



SDG 13 Climate Action

Overview

UQ plays a leading role in advancing climate action through education, research, and community engagement. UQ supports low-carbon energy use and is committed to reducing greenhouse gas emissions, aligning with global sustainability goals. Its educational initiatives include executive programs and community campaigns that promote climate literacy and empower informed decision-making. UQ collaborates with governments, NGOs, and Indigenous communities to support the development of climate action plans, disaster preparedness strategies, and sustainable housing solutions for flood-affected regions.

Research at UQ drives innovation in sustainable infrastructure, low-carbon materials, and renewable energy. Projects like stormwater management, reef restoration, and low-carbon concrete help communities adapt to climate impacts. UQ also informs government policy and industry practices through initiatives such as the Biosustainability Hub and the ARC Centre of Excellence for Green Electrochemical Transformation of Carbon Dioxide (GETCO₂), which transform carbon emissions into valuable resources.

Internationally, UQ fosters knowledge exchange through workshops and masterclasses on green hydrogen and climate justice. Its interdisciplinary approach connects science, policy, and community, making UQ a key contributor to climate resilience and sustainability. Through these efforts, UQ demonstrates a strong commitment to SDG 13, helping build a more sustainable and climate-conscious future.

Progress made in 2024 towards SDG 13 is reported here with reference to the following domains and enablers from UQ's Strategic Plan 2022-2025:

- Learning and student experience
- Research and innovation
- Enriching our communities
- Our global profile
- Securing our future.

Related SDGs

- [SDG 1 No poverty](#)
- [SDG 2 Zero hunger](#)
- [SDG 6 Clean water and sanitation](#)
- [SDG 7 Affordable and clean energy](#)
- [SDG 9 Industry, innovation and infrastructure](#)
- [SDG 14 Life below water](#)

- [SDG 15 Life on land](#).

Learning and student experience

UQ offers a variety of courses related to climate action, spanning different faculties and disciplines. Courses cover aspects of climate science, environmental management, policy, law, economics, agriculture.

For those with a keen interest in tackling environmental challenges and shaping a sustainable future, UQ's [postgraduate programs in environmental management](#) are a gateway to make a positive impact. Designed for aspiring environmental leaders, the programs offer a diverse selection of environment courses that blend theory, field experience, and industry insights. Three example courses in environment and sustainability that equip learners with the skills and knowledge in support of climate action are:

- [Environmental Problem Solving](#)
- [Sustainable Business Practice](#)
- [Climate Change and Environmental Management](#)

Research and innovation

UQ contributes significantly to SDG 13 through innovative research addressing climate change mitigation, adaptation, and resilience. UQ's work spans sustainable urban design, renewable materials, tourism decarbonisation, energy transition, agriculture, and policy engagement. These projects inform global and regional strategies, promote low-carbon technologies, and foster interdisciplinary collaboration. From nature-based stormwater solutions to green hydrogen education and climate policy networks, UQ's research drives practical and scalable climate action. These efforts support informed decision-making, sustainable development, and cross-sectoral partnerships, reinforcing UQ's role as a leader in climate-focused research and innovation.

UQ's 2024 contributions to SDG 13 included the following initiatives in sustainable infrastructure, low-carbon innovation and knowledge exchange:

- **Climate Change Network.** In 2024 UQ established the Climate Change Network, which encompasses technical climate modelling, as well as how to adapt responses to climate change impacts on biodiversity, agriculture, built environments, the health sector and people and communities. The Network brings together researchers with the expertise to respond to climate change through business and finance, law and policy and political processes. In December 2024 UQ approved strategic funding of \$250,000 to support Climate Change Network activities.
- **Zero Net Emissions Agricultural CRC (ZNE-Ag CRC).** Established on 1 July 2024, the [ZNE-Ag CRC](#) is a major initiative brokered by UQ and the Queensland Department of Agriculture and Fisheries (now called Department of Primary Industries). This UQ-led national research centre brings together more than 70 partners to reduce emissions in agriculture. With \$300 million in funding, the Centre supports innovation in farming practices, technologies, and supply chains. It aims to help Australia meet its climate targets while maintaining agricultural productivity. The CRC collaboration

includes 16 major industry groups, all 6 Australian state governments and the Northern Territory, 10 universities, 3 Indigenous organisations and many SMEs and grower groups, making it a major contributor to climate-smart agriculture and sustainable food systems.

- **Stormwater Management Research.** UQ researchers from the Faculty of Engineering, Architecture and Information Technology (EAIT) collaborated with global experts to develop best practices in sustainable stormwater management using nature-based urban design. The project promotes climate resilience through green roofs, permeable pavements, and rain gardens. These solutions help cities adapt to extreme weather by reducing flood risks and improving water quality. The research, [published in 2024](#), includes international case studies and advocates for integrating water-sensitive design into urban planning, such as the exploration of the Birkha Bawari (stepwell) Project in Jodhpur, India that harvests 17.5 million litres of rainwater annually, offering a practical path toward more climate-resilient and sustainable communities.
- **Renewable Marine Blue Biomass.** The international network “[Building with Blue Biomass](#)” investigates how marine resources like algae, seagrass, and shellfish can be used to create sustainable building materials. The research, led by the Royal Danish Academy and involving UQ as a founding partner alongside collaborators from 3XN/GXN Architects, the Danish Technical University, Arup, University College London and Queensland University of Technology, aims to replace traditional, high-emission construction inputs with biodegradable, bio-based alternatives. By promoting a circular economy and reducing the carbon footprint of the building industry, the initiative supports climate action and innovation in green materials. It also highlights the potential of marine ecosystems in contributing to low-carbon development.

Enriching our communities

UQ actively supports environmental education through diverse local and global initiatives focused on climate change impacts, mitigation, adaptation, and disaster planning. UQ collaborates with NGOs, governments, and communities to deliver tailored education programs, technical training, and community-led projects. These include climate communication campaigns, reef restoration, low-carbon housing, and sustainable infrastructure. UQ’s interdisciplinary approach empowers informed action and strengthens resilience, demonstrating leadership in climate-focused education and collaborative planning.

Co-operative planning for climate change preparedness and disasters

UQ recognises that it plays a key role in supporting the development and sharing of climate action plans with local governments and community groups. UQ is contributing to effective strategies for climate mitigation, adaptation, and resilience, fostering collaborative efforts to meet sustainability goals. This extends to involvement in co-operative planning for climate disasters and working with governments and communities to prepare for and respond to climate-related emergencies. These efforts include developing housing for displaced people and restoring damaged ecosystems. In 2024, UQ engaged in a range of collaborative projects that combine research, innovation, and community engagement that make progress towards SDG 13:

- **Queensland Decarbonisation Hub**. The Queensland Decarbonisation Hub is a multi-institutional initiative funded by the Queensland Government and led by UQ's Centre for Policy Futures. The Hub works in direct partnership with the government, providing expert advice on how to achieve net zero emissions and lead the state's approach to climate adaptation. This is done through interdisciplinary research that is demand-driven and collaborative, policy brokerage that enables two-way dialogue with decision-makers, policy advice which is scoped and timed to inform live decisions, and outputs and deliverables that are designed for system-level influence. Connecting Queensland universities, industry, government, and communities, the Hub draws together existing decarbonisation knowledge to develop research and policies that can support the state's industries and communities while safeguarding and enhancing its natural environment.
- **Low-Carbon Temporary Housing System for Northern New South Wales (NSW)**. This project, outlined in a UQ-authored paper published in 2024, is designed to help communities affected by natural disasters by developing emergency housing made from recycled materials like cardboard and timber. Led by the NSW Government and supported by UQ with industry partners, the initiative focuses on creating sustainable, low-carbon homes. The housing units are prefabricated and designed with input from local residents to ensure they meet community needs, with a prototype on display from 3-5 December 2024. This partnership between government, researchers, and industry shows how co-operative planning can deliver practical solutions for people displaced by climate disasters, while also promoting environmentally friendly building practices.
- **Coral Reef Rescue: Resilient Coral Reefs, Resilient Communities Project**. The global pressure of climate change and local human-induced pressures are contributing to the rapid deterioration of coral reefs ecosystems – jeopardising the lives of millions of people that rely on them. The Global Environment Facility (GEF)-funded Coral Reef Rescue project is a multi-stakeholder project implemented through the World Wildlife Fund (WWF). The project execution team is led by UQ in partnership with project country Focal National Government Ministries and National Technical Partners. The project is working to safeguard globally significant climate refuge reefs in 6 countries: Fiji, Solomon Islands, Indonesia, Philippines, Madagascar and Tanzania. In 2024 the UQ-led project team attended the 10th Global Environment Facility International Waters Conference (IWC10) in Uruguay, which had the theme 'Transformative actions and impacts for the water and ocean SDGs' to showcase national hubs as platforms for inclusive governance and coral reef conservation, using examples from Fiji and Indonesia. The team demonstrated how the national hub approach can be a vehicle for partnerships and collaboration to ensure the long-term conservation and management of coral. It is a strong example of how co-operative planning can address environmental damage and build resilience against future climate impacts.

Inform and support government

UQ partners with government to help prepare for climate-related risks through projects that inform policy, improve infrastructure, and guide environmental decisions at local, regional, and international levels. Activities in 2024 included a range of projects across different disciplines:

- **Sustainable Low Carbon Concrete for Future Infrastructure.** The [SmartCrete Cooperative Research Centre project](#) (2023-2026) led by UQ is designed to help governments and industries adopt low-carbon concrete for roads and infrastructure. Researchers work with state transport departments and industry groups to test concrete mixes made from recycled materials like plastic and glass. The goal is to reduce carbon emissions and landfill waste while updating national standards for construction. By informing government standards and building practices, the project supports climate action and sustainable development. It is a practical example of how universities can help governments make environmentally responsible choices in infrastructure planning.
- **Renewable Energy as Post-Mining Land Use.** The [Renewable Energy as Post Mining Land Use \(2023-2024\) project](#) explored how former mining sites in Queensland can be repurposed for renewable energy, like solar and wind farms. Led by UQ, researchers reviewed legal and regulatory challenges and proposed ways to update policies. They worked with government agencies to identify viable pathways for approval and implementation. The project highlights the need for coordinated planning and policy reform to support clean energy development. By informing government decisions, it helps pave the way for sustainable land use and climate-friendly energy solutions in post-mining regions.
- **Biosustainability Hub.** The [UQ Biosustainability Hub](#) is a \$60 million initiative uniting researchers, industry, and government to develop sustainable, economically viable biological solutions to global challenges. Based at the Australian Institute for Bioengineering and Nanotechnology (AIBN), the Hub focuses on five key areas: agri-food innovation, gas fermentation, synbio mining, biofuels, and digital biology. By co-locating experts and stakeholders, it accelerates the translation of synthetic biology into real-world applications. Government collaboration plays a vital role in supporting Australia's transition to net zero, positioning the Hub as a national leader in biomanufacturing and sustainable industrial transformation.
- **GETCO2 (Green Electrochemical Transformation of CO2).** [GETCO2](#) is a UQ-based ARC Centre of Excellence dedicated to transforming carbon dioxide from a climate liability into a valuable resource. This \$45 million, 7-year initiative unites 7 Australian universities, industry, and government to develop electrochemical technologies that convert CO2 into fuels and chemicals. The centre is advancing innovations in catalysis, electrolyzers, and scalable CO2 conversion systems. With a strong focus on training future experts, GETCO2 aims to support Australia's circular carbon economy and lead global efforts toward net-zero emissions by 2050.
- **Exploring the Dynamics of Community Consultation and Consent.** [Dynamics in Consultation and Consent](#) is an interactive learning resource developed by UQ's Centre for Social Responsibility in Mining and published in 2024. It explores principles and practices of consultation and consent in natural resource management, with the publication part of an initiative on [community-smart consultation and consent](#) supported by the [BHP Foundation](#) and implemented by [Landesa](#), in partnership with [RESOLVE](#), [Conservation International](#), and the [Centre for Social Responsibility in Mining](#) at UQ. Designed for stakeholders across government, civil society, and academia, the resource encourages critical reflection and group

discussion and promotes informed engagement in climate adaptation and resilience planning.

- **Executive Education – Climate Change Program.** UQ's [Executive Education Climate Change Program](#) is a customisable learning initiative designed for industry and public sector leaders. It equips participants with tools to understand their organisation's role in a low-carbon future and navigate climate-related transitions. Developed by UQ Business School academics, the program integrates cutting-edge research and tailored content to meet specific organisational needs. It promotes climate literacy and strategic action, aligning with corporate sustainability goals and fostering leadership in climate mitigation and adaptation.

Our global profile

By developing and distributing resources, building capacity, and collaborating on cross-sectoral engagement in the Asia–Pacific and beyond, UQ's efforts to contribute progress towards SDG 13 in 2024 have global reach. Some notable examples include:

- **Tourism Destination Decarbonisation Toolkit.** UQ developed a [digital toolkit](#) to help tourism destinations build climate mitigation capacity and decarbonise tourism. Based on research and real-world case studies, the toolkit provides practical strategies across 9 decarbonisation areas. It is designed for destination management organisations (DMOs) to develop a coherent and comprehensive climate mitigation plan for systemic change and includes a mobile-friendly website to increase accessibility. The project supports the tourism sector's transition to sustainability and was showcased at COP29, the 2024 United Nations Climate Change Conference in Azerbaijan, underlining its global relevance in addressing climate change through industry-specific solutions.
- **Green Hydrogen Masterclass.** UQ played a key role in the [South Asia Regional Infrastructure Connectivity \(SARIC\) Green Hydrogen Study Tour](#). In 2024 UQ hosted a technical masterclass for experts from Bhutan, India, Nepal, and Sri Lanka, sharing knowledge on hydrogen technology, policy, and supply chains. The initiative supported international collaboration on clean energy and climate action. By facilitating cross-border learning and capacity building, UQ contributed to advancing green hydrogen as a sustainable energy solution in the Asia–Pacific region.
- **Advancing Inclusive Sustainability: Global Workshop and Climate Justice Roundtable.** The [Universitas21 \(U21\) Early Career Researchers Workshop 8–12 July 2024](#) on inclusive energy transitions brought together 53 delegates from 28 member universities, fostering global collaboration on equitable energy solutions. Complementing this, the Faculty of Humanities, Arts and Social Sciences (HASS) hosted a roundtable "[Climate Justice: A Brazil, India, Africa and Pacific Comparative](#)" in April 2024 to explore diverse regional perspectives on climate justice, emphasising the socio-political dimensions of environmental change. These initiatives highlight UQ's commitment to interdisciplinary dialogue and inclusive approaches to sustainability, engaging scholars across continents to address pressing global challenges through research, policy, and community engagement.
- **Climate-Smart Futures: Strengthening Agriculture in the Mekong.** The Mekong Institute, in partnership with UQ, implemented a regional project promoting Climate-

Smart Agriculture (CSA) in Cambodia, Lao PDR, Thailand, and Vietnam. Through training and exposure visits, the initiative strengthened institutional capacity, fostered knowledge exchange, and supported the adoption of CSA technologies across agricultural value chains. By enhancing resilience to climate-related hazards and promoting sustainable farming practices, the project enabled climate adaptation, reducing vulnerability, and supporting policy development for long-term climate action in the Greater Mekong sub-region.

- **Building Capability for Climate Change Response in Myanmar.** In 2024 the International Development unit at UQ (UQID) delivered Responding to the Climate Change Challenge, a short course for the Australian Government's Australia Awards Myanmar. One participant, Dr Khin Myat 'Soe', applied her expertise in both agriculture and aquaculture with her short course learnings to deliver further capacity-building training in agri-aqua farming with zero waste to 3 organisations. Soe and 6 other Australia Awards short course participants have collectively reached 180 (53 men and 127 women) students and learners (farmers, educators, scientists), exchanging expertise in areas such as environmentally friendly aquaculture, climate-smart farming practices, and inspiring youth groups from various ethnicities to act on climate change.
- **Responding to the Climate Change Challenge.** In 2024 UQID delivered the Mekong-Australia Program (MAP) masterclass 'Responding to the Climate Change Challenge', engaging professionals from Cambodia, Lao PDR, Thailand, and Vietnam. The program deepened understanding of climate systems, policy frameworks, adaptation strategies, and international cooperation. Through hands-on learning, field visits, and expert-led sessions, participants explored Australia's climate response and built cross-country networks. The masterclass aimed to enhance regional capacity to mitigate and adapt to climate change through fostering collaboration, and promoting sustainable, inclusive solutions.

Securing our future

UQ's Sustainability Strategy 2022-2025 demonstrates a clear vision of a low carbon and sustainable future for UQ. The University continues to take actions towards a low-carbon energy future. This includes:

- actively tracking low-carbon energy usage and implementing comprehensive energy monitoring systems that measure the proportion of energy sourced from low-carbon and renewable sources, including solar and green power procurement
- behind-the-meter solar PV installations on numerous buildings across 4 campuses, totalling approximately 7MW, and a 1MW/2MWh battery storage system plus 3 ML chilled water storage system
- embarking on a building audit program to identify energy saving opportunities. The first building was completed and identified potential savings of ~3% through standardisation and optimisation of cooling and heating setpoints and alignment of automation time scheduling on HVAC assets.

- undertaking a major chiller replacement in the Queensland Bioscience Precinct complex. The new chillers are substantially more energy efficient and are forecast to save approximately 800 MWh per annum or 0.6% of UQ's total usage.