



RESEARCH IMPACT FOR SUSTAINABLE DEVELOPMENT

2022 REPORT





ACKNOWLEDGEMENT OF COUNTRY

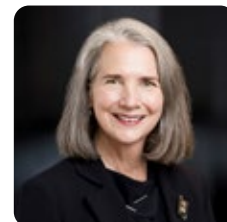
La Trobe University respectfully acknowledges that our campuses are located on the lands of many traditional custodians. We recognise that Indigenous Australians have an ongoing connection to the land, and we value their unique contribution to the University and wider Australian society. We are committed to providing opportunities for Indigenous Australians, both as individuals and communities through teaching and learning, research and community participants across all our campuses and online.

La Trobe University endorses the Uluru Statement from the Heart and commits to decolonisation as a fundamental principle of our learning, teaching and research practice.

CONTENTS

02	Foreword
03	Academic Schools
04	Research Themes
05	How did our research support sustainable development in 2022?
SDG 1	No Poverty
SDG 2	Zero Hunger
SDG 3	Good Health & Wellbeing
SDG 4	Quality Education
SDG 5	Gender Equality
SDG 6	Clean Water & Sanitation
SDG 7	Affordable & Clean Energy
SDG 8	Decent Work & Economic Growth
SDG 9	Industry, Innovation & Infrastructure
SDG 10	Reduced Inequalities
SDG 11	Sustainable Cities & Communities
SDG 12	Responsible Production & Consumption
SDG 13	Climate Action
SDG 14	Life Below Water
SDG 15	Life On Land
SDG 16	Peace, Justice & Strong Institutions
SDG 17	Partnerships For The Goals

A MESSAGE FROM PROFESSOR SUSAN DODDS SENIOR DEPUTY VICE-CHANCELLOR, RESEARCH AND INDUSTRY ENGAGEMENT



I am delighted to introduce La Trobe University's **2022 Research Impact for Sustainable Development Report**. This report showcases the many ways our research has contributed to fulfilling the United Nations' Sustainable Development Goals (SDGs) and benefitted our communities. As a university with a mission to work for the public good, we are committed to realising real impact through cycles of knowledge exchange and meaningful engagement with the needs of industry, government and community.

For La Trobe, the SDGs shape the framework of our research culture and informs the prioritisation of research activity across the university. Research at La Trobe focuses on five research themes that build on our areas of strength: Resilient Environments & Communities, Social Change & Equity, Understanding & Preventing Disease, Sustainable Food & Agriculture, and Healthy People, Families & Communities. These themes assist La Trobe University researchers to collaborate across disciplines to find innovative solutions to global challenges.

For example, in 2022, we partnered for international development across the Asia-Pacific region, as well as undertaking capacity-building in India and East Africa. This work contributes to addressing SDG 1 – End Poverty in All its Forms Everywhere and SDG 17 Strengthen the Means of Implementation and Revitalize the Global Partnership for the Sustainable Development. At a local level, La Trobe worked closely with organisations within Victoria to address major social and environmental sustainability challenges such as equitable rural health services, optimal resource management, and the implications of climate change for agriculture and biodiversity.

This report highlights some representative examples of research that made a significant difference to society, health and environment. Our research was recognised in 2022 with awards that included the Eureka Prize, Engagement Australia Excellence Award (Indigenous Engagement), and the AAMEG Best Workforce & Industry Development Initiative Africa Award. I would like to commend the recipients of these awards which recognise not only the excellence of the research, but also its successful translation into real-world impact.

A handwritten signature in black ink, appearing to read 'smd'.

Professor Susan Dodds
Senior Deputy Vice-Chancellor,
Research and Industry Engagement
La Trobe University

ACADEMIC SCHOOLS

SCHOOL

ABBREVIATION

School of Humanities and Social Sciences	HUSS
School of Education	SOE
La Trobe Law School	LLS
La Trobe Business School	LBS
School of Nursing and Midwifery	SNM
School of Allied Health, Human Services and Sport	SAHHSS
School of Computing, Engineering, and Mathematical Sciences	SCEMS
School of Psychology and Public Health	SPPH
La Trobe Rural Health School	LRHS
School of Agriculture, Biomedicine and Environment	SABE
School of Cancer Medicine (Olivia Newton John Cancer Research Institute)	SCM / ONJCRI

RESEARCH THEMES

SUSTAINABLE FOOD AND AGRICULTURE

The production of high-quality crops, foods and plant-based medicines is critical for food security, health and wellbeing, and the environment. La Trobe researchers develop cutting-edge methods to improve capability and capacity, to secure a sustainable agricultural and food production future. Our researchers do this by working in partnership with primary producers, the food industry and government.

RESILIENT ENVIRONMENTS AND COMMUNITIES

The protection and restoration of ecosystems is critical to combating climate change, pollution, desertification and loss of biodiversity. La Trobe researchers work in partnership with environment and community groups, government, industry and First Peoples to develop new approaches to ensure our ecosystems and natural resources are resilient, sustainable, biodiverse and protected. La Trobe is uniquely positioned to engage with regional communities to achieve this goal.

HEALTHY PEOPLE, FAMILIES AND COMMUNITIES

Promoting physical, mental and emotional health and wellbeing for all individuals and across all stages of life is key to the creation of inclusive, equitable and prosperous societies. La Trobe researchers build clinical capability and policy expertise to enhance individual and community wellbeing, reduce disease, and create equitable health solutions for all. Our researchers partner with health research networks, non-profit organisations, industry and government.

UNDERSTANDING AND PREVENTING DISEASE

Research underpins our knowledge of disease. Understanding history, sociology, ethics, biology, chemistry and physics is critical to the management and prevention of disease. La Trobe researchers work in partnership with bioscience institutes, health providers, industry and government to make discoveries in fundamental sciences that improve diagnostics, therapeutics and clinical outcomes across a range of diseases.

SOCIAL CHANGE AND EQUITY

Social inequality is driven by structural disadvantages such as race and gender, economic systems, climate change, and lack of access to basic resources. Achieving social justice and equality requires long term and sustainable action to close the inequity gap.

HOW DID OUR RESEARCH SUPPORT SUSTAINABLE DEVELOPMENT IN 2022?

JANUARY

FEBRUARY

- Act suppressing LGBTQ+ “conversion practices” comes into effect.



MARCH

- Centre for Freshwater Ecosystems hosts “Can ecotourism help save the Murray River?”



APRIL

- Regional campuses achieve net-zero emissions.



MAY

- Low emission included as breeding trait in Dairy Australia’s *Good Bulls Guide*.



JUNE

JULY

- SENSE Connect stroke therapy network launched.



AUGUST

- Victorian Virtual Emergency Department wins two Australian Business Awards.
- “Maisie’s Plots” listed on Victorian Heritage Register.



SEPTEMBER

- Microsoft offer free tuition to regional Pacific Islander students.
- Royal Women’s Hospital introduces caseload midwifery care for disadvantaged women.
- NanoMSlide wins Eureka Prize for improving detection of breast cancer.
- Mental Health & Wellbeing Act mandates independent advocacy in cases of involuntary treatment.
- Best Workforce & Industry Development Africa award for Vaka Health Foundation.



OCTOBER

- New diagnostic test for disease in honeybees.
- Release of National Action Plan to end violence against women and children.



NOVEMBER

- AFR Higher Education Employability Award for Nexus regional teacher training.
- Engagement Australia Award for Baggarrook Yurrongi: improving the health of First Nations mothers and babies.
- Ceremonial recovery of Yirrkala Bark Petition by Yolngu elders.
- Rediscovery of Mallee Whipbird, previously believed extinct.



DECEMBER

- Star rating system introduced for Australian aged care facilities.
- Australia-India workshop on ethical issues in supply chains.
- Launch of “Lighthouse” risk assessment and triage program in Family Court.



SDG 1: NO POVERTY



END POVERTY IN ALL ITS FORMS EVERYWHERE

La Trobe's contribution to ending poverty in all its forms is supported by research done in the **Institute for Human Security and Social Change**, the Asian Smart Cities Research Innovation Network and the School of Humanities and Social Sciences (HUSS). The Institute for Human Security and Social Change works with a wide range of individuals, organisations and networks that are involved in social change with a particular but not exclusive focus on Indigenous Australia, the Pacific and Southeast Asia. The Economic Development research theme within the Asian Smart Cities Research Innovation Network at La Trobe has a specific focus on decreasing the number of people living in poverty. And within HUSS, the Department of Social Inquiry continued La Trobe's established history of addressing issues of social inequality and cultural change in Australia and abroad, with a focus on human slavery, **trafficking**, forced labour and extreme working conditions. La Trobe researchers also continued their longstanding work and collaboration with the Pacific Islander network, focusing on the population of Pacific Islanders in horticultural areas in Australia, often employed in precarious seasonal work such as fruit picking, and ignored in favour of policies focused on attracting new intakes of skilled migrants.

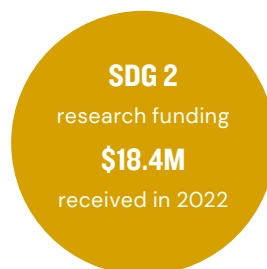


Pacific Role Models (Makiko Nishitani, HUSS and Helen Lee, HUSS)

Young Pacific Islander adults are caught in an intergenerational spiral of racism, isolation, and disengagement. Testimonials express an overwhelming need for accessible careers information and role models from a similar cultural background. In 2014, the **Sunraysia Mallee Ethnic Communities Council (SMECC)** began collaborating with Professor Helen Lee and Dr Makiko Nishitani from La Trobe University in a **five-year project** aimed at investigating the experiences of Pacific people living in Mildura and Robinvale (northwest Victoria). Over 150 Pacific people in the area participated in the research to share their experiences. Stories gathered during the study were presented at the Joint Standing Committee on Foreign Affairs and the Australian Human Rights Commission.

Starting in 2019, work began on developing the **Pacific Islander Network** website to provide resources that will bring positive impacts to Pacific people. The website contains video statements by Pacific people who grew up in Australia, New Zealand and the Pacific Islands, representing a wide range of careers and diverse routes to realising professional success. Providing a platform to challenge damaging stereotypes, it demystifies career development and gives access to relatable role models who can mentor the next generation. Inspired by the website, Microsoft are now offering free training in IT skills to a cohort of young Pacific people in regional Victoria.

SDG 2: ZERO HUNGER



END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

La Trobe University has a number of world class facilities, institutes and networks that generate research which contributes to SDG2. **AgriBio** brings together La Trobe's world-class research and the work of the Department of Jobs, Skills, Industry and Regions (DJSIR) to address food security by improving productivity and sustainability, fighting diseases, reducing environmental impacts and supporting agricultural education. The **La Trobe Institute for Sustainable Agriculture and Food (LISAF)** is a leading research institute for seed production, food and health which streamlines the development, growing and testing of desirable traits in cereal and legume grains to improve sustainability, yield and nutritional value.



Diagnostic test for honeybees (Travis Beddoe, SABLE)

American foulbrood (AFB) is an infectious disease of honeybee larvae that can have severe detrimental impacts on bee populations if unmanaged, putting risk on honey production and other food crops which rely on bees as pollinators. Current detection of AFB requires a honey sample to be sent to a laboratory for further testing. However, this can be time-consuming and costly. At La Trobe University, Professor Travis Beddoe and his team have developed a cheaper, faster, and more sustainable **detection method** that can reduce AFB outbreaks on a large scale. This method allows for early on-site detection, allowing Australian beekeepers to quarantine hives early and/or destroy them to prevent the spread. This research at **AgriBio** in early detection aims to improve Australia's agricultural sector in reducing disease impact with potential implications worldwide.



Parasite detection in waterways (Travis Beddoe, SABLE)

In Australia, liver fluke (*Fasciola hepatica*) infection in cows and sheep costs the agricultural sector up to \$80m annually and another \$10m on treatments. The threat of La Niña in Australia will only continue to worsen this issue, as resistance to treatments and the rate of infections are expected to increase. Current diagnostic tests focus on detecting the presence of mature parasites in faecal matter. This process is labour-intensive, expensive and has low sensitivity. La Trobe researchers have found a way to **detect parasite DNA in waterways**. By detecting immature forms of liver fluke before it enters the host, preventative measures can be put in place to manage the spread of the disease. In partnership with **AgriBio**, the Beddoe laboratory has developed a technology for farms to integrate into their parasite management plans to improve productivity and limit the disease on Australian farms.

SDG 3: GOOD HEALTH & WELLBEING

ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

La Trobe's SDG3 related research makes major contributions to mental health, aged care, rural and regional health, reducing barriers to care and improving its quality. The **John Richards Centre for Rural Ageing Research** celebrated 15 years of research excellence in 2022, including international collaborations in North America, Europe, Africa and Asia, developing capacity and practice for issues including ageing in place, workforce development, technology and health services. More broadly, the **Rural Health School** has tackled issues such as suicide, oral health, community health, workforce participation and isolation. The Department of Community and Clinical Health specialises in **neurorehabilitation**, whilst the **Olga Tennison Autism Research Centre (OTARC)** – Australia's first centre dedicated to Autism research – works with Autistic people and their families to produce high quality, relevant research to facilitate positive developmental outcomes, enable Autistic people to realise their full potential, and support families as their young Autistic children grow and develop. La Trobe also leads research looking at **digital health innovation**.

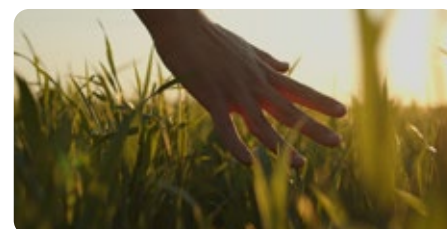


Australian Institute for Primary Care & Ageing (Janette Collier, SNM)

The Australian Institute for Primary Care and Ageing (AIPCA) been operating at La Trobe for more than 25 years, promoting quality improvement and consumer-driven, evidence-based practice in all areas of community-based primary health care and aged care.

Aged care research from AIPCA has been instrumental in improving the care provided and the quality of life of older Australians. There are 2,671 residential aged care services in Australia providing aged care to approximately 188,000 older people. Over half of these residents (54%) have a diagnosis of dementia. AIPCA has developed quality indicators for the Victorian Department of Health and a Consumer Experience Survey which is now in use in residential aged care across Australia. Both the survey and quality indicators contribute to the star rating introduced in 2022 by the Federal Government to monitor the quality of care in all Australian residential aged care services.

As a partner in the Commonwealth-funded National Dementia Training Australia consortium, AIPCA has also developed and delivered dementia education to aged care workers and health professionals, including GPs needing to diagnose dementia. In response to the interim report 'Neglect' from the Royal Commission into Aged Care Quality and Safety, the Victorian Department of Health commissioned AIPCA to develop free online education in dementia care, palliative care and oral health. This program went live in July 2021 and now has had several thousand users.



SENSe CONNECT: translating stroke rehabilitation (Leeanne Carey, SAHSS)

One of the common consequences of stroke is loss of sensation. Led by Professor Leeanne Carey, the SENSe team developed a **novel therapy** for recovering the sense of touch. An NHMRC Partnership Projects Grant (2017-23) supported the national rollout of SENSe through eight healthcare provider networks (SENSe Implement) and four specialist centres (SENSe CONNECT). SENSe specialist therapy centres have now been established in Melbourne, Newcastle and Adelaide, including the central site at Austin/Florey in Heidelberg. A network of therapists across Australia, including those based in regional and rural locations, have been trained to deliver SENSe rehabilitation techniques. Two-day workshops are held annually in Melbourne. Media coverage of the network launch in July 2022 resulted in dozens of calls from survivors seeking access to therapists, and therapists seeking access to training. Additional initiatives developed during COVID included a home training program ("SENSe @ Home") that enables remote delivery, and modification of the therapy for diverse needs.

SDG 3: GOOD HEALTH & WELLBEING



Victorian Virtual Emergency Department (Adam Semciw, SAHSS; Loren Sher, SAHSS; James Boyd, SPPH)

Northern Hospital Epping has one of the busiest emergency departments in Victoria, and the COVID-19 pandemic exacerbated these pressures. In response to the demand, Northern Health partnered with La Trobe University researchers to pilot a virtual emergency department offering a triage service to patients at home. **Northern Health's virtual emergency department** has proved immensely successful since it began in October 2020, allowing patients – including those with COVID-19 – to talk to emergency nurses and doctors from their home or work. With nearly 90% of patients using the virtual ED avoiding an ambulance trip or hospital visit, the virtual ED's success encouraged other health services to replicate it. By the virtual ED's one-year anniversary in October 2021, it had seen nearly 6,000 patients and expanded its capacity even further by partnering with Ambulance Victoria (AV). This partnership allows paramedics to use the service from a patient's home and receive emergency medical advice and care. This virtual triage service has received \$21m in Victorian government investment to roll out across Victoria, and in 2022 the service won Australian Business Awards for both **Digital Transformation** and **Service Excellence**.



Mildura suicide prevention (Sean MacDermott, LRHS)

Mildura has the highest rate of suicide of any regional Victorian LGA. A report produced collaboratively by La Trobe and Monash Universities showed that between 2008 and 2018, 4,326 people presented to the Mildura Base Public Hospital Emergency Department for suicidality, 1,999 of which were re-presentations. Following this report, MBPH were successful in receiving Commonwealth and State funding for a dedicated Suicide Prevention Program. The aim of the program is to prevent suicides and suicide attempts by providing assertive, holistic, client-centred aftercare in the community for a period of 12 weeks. Staffed by social workers, nurses, psychiatric and psychosocial support and peer support workers, the **Mildura Suicide Prevention Program** provided aftercare to 138 recipients during its first full year in 2021. The program has shown its success in self-reports of optimal recovery, reduction in re-presentations for suicide attempts, and instances of individuals reaching out to services for support before escalating into crisis.



OTARC: Autism education & vocation (Cheryl Dissanayake, SPPH and Simon Bury, SPPH)

Approximately 2% of individuals worldwide are on the Autism spectrum with some studies reporting a prevalence of 4% or higher. Employment can make an important contribution to individual well-being, by providing people with a sense of purpose; however, Autistic people face significant barriers to entering and remaining in the workforce. This is reflected in high levels of underemployment and unemployment, with an estimated 80% of Autistic people unemployed worldwide. **"Supporting a neurodiverse workforce: A mental health and well-being training and resource package"** is the product of a collaboration between the Olga Tennison Autism Research Centre at La Trobe University (OTARC), DXC Technology, ANZ Banking Corporation, and Untapped. It is a comprehensive mental health and well-being resource and training package designed to support the mental health and well-being of employees on the Autism spectrum. The full toolkit presents current and evidence-based information and strategies to support mental health and well-being, with specific information on mental health and autism for Autistic employees as well as their work colleagues and managers. It is available as in person training for organisations, or as a self-directed online course. Tailored employment processes that challenge traditional human resource management practices can increase the participation of Autistic people in the workforce, and facilitate their sustained employment.

SDG 3: GOOD HEALTH & WELLBEING



Flying doctor telehealth (Irene Blackberry, LRHS and Tshepo Rasekaba, LRHS)

Rural communities have poorer access to health care services, and poorer health outcomes compared to their urban counterparts. Ten small rural Victorian health services formalised a partnership to develop the Small Rural and Regional Health Service Research Team (the SMART Partnership). In late 2016, SMART partnered with the Royal Flying Doctor Service (RFDS) Victoria to develop a telehealth strategy to improve access to specialist services through **the Flying Doctor Telehealth Specialist Service (FDT-SS)**. The SMART partnership secured a grant from the Department Health and Human Services Victoria for a 12-month project with a focus on diabetes. Following success of this pilot, RFDS Victoria embedded telehealth into their primary care service model from the end of 2017 and embarked on expansion to include specialist respiratory, psychiatry and cardiology services, and to increase the number of remote telehealth sites from an initial suite of 10 to over 100 across rural and remote communities in Victoria, South Australia and NSW. Evaluating FDT-SS, the John Richards Centre for Rural Ageing Research found that the expansion of the service resulted in a significant uptake of its use:

- The Flying Doctor Telehealth Service

provides specialist medical services to more than 90 rural locations in Victoria and in South Australian and New South Wales border towns.

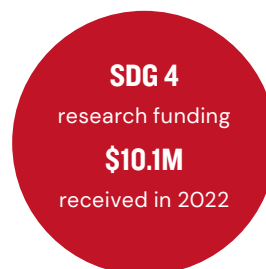
- Telehealth services increase access to specialists in rural communities and ensure patients receive timely care closer to their homes, saving the patient an average of 1280km per year in travel distance for specialist care.
- Increased access to timely telehealth specialist medical services results in cost savings to the overall health system, at \$67 per patient per month.
- At the peak of the service, every rural shire in Victoria was benefitting, with more than 3,000 consultations provided annually.



Regenerative cell therapy for stroke (Chris Sobey, SABC)

Stroke is one of Australia's biggest killers and a leading cause of disability. Current treatments, however, are time critical and limited. The La Trobe research team led by Professor Chris Sobey and collaborators at Hudson Institute and Austin Health are studying human amnion epithelial cells as a new therapy for stroke. With support from Beluga Foundation philanthropic funding, Professor Sobey has moved on from a Phase-1 Clinical Trial for safety to Phase-2 to continue to assess the therapeutic potential of these cells. This research into new treatments continues to show promise and is hoped to benefit the 80% of stroke patients ineligible for existing treatments.

SDG 4: QUALITY EDUCATION



ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

The School of Education at La Trobe is committed to working with our students, alumni, education professionals, and community groups to make a meaningful impact in education, including ways of centring First Nations knowledges, methods, and perspectives in research. We consider the role of education in relation to social advantages and disadvantages for learners from diverse backgrounds – including geographical location, Indigeneity, ethnicity, ability/disability, gender and sexuality and socio-economic status – that can adversely affect educational outcomes. We are also bridging the gap between secondary and tertiary education for populations that remain under-represented in tertiary education.

*La Trobe's **Regional Pathway Program** is an exceptionally effective program for disadvantaged regional students that reduces equity and attainment gaps in tertiary education in regional Victoria. In 2022, 70 per cent of program graduates were on-track to attend university, four times higher than the regional average of 14 per cent. La Trobe is also responding to the need for greater investment in the pipeline of Indigenous students into tertiary education with the **RISE Pathway program**, which is supporting Year 9 – 12 students from regional Victoria and around Australia.*



The Science of Language and Reading (SOLAR) (Pam Snow, SOE and Tanya Serry, SOE)

A recent (2022) Productivity Commission Report found that Australian students' foundational skills in reading, writing and numeracy had been "flat for over a decade", in spite of spending on schools having increased substantially. One key factor is the persistence of outdated and ineffectual teaching methods, especially in the early years of primary education. The Science of Language and Reading (SOLAR) Lab was established in the School of Education in 2020 to promote evidence-based literacy education across the school years. It delivers short online courses on the linguistic and cognitive foundations of reading. Over 10,000 participants have completed the courses, including classroom teachers, school literacy leads, principals and allied health clinicians. In 2021, the SOLAR Schools Pilot Project was launched, offering bespoke in-service development to schools across metropolitan Melbourne and regional Victoria.

The SOLAR Lab was named as a Community Engagement finalist in the 2022 Australian Financial Review Higher Education Awards, and was referenced in the 2022 Quality Initial Teacher Education Review as an example of the upskilling required by the sector, with the recommendation that other higher education providers should offer similar micro-credentials. The impact of the SOLAR Lab was pivotal in the \$2.5 m philanthropic grant by the Bertalli Foundation in 2023, which will support three new research projects in Victoria.



Nexus teacher placement program (Miriam Tanti, SOE)

Schools in regional areas struggle to recruit and retain good teachers. In response to the 2018 Independent Review into Regional, Rural and Remote Education, the Department of Education committed \$6.3m to delivering a long-term solution to this critical issue. Developed by La Trobe University, the Nexus Program draws on prior research by Professor Jo Lampert which demonstrated the effectiveness of a community-led, employment-based pathway to teacher training. The Nexus Program embeds high-performing teachers in schools identified as hard-to-staff, with a particular focus on urban low socio-economic, regional and rural communities. Recognised in 2022 by an AFR Higher Education Award for Employability, the success of Nexus has been demonstrated by an independent evaluation and renewed funding of \$4.8 m to extend the program until 2026. The Australian Government have also committed \$7.9m to **expand the program into primary schools in NSW and Victoria.**

SDG 5: GENDER EQUALITY

ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS

La Trobe's SDG5 related research has contributed to legislative reform concerning LGBTQ conversion practices; the development of models and clinical practice guidelines on **breastfeeding**, including breastfeeding for vulnerable women and those with diabetes; programs to reduce injury in AFLW; and award-winning interventions to improve the safety of women and girls. More broadly, **Rainbow Health Australia** – located within the Australian Research Centre in Sex, Health and Society (ARCSHS) at La Trobe and funded by the Victorian government – works closely with researchers at ARCSHS on cutting edge research into LGBTIQ health and wellbeing, including research development, translation and impact. La Trobe is committed to implementing gender equality programs such as the **Academic Promotions Peer Support Program**, the **Tracey Banivanua Mar Fellowships**, and our work towards **SAGE Athena SWAN** silver accreditation. Women currently make up two thirds of our Senior Executive Group, and within some ESMC bands the gender pay gap has been eliminated.



Ending LGBTQ+ conversion practices (Tim Jones, HUSS; Jennifer Power, HUSS; Nathan Despott, HUSS; Joel Anderson, HUSS; & Percy Gurtler, HUSS)

Since 2016, researchers at La Trobe University in partnership with the Brave Network, the Australian LGBTIQ+ Multicultural Council and the Victorian Government, have been investigating practices that attempt to change or suppress the sexuality or gender identity of LGBTQ+ people. The 2018 report entitled *Preventing Harm, Promoting Justice: responding to LGBTQ+ conversion practices in Australia* drew on the testimony of survivors to demonstrate that conversion practices remained active in Australia. It was communicated to the Attorneys General of all jurisdictions. Three jurisdictions have now passed legislation banning conversion practices (Qld, Vic, ACT), and four have commenced reform processes (Tas, SA, WA, NSW). The Act suppressing conversion practices in all settings came into effect in Victoria in February 2022.

Alongside legislative reform, this research has informed the development of a world-leading civil response scheme in the Victorian Equal Opportunity and Human Rights Commission to better support survivors and educate the public about the **harmful effects of conversion practices**. LTU also collaborated on developing survivor support training for mental health professionals, piloted at Queerspace in 2021 and accredited by the Australian Psychological Association.



Breastfeeding guidelines (Lisa Amir, SNM)

Breastfeeding is universally acknowledged as the first step in the promotion of health and wellbeing of children and their families. The World Health Organization recommends breastfeeding for two years or beyond, with solids introduced around 6 months of age. However, the two most **common problems** faced by breastfeeding women are nipple and breast pain and low (or perceived low) milk supply. Medical practitioners may not receive education in managing breastfeeding problems and at times may provide advice that is inappropriate or unhelpful to breastfeeding women. Professor Lisa Amir is a Subject Matter Expert in breastfeeding medicine who has contributed to the development of guidelines and knowledge that assist health professionals in providing appropriate advice and care. This includes writing Clinical Practice Guidelines at **the Royal Women's Hospital**, and partnering with the Australian Breastfeeding Association to support new mothers.

SDG 5: GENDER EQUALITY



DAME – Diabetes and antenatal milk expressing (Della Foster, SNM; Lisa Amir (SNM), Anita Moorhead, SNM; Christine East, SNM)

Pregnant women with diabetes may have difficulty producing early milk, known as colostrum, for their newborn babies. Babies of women with diabetes in pregnancy may be smaller than average and have a greater risk of hypoglycaemia (low blood sugar), admission to a neonatal intensive care unit, and insufficient milk supply. Many clinicians encourage women with diabetes in pregnancy to express and store breastmilk in late pregnancy, yet no evidence exists for this practice. A clinical trial was conducted to determine the safety and efficacy of antenatal expressing in women with diabetes in pregnancy. It concluded that there is no harm in advising women with diabetes in pregnancy at low risk of complications to express breastmilk from 36 weeks' gestation. The findings have been published and presented in scientific communications with extensive media coverage. DAME information has also already been incorporated into books written for the general public about breastfeeding and has been developed into a clinical practice guideline.



TramLAB: Improving the Safety of Women and Girls on Public Transport (Leesa Hooker, LRHS; Angela Taft, SNM; Jessica Ison, SNM; & Kirsty Forsdike, LBS)

Sexual assault and harassment commonly occur on public transport. The risk can generate fear and anxiety which means many women change their behaviours, the routes they take and the level of vigilance they enact. A collaborative research team from La Trobe University, Monash University, and RMIT University conducted interviews and analysed available data from public transport providers and the police to identify improvements in monitoring trends in women's safety. They reviewed existing initiatives, evaluations and evidence-based practices both nationally and internationally. A workshop then brought together women from diverse backgrounds, industry stakeholders and designers to create a vision for a safer public transport journey. In 2021, the project produced four award-winning toolkits focusing on prevention and early intervention, to improve the safety of women and girls on public transport. In 2022, the toolkits won the **Victorian Premier's Design Award Best in Category – Design Strategy**.



Prep to Play: AFLW injury prevention (Brooke Patterson, SAHSS)

In all contact sports, women have up to double the risk of serious head and knee injury, and in the AFL, women have five times greater risk of ACL (anterior cruciate ligament) injury compared to men. The **"Prep to Play"** warm-up and strength program was developed during a collaboration project between the AFL and La Trobe to reduce injury risk and enhance the performance of community women football players. The trial trained 60 physiotherapists to deliver Prep to Play workshops to teams and provide support at their training. More than 3000 people (coaches, players, parents, staff) have participated in the program. The next phase will evaluate the reduction in injuries, the increased confidence, skills and knowledge of players, coaches, and physiotherapists, and examine avenues to increase program uptake.

SDG 5: GENDER EQUALITY



MAGNOLIA – Maternity Care for Vulnerable Women (Helen McLachlan, SNM; Della Forster, SNM; Michelle Newton, SNM; Touran Shafiei, SNM; Fiona McLaudie-Hore, SNM; & Meabh Cullinane, SNM)

Caseload midwifery improves a range of maternal outcomes (less premature births, caesarean births, epidural use, episiotomy; and increased satisfaction and improved birth experience) and neonatal outcomes (less special care admissions, low birthweight babies, and increased breastfeeding initiation). Only 15% of women nationally, and 8% at the Royal Women's Hospital, have access to this model, with most caseload care only available to women considered 'low risk'. Socially disadvantaged women (who are at greater risk of poorer outcomes), have the least access to caseload care, yet stand to benefit the most. In 2022 **the Royal Women's Hospital** introduced a caseload model specifically for women experiencing social disadvantage, as part of the MAGNOLIA randomised controlled trial. MAGNOLIA aims to determine if caseload care reduces preterm birth in women experiencing social disadvantage. The Northern Hospital plans to offer caseload care for the first time as part of the MAGNOLIA trial, in the coming months.



Prevention of sexual violence against women and girls (Leesa Hooker, LRHS; Jessica Ison, SNM; Kirsty Forsdike, LBS; Felicity Young, LRHS; Angela Taft, SNM; Christopher Fisher, SPPH; Grant O'Sullivan)

Sexual violence and harassment (SVH) exist on a spectrum of violence against women and girls. SVH can be a single instance, or it can be experienced in various ways across a woman's life, and the perpetrator is most often known to the woman. The threat of SVH over a woman's life impacts her mobility and how she navigates within the community, the workplace, and in the family and relationships. SVH is prevalent, yet preventable. Dr Leesa Hooker leads research to identify effective primary prevention SVH interventions at all levels. Her team developed a **Theory of Change** to guide the future National research agenda on the primary prevention of violence against women. The **Theory of Change** report has been submitted to the Minister for Women, was released at the 2021 National Women's Safety Summit and informed the recent National Action Plan to End Violence against Women and Children 2022-2032.

SDG 6: CLEAN WATER & SANITATION

**ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT
OF WATER AND SANITATION FOR ALL**

*La Trobe University's contribution to SDG6 is driven by the **Centre for Freshwater Ecosystems (CFE)** which delivers world-leading research focused on supporting the sustainable management of healthy freshwater ecosystems, measuring and conserving freshwater biodiversity, balancing water allocations between communities, addressing the effects of catchment management and chemical pollutants on water quality, and understanding the influences of hydro-climatic variability and climate change on refuges and ecosystem resilience. The Centre has made a significant contribution to the research underpinning management of the Murray-Darling Basin (including the Murray-Darling Water & Environmental Research Program, the Environmental Water Knowledge and Research Program, and the Long Term Intervention Monitoring project), but also has research links nationally in the wet tropics of Northern Australia, and internationally in Southeast Asia, Europe and the Americas.*



Murray-Darling Water & Environmental Research Program – MD-WERP (Nick Bond, SABE)

The Murray-Darling Basin Authority (MDBA) is the government agency responsible for managing sustainable water use and health in the million square kilometres that comprise Australia's critical Murray-Darling river system. In 2021, the Australian Government invested \$20m in targeted research to improve outcomes of the MDBA's integrated **Basin Plan**, resulting in the **Murray-Darling Water & Environment Research Program (MD-WERP)**. The program comprises two consortia, one led by CSIRO and the other by La Trobe's Centre for Freshwater Ecosystems. The consortium led by CFE includes Griffith University, Murray Lower Darling Rivers Indigenous Nations (MLDRIN), Northern Basin Aboriginal Nations (NBAN), Institute for Development of Environmental Economic Accounting Group (IDEEA Group) and the Murray Darling Basin Authority (MDBA) to deliver research on environmental, social, economic and cultural outcomes of the Basin Plan.

Economic benefits include more efficient use of water, operational and cost savings, and evidence-based prioritisation of investment.

Environmental benefits include greater persistence of species, increased fish populations, improved management of floodplains, and more effective risk management.

Social benefits include improved understanding of the value of healthy river ecosystems to the cultural wellbeing of people and communities, including First Nations stakeholders, and its value for recreation and tourism in the Basin. One example of cross-sector knowledge-sharing is the public discussion on ecotourism hosted by CFE in 2022.



Healthy Waterways Strategy (Nick Bond, SABE)

Melbourne Water is responsible for the region's five major catchments and their waterways, covering approximately 13,000 km² from their upper reaches to their estuaries. To protect this complex natural environment, Melbourne Water developed a ten-year Healthy Waterways Strategy in 2018. La Trobe University's Centre for Freshwater Ecosystems (CFE) collaborated with Melbourne Water and the University of Melbourne to identify priorities for the Strategy, generating habitat models that drew on over 20 years of biological monitoring data. Spatially-explicit habitat modelling provides estimates of current biodiversity and predictions of how it might be affected by threats such as urban growth or climate change, thus determining effective forms of intervention. In 2020, this innovative approach to conservation was recognised by the Ecological Society of Australia with their Ecological Impact Award. Melbourne Water is now implementing the Strategy, and its progress can be monitored on a dedicated dashboard.



SDG 7: AFFORDABLE & CLEAN ENERGY

**ENSURE ACCESS TO AFFORDABLE, RELIABLE,
SUSTAINABLE AND MODERN ENERGY FOR ALL**

*La Trobe University has made a commitment to become carbon neutral by 2029. As part of this drive, La Trobe has **invested \$75m in projects** including Building Management System (BMS) optimisation, EV charger installation, the replacement of the passenger fleet for electric vehicles, lighting upgrades, rooftop solar (7,500+ solar panels on more than 25 buildings), waste reduction and organic recycling. In 2022, La Trobe University signed up to the **Race to Zero**, a global initiative for a Zero Carbon World, powered by the UN Environment Programme, EAUC & Second Nature. Our regional campuses in Albury-Wodonga and Bendigo also became net zero in 2023.*



LEAP Energy Analytics (Daswin de Silva, LBS)

La Trobe University has pledged to reach net-zero energy emissions by 2029. While the technology exists in the form of solar farms on regional campuses with capacity to feed back into the grid, the challenge is now predicting where more energy might be needed, and identifying where it can be reduced. The La Trobe Energy Analytics Program (LEAP) was developed in response by the Centre for Data Analytics and Cognition to analyse and optimise energy consumption patterns across all campuses. Recognised with the TEFMA Clever Campus Innovation Award in 2021, LEAP now saves the university over \$250,000 per annum in energy efficiency, and in 2022 contributed to achieving net-zero on La Trobe's regional campuses in Shepperton and Mildura.

La Trobe
has invested
\$75M
to become carbon
neutral by 2029



SDG 8: DECENT WORK & ECONOMIC GROWTH

PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

The Asian Smart Cities Research Innovation Network at La Trobe includes a specific research theme related to 'Economic Development' which considers how to increase employment rates, the value of property, the number of businesses and patents, and how to decrease the number of people living in poverty. La Trobe Business School uses the United Nations Sustainable Development Goals and the United Nations Principles of Responsible Management Education to guide their teaching, research, partnerships and engagement (2022 La Trobe Business School PRME report). Within Australia, the Institute for Human Security and Social Change works with the Central and Northern Land Councils to support Indigenous control of resources and development. As a business, La Trobe University proudly employs over 8,000 continuing, fixed term and casual staff. All of those staff are employed under the La Trobe University Collective Agreement 2018, which remunerates staff above both the minimum wage and modern award requirements.



Central and Northern Land Councils Evaluation (Linda Kelly, HUSS and Danielle Campbell, HUSS)

The Central Land Council (CLC) and the Northern Land Council (NLC) are Indigenous statutory bodies based in the Northern Territory. One of their responsibilities is distributing funds owed to Traditional Owners from sources such as mining royalties and National Park gate fees. A proportion of these funds are allocated for collective benefit via the CLC's Community Development Program and the NLCs Community Planning and Development Program which support Indigenous control of resources and development in remote communities.

La Trobe University researchers have been engaged in a long-term collaboration with these two large Land Councils to evaluate the effectiveness of their initiatives and programs. Throughout the process, the team from La Trobe have been determining success using criteria that are meaningful to Indigenous communities. The work has also involved 'translating' the evaluative findings to external policy makers.

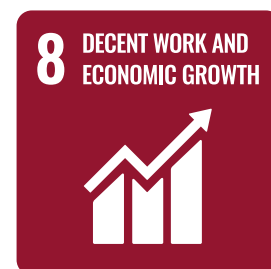
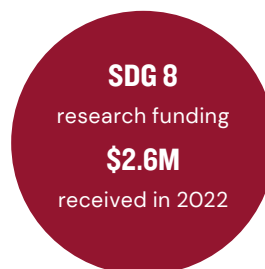
Building on these success stories in this complex intercultural context, La Trobe now supports the tracking and learning goals of other Indigenous organisations and communities in partnership with the CLC. With the Walpiri Education and Training Trust (WETT), La Trobe supports an expanding team of local Aboriginal researchers to collect information from

community to inform WETT decision making around project design and project funding. LTU have also supported the Lajamanu community to define what makes a good life in their community and develop a local research tool to track progress in these domains. A growing team of local Aboriginal researchers are now using learnings from the tracking tool to drive change in the community.



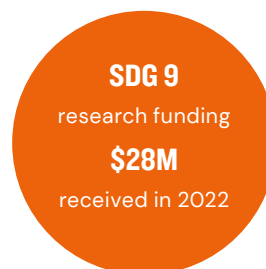
Ethical frameworks for critical industries (Suzanne Young, LBS)

Successful operationalisation of Australia's global Cyber Technology Strategy entails managing the risks associated with multi-tier offshore partnerships. The study conducted by Young's team surveyed twelve high-profile Australian companies in the manufacturing and finance sectors. It examined how environmental and social governance (ESG) frameworks were embedded in their global operations, with a particular focus on supply chains and third-party monitoring. The resulting recommendations include formally incorporating ethical and environmental compliance into subcontracts; conducting onsite audits; and regulatory alignment in cyber- and data security. However, sustainable culture change must also develop transnational relationships that go deeper than contractual obligations, in order to build mutual trust and accountability.



SDG 9: INDUSTRY, INNOVATION & INFRASTRUCTURE

BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION

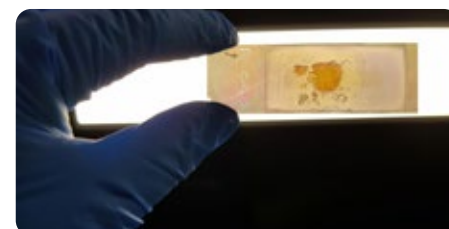


In 2022, La Trobe's contribution to SDG9 included innovative solutions for cancer diagnosis, smoke detection, medicinal agriculture, and space nutrition. Prof. Brian Abbey was awarded the Eureka Prize for Innovative Use of Technology for his development of NanoMslide, one of the projects developed within the **Biomedical and Environmental Sensor Technology (BEST)** research centre at La Trobe. In the School of Agriculture, Biomedicine and Environment (SABE), the Environmental Impacts Group installed and expanded their network of smoke detectors for the wine industry. Elsewhere, the **ARC Industrial Transformation Research Hub for Medicinal Agriculture** – a \$24m+ initiative, supported by Australian government, industry and university funds which is the first of its kind in Australia – aims to transform the production of high quality, plant derived therapeutics into an integrated, Australia-wide industry that spans primary producers and manufacturers. And the **ARC Centre of Excellence in Plants for Space** aims to create a legacy of global leadership in engineering on-demand, zero-waste, high efficiency plants and products to support a bold new future in Space exploration.



Smoke Sensor Network to Prevent Economic Loss to the Wine Industry (Ian Porter, SABE; Scott Mattner, SABE; and Dave Riches, SABE)

Wine grapes worth hundreds of millions of dollars were dumped after the 2020 Black Summer bushfires due to concerns over smoke taint in North East Victoria. Much of this loss was because wine growers had no reliable system to predict smoke taint in wine. For ten years, the La Trobe University team – Ian Porter, David Riches, Scott Mattner – have worked with the national wine industry and wine growers to design, develop, install and validate the world's first smoke **sensor and predictive system for smoke taint with sensors now present at 100 sites in North East Victoria**. The system records the exposure of grapes to smoke (both individual events and cumulative exposure) and transmits this information back to growers through a traffic light system app, allowing them to make decisions around testing and strategies to manage smoke effects. With millions of dollars in potential savings when a wildfire breaks out, the system represents a huge return on investment for growers and the industry. Aside from the financial impact, the impact on reducing stress, panic and emotional turmoil for growers cannot be underestimated.



NanoMslide (Brian Abbey, SCEMS; Belinda Parker, SABE & Eugeniu Balaur, SCEMS)

NanoMslide is a fast, accurate, label-free diagnostic platform that could revolutionise the way we detect cancer. In 2022, the technology won both the **Eureka Prize for the innovative use of technology** and the **Victoria Prize for Science & Innovation**. A recent **study featured in Nature** showcased the NanoMslide's remarkable ability to instantaneously differentiate cancer cells from healthy cells within breast tissue, utilizing nothing more than a conventional optical microscope. Breast cancer is the first or second leading cause of female cancer deaths in 95% of the countries worldwide. Early detection and intervention play a pivotal role in ensuring long-term patient survival and carry substantial implications for health economics and societal impacts for Australia. Through a simple colour change under the microscope, the NanoMslide makes it easier to detect small numbers of cancer cells within tissue samples. Whilst this research has only been conducted in breast cancer, the scope for NanoMslide extends far beyond this, with applications currently being researched in a range of other cancers and diseases as well.

SDG 10: REDUCED INEQUALITIES

REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES

*One of the most profound expressions of inequality in Australia, as globally, is the experience of First Nations people. Based on census data, Indigenous Australians are almost twice as likely as non-Indigenous Australians to be represented in the lowest 20% of household incomes, with an 8-year gap in life expectancy. The intergenerational damage wrought by colonialism in Australia is manifest not only in unequal health and economic outcomes, but also in cultural and historical exclusion. La Trobe University is committed to counteracting this systemic inequity through opportunities for Indigenous students such as the **RISE Tertiary Pathways** access and support program for Indigenous secondary school students. Research conducted at La Trobe has also contributed to improvements in health services for Indigenous Australians, and supported the repatriation of culture to Country.*



Baggarrook Yurrongi: Caseload midwifery for First Nations families (Helen McLachlan, SNM; Della Forster, SNM; Michelle Newton, SNM; Pamela McCalman (SNM); Fiona McLardie-Hore (SNM); & Touran Shafiei, SNM)

Strategies to improve outcomes for Australian First Nations mothers and babies are urgently needed. Caseload midwifery, where women have midwife-led continuity throughout pregnancy, labour, birth and the early postnatal period, is associated with substantially better maternal and infant health outcomes. While the caseload midwifery model has demonstrated positive effects on outcomes in the general population, very few First Nations women have had access to such a model. A collaboration between researchers at La Trobe University, the Victorian Aboriginal Community Controlled Health Organisation and the three metropolitan hospitals in Melbourne aimed to assess the research translation capacity of maternity services to implement, embed and sustain a culturally specific caseload midwifery model for women having a First Nations baby.

The model had very high uptake by First Nations families (90%) and high level of satisfaction for the women's maternity care. Across pregnancy, labour, birth, and the early postnatal period, women reported feeling emotionally and physically supported by maternity care that was experienced as more accessible, personalised, and well-coordinated. A recommendation was put forward to prioritise further scale-up of this model to help address the disproportionate poorer maternal and infant health outcomes experienced by First Nations mothers and babies. **The Engagement Australia 2022 Excellence Award (Indigenous Engagement)** was awarded to Baggarrook Yurrongi's transformation of perinatal care for First Nations women.



SDG 10: REDUCED INEQUALITIES



Repatriation of Yirrkala Bark Petition (Clare Wright, HUSS)

In 1963, the Yolngu people of north-eastern Arnhem Land petitioned federal Parliament for an inquiry into proposed bauxite mining on their lands before leases were issued by the Menzies government. This represented the historic first step in the Aboriginal land rights movement. Four typed originals of the petition were fixed to bark painted with traditional designs. Two are in Parliament House, (previously exhibited beside Australia's copy of the Magna Carta, now on permanent display in the Members' Hall). One resides in the vaults of the National Museum of Australia. The whereabouts of the fourth "Bark Petition" were unknown to the people of Yirrkala – and its very existence uncertain – until now.

Research by Prof. Clare Wright **traced its path to Derby**, WA, where it hung in obscurity on the wall of ninety-year-old Mrs Joan McKie. Mrs McKie's first husband, then Secretary of the Federal Council for Aboriginal Advancement, had been gifted it by MP Gordon Bryant in 1963. Prof. Wright then notified the Yolngu elders, who described the missing petition as "our lost treasure", that she had located it and negotiated for its return to Yirrkala. Following a ceremonial handover in Derby in November 2022, involving descendants of the original artists and signatories, the object was transported to South Australia Museum in Adelaide where it is being conserved by ArtLab. The Director of ArtLab described the work as a "national treasure ... as valuable as any Picasso". Following conservation work, the 'missing petition' will be ceremonially repatriated to Country and permanently displayed in Yirrkala's Buku-Larrnggay Mulka Art Centre.

SDG 11: SUSTAINABLE CITIES & COMMUNITIES

**MAKE CITIES AND HUMAN SETTLEMENTS
INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE**

Among the initiatives in our **Resilient Environments and Communities** theme, La Trobe hosts the **Asian Smart Cities Research Innovation Network (ASCRIN)**, whose objective is improving the sustainability, liveability and efficiency of Asian cities. Through collaborations with academic and industry partners, ASCRIN is working towards technological solutions for challenges such as urban planning, public transport, waste management, and data security. Elsewhere, focused on the priority area of inclusivity, research conducted in La Trobe's **Living With Disability Research Centre** has already resulted in improvements to accessible housing. Another project with positive community impact reimagines city streets as play spaces for children, transforming them into a safe public environment for everyone.



1,000 Play Streets (Erica Randle, LBS)

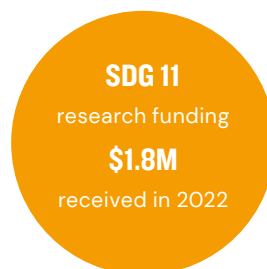
In Australia, 1 in 4 children are either overweight or obese, 1 in 7 children are experiencing a mental health condition, and 28% of Australians experience social loneliness. A Play Street is a simple concept where quiet residential streets are temporarily closed for neighbours to come outdoors to connect and play. Play Streets enable children to improve their motivation, confidence, and ability to play outdoors, providing them a valuable foundation to establish healthy habits that last a lifetime. The pilot trial also found that 90% of adults and 87% of children improved their sense of connection with their community. Funded by Sport Australia and the South Australian government, **Play Australia** and La Trobe's **Centre for Sport and Social Impact** together with local government and communities have so far delivered over 70 Play Streets across South Australia. With many neighbours getting active and meeting for the first time at a Play Street, the gatherings improve the health and wellbeing of children and adults alike.



Designing new housing for people with disability (Jacinta Douglas, SAHHS)

The National Disability Insurance Agency supports approximately 28,000 recipients with complex accommodation needs at a cost of \$700m per year. However, NDIA have so far lacked the data to make informed decisions regarding beneficial and cost-effective design for specialist disability accommodation (SDA). Group homes where up to 8 residents are housed together remain the most common type of SDA. However, a pilot study by Douglas et al. published in 2022 demonstrated not only a significant improvement in wellbeing and independence for residents in individual SDA, but also projected cost savings in support costs of up to \$1.1b per year, challenging the assumption that group homes are more economical.

On the basis of this study, Douglas' team secured an **ARC Linkage grant** in 2022 with partners including the NDIA, Telstra, Summer Foundation, ethical investments fund Light Warrior, and disability housing providers. The collaboration will formulate guidance for SDA best practice, such as design principles, smart-home technologies, and community settings. SDA represents an emerging market for developers with the potential to stimulate an estimated \$5b in private sector investment. But the real beneficiaries of this research are those who will finally be able to live with dignity, privacy and autonomy in a well-designed home of their own.



SDG 12: RESPONSIBLE PRODUCTION & CONSUMPTION

ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

As part of La Trobe's **Sustainable Food and Agriculture** research theme, the university has partnered with the Department of Jobs, Skills Industry and Regions to establish a world-class facility for agricultural biosciences research and development. **AgriBio** is committed to reducing food insecurity, reducing waste and promoting sustainable practices within the agricultural sector. This systemic, end-to-end approach to agricultural sustainability has the potential to build a circular economy around food production. Projects in progress include a classification tool for microbial soil health, development of novel organo-mineral fertilizers, and metabolite recovery from plant waste. Here, however, we highlight a program of research that has already reduced the environmental footprint of the Australian dairy industry.



Creating a sustainability index for breeding dairy cattle (Jennie Pryce, SABE and Caeli Richardson, SABE)

In Australia, livestock emissions account for 70% of greenhouse gas emissions in the agricultural sector. Up to 44% of livestock emissions are methane, and 65% of these emissions come from cattle. In partnership with DataGene, Agriculture Victoria Research, Dairy Australia, the Gardiner Dairy Foundation and La Trobe researchers, **an index** that includes predictors of methane has been developed and implemented in the Australian national breeding program. This allows for farmers to make a conscious breeding decision, in turn reducing environmental impact of dairy cattle while balancing genetic progress in other valuable traits such as production, health, and fertility. The Sustainability Index released by DataGene provides Australian dairy farmers with a breeding tool to add into their mix of management practices to reduce their system's emissions intensity. Dairy Australia's *Good Bulls Guide* for 2022 now includes low emissions as a desirable trait, encouraging farmers to breed for sustainability.



SDG 13: CLIMATE ACTION

TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

The manifestations of climate change which have most profoundly affected Victoria are drought, flood and bushfire. Bushfire, such as the wildfires that devastated the east of the state in summer 2020, presents serious challenges both of recovery and preparation.

La Trobe's Research Centre for Future Landscapes (RCFL) has worked with the State Government for over twenty years to provide the evidence base for analysing the effects of wildfire and developing responses accordingly, including disaster relief, ecosystem resilience, and mitigation strategies such as controlled burns. Our contribution to statewide fire management policy addresses one of the most urgent natural hazards resulting from the current climate emergency.



State targets for monitoring ecosystem resilience (Mike Clarke, SABE & Andrew Bennett, SABE)

Researchers from the Research Centre for Future Landscapes have developed a world-first set of metrics to measure and report on the effect of fire management on environmental values and ecosystem resilience. The metrics are comprehensive, capturing different components of fire regimes and of biodiversity, and provide a direct link between strategic goals and on-ground actions. Specific, measurable and realistic targets have been set for each metric, filling a long-standing gap in the capacity of management to quantify the impact of fire management activities on biodiversity and actively promote ecosystem resilience. Application of the metrics is being trialled at Wilsons Promontory, with the potential for long-term conservation impact. The metrics are currently under review by the Department of Energy, Environment and Climate Action (DEECA) for state-wide application in fire management and reporting policy.



Wildfire severity mapping (Luke Collins, SABE)

The 2019–2020 bushfires caused widespread devastation across south-eastern Australia. In order to optimise the allocation of resources towards post-fire recovery, the Victorian Department of Environment, Land, Water and Planning (DELWP) had to rapidly assess the severity and impact of the fires across the affected regions. **This assessment** used the remote fire severity mapping technique developed by Luke Collins (LTU and the Arthur Rylah Institute) in collaboration with DELWP. In 2018, Collins et al. had demonstrated the speed and accuracy of the Random Forest machine-learning algorithm for mapping wildfire severity from satellite imagery.

As well as informing the 2020 emergency response, this tool has been adopted for regular use to by DELWP (now DEECA) to support bushfire recovery projects, assist land managers assess the impacts to biodiversity, and plan fuel management. According to DEECA this has 'greatly improved the efficiency, consistency and timeliness of bushfire and burn severity mapping'. The methodology has also been adapted to create equivalent mapping tools in NSW and Tasmania.



SDG 14: LIFE BELOW WATER

CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT

We recognise that SDG 14 focuses on the protection of marine and coastal environments. As La Trobe's campuses are located inland, however, our research expertise contributes primarily to sustainable use and conservation of Victoria's riverine ecosystems, albeit with the inclusion of estuaries and coastal wetlands. We have therefore interpreted "Life below water" as having the capacity to absorb these adjacent, tributary environments. The main impacts arising from our dedicated Centre for Freshwater Ecosystems are detailed in SDG 6 above. Here, we highlight one specific project which has not only given hundreds of contributors the opportunity to participate in an award-winning citizen science initiative, but has also saved thousands of turtles from predators and habitat destruction.



One million turtles: conservation through community science (James Van Dyke, SABE)

Dr James Van Dyke's research aims to develop a community-based conservation model that prevents turtle extinctions in south-eastern Australia. Australia's 25 species of freshwater turtles are declining, and in many places foxes are the main problem. Lethal control of foxes is not only very expensive for local authorities, but also relatively ineffective. Dr Van Dyke's research aims to address these problems in two ways. Firstly, it identifies the most effective and cost effective non-lethal fox control strategies. Secondly, the citizen science project **'1 Million Turtles'** and the **TurtleSAT app** collects community generated data on turtle populations, nests and predation, along with community training in nest and turtle protection, to help better understand turtle preferred nesting habitats and locations, the impacts of foxes on turtle nesting success, and the rate of nest depredation. The project is providing much of the national data used by state and federal governments to set conservation status and recommendations, and as the project identifies strategies that work best for improving nest and juvenile survival, these are being shared with the engaged communities as actions that they can take themselves to help turtles. By mid-2022, almost 16,000 records had been created through TurtleSAT, with 255 nests and 1073 turtles saved. **'1 Million Turtles'** won the **2023 Eureka Prize for Innovation in Citizen Science**.



SDG 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

La Trobe's research theme **Resilient Environments and Communities** supports research that has influenced national and international policy regarding the protection of biodiversity and control of invasive species. Our labs and research centres dedicated to ecology include the Centre for the Study of the Inland, Centre for Future Landscapes, and Research Centre for Applied Alpine Ecology. For many years, we have worked closely with Parks Victoria and the Department of Energy, Environment and Climate Action (DEECA) to provide frameworks for biodiversity monitoring and protection of threatened species. Internationally, the La Trobe-based McGeoch Group have contributed to the development of bioindicator and information systems used by the International Union for Conservation of Nature (IUCN) for tracking the spread of introduced species worldwide. These collaborations have enabled us to embed biodiversity as a value into strategic planning, policy and development.



Register of invasive alien species (Melodie McGeoch, SABE)

Invasive alien species are a rising threat to biodiversity, national security, and regional economies. Proactive or predictive approaches guided by scientific knowledge are essential to keeping pace with growing impacts of invasions under climate change. The Country Compendium of **Global Registers of Introduced and Invasive Species** is a collation of data across 196 individual countries and their alien species, along with its impact on a country level. It is supported by a collaboration involving the IUCN SSC Invasive Species Specialist Group and the Global Biodiversity Information Facility, and provides a baseline and mechanism for tracking the spread of introduced and invasive alien species across countries globally working towards a collective conservation effort. Bioindicator and information systems developed by a collaborative group at La Trobe University, Centre for Invasion Biology, Monash University and Greening Australia are being used to assess and monitor the performance of biodiversity on both a national and global scale. In September 2022, McGeoch chaired the international working group **sTWIST** (Theory and Workflows for Invasive Species Tracking) in Leipzig including representatives from the IUCN, UN Environment Program, and European Commission.



Protecting native habitats (John Morgan, SABE)

There is no such thing as an untouched landscape. However, the exponential rate of environmental change can be measured against "Maisie's Plots", two areas on the Bogong High Plains comprising alpine peatland and grassland that have been used for ecological monitoring since the 1940s. They provide unique longitudinal data as well as synchronic comparison with landscapes that have not been protected from human alteration and invasive species, and as such have educated generations of students, field staff and land managers in the maintenance of healthy alpine ecosystems.

On the recommendation of La Trobe's **Research Centre for Applied Alpine Ecology**, Maisie's Plots were listed in 2022 on the Victorian Heritage Register as sites of both scientific and cultural significance. Usually applied to buildings, the heritage listing of Maisie's Plots recognises not only the site itself but also the activity of scientific study that has been conducted there continuously for over 80 years.

SDG 15: LIFE ON LAND



Rediscovery of the Mallee Whipbird (Simon Verdon, SABE)

The Mallee Whipbird was last recorded in Victoria in 1985. After many fruitless searches in the intervening years, we **re-discovered this species in 2022**. The re-discovery was a result of threatened bird surveys conducted on an unprecedented scale.

Using a small army of 60 volunteers over 6 months, we searched Big Desert/ Wyperfeld National Park complex for the Whipbird and other threatened bird species, walking over 5,000 km in the process. The rediscovery of the Mallee Whipbird has led to follow up projects this year (2023) and beyond, with the aim of better understanding the needs of this species in relation to fire management, habitat management and climate change. By collaborating with state-based land managers through the Threatened Mallee Birds Conservation Action Plan Team, we ensure that our findings have a direct line to improving on-ground management and outcomes for species.

SDG 16: PEACE, JUSTICE & 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

La Trobe's research has contributed to building inclusive institutions where access to justice is available to all. It has been used in the court system to prevent violence and protect those who are most vulnerable, and has shaped national policy around the provision of advocacy. Long-term partnerships with institutions such as the Family Courts and Victoria Legal Aid have provided pathways for implementation, while the principle of public involvement has ensured that research questions and solutions have been informed by consultation with those who are directly affected. In this way, we have not only influenced the development of policies to prevent abuse, but have also taken an inclusive, empowering approach to research design itself.



Screening for family violence in the Family Courts (Jennifer McIntosh, SPPH)

Preventing domestic and family violence is a high priority for the Federal Circuit and Family Court of Australia (FCFCoA). 80% of family law disputes that reach the courts involve allegations of domestic violence, with 70% placing children at risk of abuse. In 2022, FCFCoA launched a world-first risk screening and triage program, "Lighthouse", to guide the most effective allocation of court resources in protecting vulnerable parties. Lighthouse utilises the DOORS risk-assessment tool, developed by Prof. Jennifer McIntosh, in the form of an online questionnaire. Responses alert a court-based team to potential risk, leading to rapid in-person follow up and determination of the most appropriate case management pathway. Litigants at highest risk are tracked to specialised safeguarding. Following pilot studies in three jurisdictions, and the amendment of legislation making DOORS exempt from use as evidence, Lighthouse has now been rolled out nationally. **An ARC Linkage grant** with FCFCoA (2022-2026) will enable McIntosh's team to evaluate the efficacy and cost-benefit of the program.



Mental health advocacy (Chris Maylea, LLS)

Involuntary mental health treatment, including the use of seclusion and restraint, is disempowering and traumatic. **Research by Dr Chris Maylea** showed that distress can be significantly reduced by the presence of a non-legal advocate who represents the interests of the person and can assist them to understand their rights, negotiate with medical staff, access appropriate care, and make informed decisions. Citing this research, the Royal Commission into Victoria's Mental Health System (2019-2021) found that compulsory treatment constituted a breach of human rights which could be mitigated by access to an advocate. In 2022 the Victorian Department of Health then commissioned Maylea to develop a new service model for mental health advocacy. Maylea was also appointed to the **expert advisory group** drafting the *Victorian Mental Health and Wellbeing Act 2022*, which has established that anyone subjected to involuntary mental health treatment must now by law be offered access to an independent advocate. In 2023 the Queensland government announced that, in response to the Productivity Commission's recommendation, it will be funding non-legal mental health advocacy for \$11.5m p/a ongoing.

SDG 17: PARTNERSHIPS FOR THE GOALS

STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

Through our research collaborations in developing countries, La Trobe is building capacity for implementation of the Sustainable Development Goals. Our partnerships in the Pacific region have strengthened local leadership and provided development organisations with the tools for evidence-based decision-making. Worldwide, countries where our research is contributing to innovations in health, financial stability and social enterprise include Ethiopia, Zimbabwe, South Africa, India and Nepal. Co-production is fundamental to our research practice and determines the impact achieved by our global partnerships. We work with university, government and private sector organisations to share knowledge and expertise, enabling local solutions to be formulated and supporting their practical realisation.



Putri Sampaguita Trisnawinny Santoso, a young Deaf activist who has established several cafes which employ Deaf and hard of hearing people. In addition to creating employment opportunities, the cafes also aim to help bridge the gap between the Deaf and hearing communities, and shift perceptions about persons with disabilities in Indonesia.

Developmental Leadership Program (Chris Roche, HUSS and Elisabeth Jackson, HUSS)

Established in 2008, the **Developmental Leadership Program (DLP)** provides an evidence base to inform the design and implementation of DFAT and other development programs. Since its inception, La Trobe has been one of the two university partners responsible for guiding and synthesising the DLP's overall program of research. Phase III (2019–2023) conducted seven projects in the Indo-Pacific region.

As well as providing funders and policy-makers with insights into local leadership practices and dynamics, the DLP has also helped build the capacity of local researchers to use research evidence to strengthen their advocacy efforts.

The **Disability Leadership in Indonesia** project, co-led by Dr Jackson and Indonesian disability researcher and activist Ekawati Liu together with a team of local disability leaders, highlighted the importance of disability leaders in effecting changes in national and local government policies on disability rights. Co-production of the research helped build skills, while visibility on a prestigious international platform provided leverage to advocate for greater support for local disability leaders and organisations as key agents of change. This aligns with broader calls among development practitioners and academics to move away from a largely “top-down” development strategy in favour of more locally-led initiatives, the effectiveness of which has been rigorously demonstrated by the DLP.



SDG 17: PARTNERSHIPS FOR THE GOALS



Preventing gender-based violence in Timor-Leste (Kayli Wild, SNM; Guilhermina de Araujo, HUSS; Angela Taft, SNM & Leesa Hooker, LRHS)

It is estimated that 58% of women in Timor-Leste have experienced physical and/or sexual violence from their intimate partner. Having **conducted primary research** with women survivors of violence and first responders, the La Trobe team led by Dr Kayli Wild adapted and piloted the World Health Organisation's first curriculum for health providers to support women experiencing violence. The curriculum was adapted as a pre-service university course, incorporating videos co-created with survivors which include situations involving children and people with disability. The pilots showed significant improvements in knowledge, attitudes and confidence of nursing and midwifery students after the training, with changes sustained at follow-up.

The Ministry of Higher Education has now made responding to gender-based violence (GBV) a compulsory subject for all midwifery degrees in Timor-Leste. The curriculum was further strengthened through development of a dual language (Tetun/English) open-access La Trobe published textbook, **Gender-Based Violence and Healthcare in Timor-Leste**. Six Universities are implementing the new course, with the researchers providing ongoing training and mentoring to lecturers and Ministry of Health trainers. This work has led to a new joint venture with UNFPA and the Ministry of Health to develop a national in-service curriculum and implement training, research and ongoing support for health providers to address GBV on a national scale.



CPD app for nurses in Africa (Yangama Jokwiro, SNM)

Yangama Jokwiro is a registered general nurse and senior lecturer at La Trobe University who came to Australia from Zimbabwe in 2004. Having witnessed first-hand the healthcare challenges faced by low-income countries in Africa – the lack of nurses, midwives, and health services, under-investment in training and education, and hard-to-reach remote and rural communities – he recognised that some of these challenges could be addressed through access to online tools. Yangama worked with his brother – a medical doctor – to develop the **MyCpdZw app**. The app provides standardised and contextualised continuing medical education, management algorithms, electronic clinical drug reference books for nurses, clinical decision support tools (clinical guidelines and standardised drug protocols), as well as a platform to issue practising licenses to nurses electronically (avoiding geographical and financial barriers).

Following participation in La Trobe University's Accelerator Program – which provided investor support, ecosystem development, sustainability and product development – Yangama co-founded the Vaka Health Foundation Ltd, with a mission 'to provide world class on-going medical professional career development to health workers in resource poor communities and countries'. In Zimbabwe, where Vaka Health has provided accredited professional development courses for nurses in partnership with the Nurses Council of Zimbabwe and the Ministry of Health and Child Care through the **MyCpdZw app**, the app has been used by 31,224 users – more than 95% of healthcare professionals in the country – to complete more than 1 million Continuous Professional Development (CPD) activities over a period of 3 years. In 2022, the Vaka Health Foundation was the winner of the **AAMEG Best Workforce & Industry Development Initiative Africa Awards**.

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