, in collaboration with Charles Sturt, has invited all Australians to take the Yindyamarra Pledge for Democracy.

The Pledge is a gift from the Wiradjuri people to all Australians that aims to unite the country in building a more inclusive and respectful democracy, and was launched in October 2022 in Canberra by Professor Grant with the support of Charles Sturt's Deputy Vice-Chancellor (Research) Professor Mark Evans.

Professor Grant said the public discourse on democracy in Australia in the lead up to the 2023 referendum has led to a toxic environment, and taking the Pledge resets the conversation to a more respectful debate.

"I invite all Australians to take the Yindyamarra Pledge for Democracy. It's an opportunity for all Australians to set aside their historic prejudices, adopt Gulbali values of respect, kindness, quiet reflection and justice and in the spirit of Yindyamarra, engage in respectful conversation and debate on the future of Australian democracy," Professor Grant said.

Image: Rector of Newman College at the University of Melbourne, Father Frank Brennan SJ AO; Aunty Matilda House; Charles Sturt Professor of First Nations Belonging Stan Grant Jnr; Charles Sturt Vice-Chancellor Professor Renée Leon; Charles Sturt Deputy Vice-Chancellor (Research) Professor Mark Evans.



Find out more about
Yindyamarra Pledge



Related impacts



Students circle in on future of health

First-year health students at Charles Sturt University's Orange campus were invited to a special cultural yarning event designed to introduce them to some of the cultural and equity issues they will face as they embark upon their studies.

Organised by staff at Orange campus and members of the Orange Local Aboriginal Land Council, Winhangarra 2022 was held at the Girinyalanha yarning circle and encouraged both new and continuing students and staff to consider their responsibilities as health professionals, build aspirations and strengthen community relations.

More than 100 students from physiotherapy, medical sciences, dentistry and pharmacy courses attended the event to hear special presentations from guest speakers. The speaker list included Elder Aunty Alice of Orange Local Aboriginal Lands Council, First Nations Student Advisor Leanne Orcher, Indigenous Curriculum Coordinator Dr Vennassa Wong, and second-year rural medical student and Rural Health Positive's First Nations Lead Cameron Martin.

Image: (From left) Julia Andrews, Lee Ann Orcher, Cameron Martin, Aunty Alice Williams, Dr Vennassa Wong and Dr Amika Garcia at the Winhangarra event at Orange campus's Girinyalanha yarning circle in March 2022.



17 PARTNERSHIPS FOR THE GOALS



Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development

United Nations goal:

SDG 17 underscores the importance of global partnerships, cooperation, and resource mobilisation to achieve all the other goals. It calls for collaboration between governments, the private sector, civil society, and international organisations to address complex global challenges and promote sustainable development.

1,407

publications in total with an international collaboration

5%

increase on the period 2017–2021

50%

publications involve an international collaboration

Figures are for 2018–2022



Related impacts



Greening Libraries research underpins Australian Libraries Sustainability

Commissioned by the Australian Library and Information Association (ALIA), researchers from Charles Sturt University have published research that provides 'a rich source of practical examples and inspiration' for Australian Libraries to develop sustainability initiatives and programs.

The research is the first major publication in ALIA's ongoing sustainability research towards supporting the UN SDGs.

The report, written by Dr Jane Garner, Dr Kasey Garrison, Dr Sarah Redshaw, Dr Sabine Wardle and Associate Professor Karen Bell, highlights examples of best practice and informs the creation of a toolkit for libraries to help them support environmental action. The report has been published publicly, in full by ALIA.



Find out more about
Greening Libraries



Related impacts



Scholars from South East Asia among the first graduates

Students from Indonesia, Myanmar and Lao PDR who graduated at a ceremony in Albury, NSW, are among the first to complete the new Graduate Certificate in Fish Conservation and Management.

The certificate was developed through Charles Sturt University's project with the Australian Centre for International Agricultural Research (ACIAR) 'Translating fish passage research outcomes into policy and legislation across South East Asia'.

ACIAR Project Leader and Executive Director of Charles Sturt's Gulbali Institute Professor Lee Baumgartner said the scholarships sought to address a gap in the training of fisheries professionals in both Australia and South-East Asia.

"The knowledge these students have gained will increase their water management skills, allowing them to make significant contributions to this research project and to future projects they work on that will benefit the environment in Australia and abroad," said Prof Baumgartner.

The certificate will continue to enrol Australian and international students into the future.

Image: The six ACIAR-funded scholars (from left) Rezki Antoni Suharmi (Indonesia), Moh. Faozan Tsani (Indonesia), Aye Myint Swe (Myanmar), Nyi Nyi Tun (Myanmar), Somphou Phasulath (Lao PDR), and Vaviyo Simonkhoun (Lao PDR).



Find out more about
New fisheries course



Related impacts



Conference focuses on sustainable development efforts

The ninth annual International Consortium for Social Development Asia Pacific Biennial Conference brought together researchers, practitioners and policymakers to reflect on the challenges of achieving the sustainable development goals in the Asia Pacific in light of issues such as the COVID-19 pandemic, war in the Ukraine and climate change. While the focus of the conference was on Asia, the problems are shared by economies beyond Asia.

As President of the International Consortium for Social Development, Charles Sturt University's Professor Manohar Pawar took a lead in coordinating the conference and delivering its keynote.

Professor Pawar reflected in the conference booklet "The theme chosen for the conference is an apt one. Despite crises and struggles, we should not lose track of sustainable development efforts. It is important to renew our strength for a better world. There is always hope that collectively we can contribute to creating a better world".

The conference was held at Thammasat University, Thailand and included presentation of 70 research papers from 14 countries, as well as exploration of community development activities around Bangkok.



Find out more about
Social development conference



Related impacts



Sharing the goals with future leaders in regional NSW

Charles Sturt Sustainability Project Officer Ben Heard delivered an interactive hands-on workshop for participants at the 2022 Luminosity Youth Summit, held in Port Macquarie, NSW. The Summit attracts young people from across Australia igniting creativity, excellence and entrepreneurship.

Ben delivered a masterclass looking specifically at the importance of the 17 SDGs through team building exercises focusing on specific goals. Ben shared ideas with the participants on how they can apply the SDGs to everyday life and play a fundamental role in contributing to a sustainable future.

Image: Charles Sturt Sustainability Project Officer Ben Heard with Luminosity Youth Summit participants in Port Macquarie.



Find out more about
2022 Luminosity Youth Summit



Charles Sturt University
invites you to

An evening with Clive Hamilton

Author of *Defiant Earth: The Fate Of Humans In The Anthropocene*



The fate of humans in the Anthropocene – an evening with Clive Hamilton

What does it mean to have arrived at the Anthropocene, where human history and Earth history collide? Clive Hamilton, Professor of Public Ethics at Charles Sturt University and former Executive Director of progressive Australian think tank, The Australia Institute, argues we need to rethink everything.

Professor Hamilton's presentation, hosted on Charles Sturt's Wagga Wagga campus, fostered a fascinating conversation about the fate of our planet.

The evening also included a provoking panel discussion featuring Professor in Indigenous Australian Studies Sue Green, Sustainability at Charles Sturt Manager Ed Maher and Deputy Vice Chancellor of Research, Professor Mark Evans.

The presentation and panel discussion is available online.



**Find out more about
Anthropocene**

Living the goals



“Collaborating with my peers to adopt habits that created a sustainable campus was sometimes challenging. However, the effort was worthwhile to progress towards yindyamarra winhanganha.”

Jess Ljubojevic, Student Sustainability Adviser



1800 275 278 (free call within Australia)
+61 1800 275 278 (callers outside Australia)



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