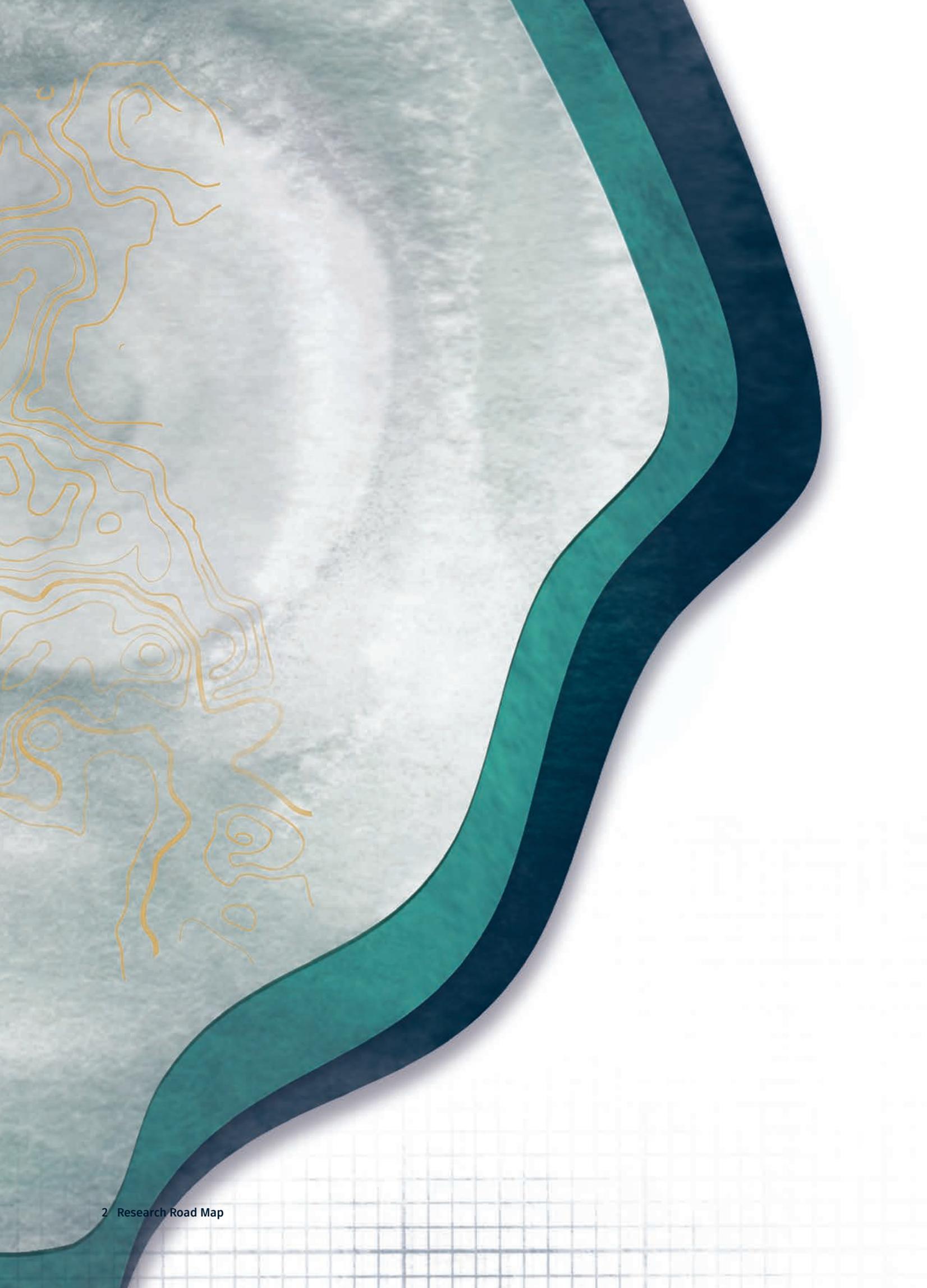


RESEARCH ROAD MAP

A joint capacity building initiative of The University
of Newcastle and The Secretariat of the Pacific
Regional Environment Programme





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FOREWORD

Pacific island countries are striving to balance the needs and economic aspirations of growing populations, with the maintenance of healthy environments and natural systems.

This Roadmap describes the partnership between the Secretariat of the Pacific Regional Environment Programme (SPREP) and University of Newcastle (UON), and launches a research plan as the first step in the implementation of the Memorandum of Understanding (MOU) between SPREP and the UON to deliver co-operative and sustainable solutions to complex challenges faced by Pacific island people in critical areas of environmental need and national priority.

Through our concerted action in delivering multidisciplinary research and research training programmes, we will address significant challenges related to climate change resilience, ecosystem and biodiversity protection, waste management and pollution control, and environmental governance.

The establishment of a Pacific node of UON's Global Impact Cluster for Energy, Resources, Food and Water represents the University's shared commitment to deliver a flexible framework and supporting platform for research excellence and innovation with flow-on benefits for not only environmental protection, but economic development and jobs growth in the Pacific region.

SPREP's contribution to this shared commitment is to host UON's Pacific node within the Pacific Climate Change Centre when operational in 2019. This will support the node to facilitate collaborative research that will broaden SPREP partnerships and drive future programme initiatives. The research training programmes of the Pacific node will allow Pacific island students to develop applied research skills that will lead to enhanced employment and build economic capacity and enterprise across the region.

It is with great pleasure that we present the partnership between SPREP and UON, and in particular the launch of the first phase in the development of UON's Pacific node.



Kosi Latu
Director General

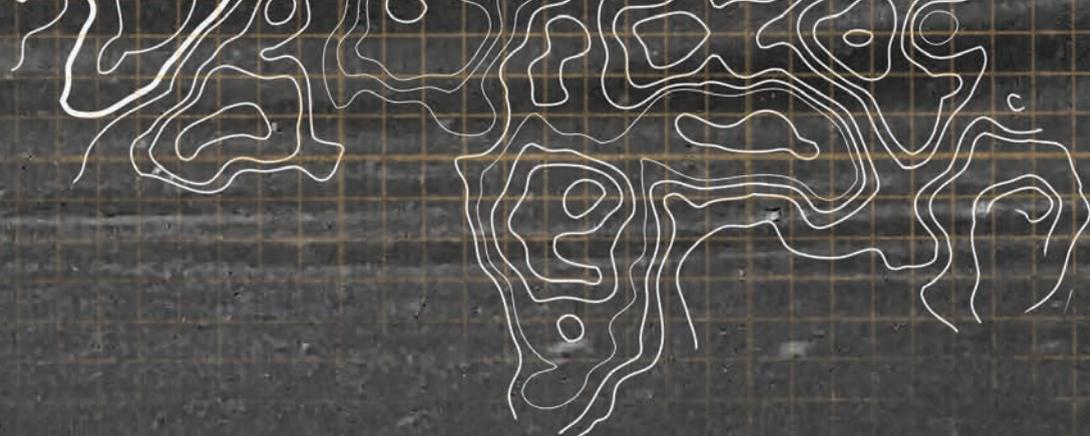
**The Secretariat of the Pacific
Regional Environment
Programme**



Kevin Hall
Senior Deputy Vice Chancellor
Research and Innovation

The University of Newcastle





INTRODUCTION

In 2014, the United Nations General Assembly adopted the Small Island Developing States (SIDS) Accelerated Modalities of Action (SAMOA) Pathway. The resolution affirmed a commitment to focus on capacity building initiatives to ensure the development of resilient societies and economies. The SAMOA Pathway highlighted the need for SIDS countries to develop human and institutional capacity through enhanced investment in education and training across key areas including (but not limited to):

- Climate change
- Sustainable energy
- Disaster risk reduction
- Food security and nutrition
- Clean oceans and seas
- Water and sanitation
- Sustainable consumption and production
- Management of chemicals and waste
- Health and non-communicable diseases

The partnership between SPREP and UON will include the establishment of a Pacific node as part of UON's Global Impact Cluster for Energy, Resources, Food and Water. Through this Pacific node, SPREP and UON will deliver on the SAMOA Pathway by bringing research programmes closer to communities, governments and industry through practical applied research programmes that will build capacity across the region and address environmental priorities.

This document outlines a Research Roadmap for the implementation of key development activities by UON and SPREP.

The Pacific node will act as a central coordination point to deliver research and research training initiatives with impact, that are directly aligned to the regional environmental protection goals of SPREP and its 26 Member countries and territories.

SPREP Member countries and territories are:

- American Samoa
- Australia
- Cook Islands
- Federated States of Micronesia
- Fiji
- France
- French Polynesia
- Guam
- Kiribati
- Marshall Islands
- Nauru
- New Caledonia
- New Zealand
- Niue
- Northern Mariana Islands
- Palau
- Papua New Guinea
- Samoa
- Solomon Islands
- Tokelau
- Tonga
- Tuvalu
- United Kingdom
- United States of America
- Vanuatu
- Wallis and Futuna

THE PACIFIC ISLANDS

REGIONAL SNAPSHOT

The Pacific islands region is the planet's blue continent. SPREP membership of Pacific Islands Countries and Territories (PICTs) encompass a combined population of approximately 10.57 million people across more than 550,000 square kilometres of land. Expansive and inherently diverse, the region's collective maritime domain expands over 30 million square kilometres.

PICTs are rich in marine reserves and remain highly dependent on biological resources and healthy ecosystems for survival. Fishing, agriculture and tourism are the mainstays of the economies of most Pacific island countries and territories, whilst some have significant mineral resources and forestry assets. Despite the abundance of such natural resources, PICTs are significantly challenged by their vast geographical distances and the consequential high costs of transportation and connectivity.

This complex geographical landscape has assisted in the development of strong and resilient traditional cultures and lifestyles, however has historically constrained economic development, and fostered an economy that is reliant on external support. The strong traditional cultures and societies are a key influence on regional decision-making and underpin PICT's collective response to globalisation and economic development.

PICT Leaders have prioritised climate change as an existential threat to the livelihoods, security and wellbeing of the peoples of the Pacific. Among the most vulnerable are the small island states, and particularly the atoll nations. The effects of the melting of ice caps are impacting PICTs earlier than predicted, triggering rises in both sea level and temperature along with acidification. These effects are rapidly impacting not only coral reefs, marine and terrestrial ecology, and biodiversity but also the ability to effectively manage waste, chemicals and pollution in the Pacific region.

Pacific island biodiversity is already under intense pressure from habitat loss and degradation, invasive species introduction, climate change and pollution. Pollution is said to affect up to 20 per cent of all assessed terrestrial species. Freshwater biodiversity is negatively affected by mining, cold-water dams and increasing salinity, while run-off, sedimentation and soil erosion have devastated many island coral reefs and lagoons.





PARTNERS

The Secretariat Of The Regional Pacific Environment Programme (SPREP)

SPREP is the regional coordinating organisation responsible for the protection and sustainable development of the Pacific island environment. With headquarters in Apia, Samoa, SPREP works closely with its 26 Member countries and territories (alongside partners, donors and local communities) to deliver environmental management and sustainable development in the region in four priority areas:

- Biodiversity and ecosystem management
- Waste management and pollution control
- Climate change including support to meteorological services and accessing climate funding for PICTs as an accredited entity to the Green Climate and Adaptation funds
- Environmental monitoring and governance

SPREP also has a significant role in providing regional leadership and promoting wider environmental awareness and education. To facilitate these core regional objectives, SPREP has launched the Pacific Climate Change Centre, a shared regional hub that will provide a platform for collaboration and the establishment of partnerships that will address the challenges of climate change in Pacific region. The Centre will be operational in 2019 and will host UON's Pacific node.

The University Of Newcastle (UON)

UON is working with partners across the world to build equitable prosperity, social cohesion and healthy communities. Of critical importance is ensuring that our nearest neighbours, the Pacific Islands, are supported in the face of significant environmental, social and economic challenges.

UON is a regional Australian university with almost 40,000 students and a strong record in applied research and industry-led solutions. UON is ranked in the top 1% of universities worldwide¹ with research excellence in key the fields of:

- Science and engineering
- Energy and environment
- Health and medicine

UON's Newcastle Institute for Energy and Resources (NIER) is recognised by governments and industry in Australia, and internationally as a best practice model for industry engaged research. Under the newly established Global Impact Cluster for Energy Resources Food and Water, UON has expanded the successful NIER model to enable greater international reach to resource intensive regions worldwide.

¹QS World University Rankings 2017/18

RESEARCH WITH REGIONAL IMPACT

Working Together for Environmental Protection in the Pacific

Many of the challenges in the Pacific cannot be addressed solely on a country-by-country basis.

As such, a partnership between UON and SPREP has been established to add value in areas where it is more efficient and effective to work through regional approaches together. The partnership represents a commitment to knowledge creation and the transfer of this to the development of skills and enterprise.

The partnership aims to support:

- Healthy, resilient and sustainable Pacific communities
- Pathways for Pacific island students to develop skills and qualifications
- New and diversified industries and jobs growth
- PICT capacity to realise national and regional environmental priorities

The Establishment of a Dedicated Pacific Node

The establishment of a research node to be located within SPREP's Pacific Climate Change Centre is a landmark initiative embedding research excellence into critical regional environmental protection activity.

The node is intended to become a catalyst space for academics and students to work alongside SPREP, its Member countries, other research institutions and industry to advance the Pacific region socially, economically and environmentally.

The Pacific node will focus on the delivery of research and training activities to support SPREP's Strategic Plan 2017-2026. In particular, it will provide:

- Research and research training related to cross-cutting initiatives such as climate change mitigation and the sustainable management of the marine environment, coastal ecosystems, energy, disasters, waste and pollution.
- Multidisciplinary programmes for postgraduate students with opportunities to develop applied research skills.
- Undergraduate learning experiences for high performers through the development of a unique internship programme.
- A venue to showcase regional collaboration and research impact.

Collaboration and Partnership

With a focus on collaboration and partnerships, this research node will be driven by innovation. The node will provide an avenue for research excellence and practical enterprise development for improved capacity and funding capture amongst PICTs. It will also act as an enabler for the delivery of new integrated skills training through short courses and doctoral programmes.

The node brings one of Australia's leading regional universities closer to its neighbours in the Pacific to provide additional expertise to help address pressing environmental challenges.

GUIDING PRINCIPLES

The collective vision of resilient, sustainable Pacific communities can be achieved through capacity building research and research training initiatives that deliver solutions and skills, and create new enterprises. This partnership is built around the following key principles:

Support SPREP Mandate for Improved Environmental Management and Sustainable Development

Research activities will support the delivery of sustainable programmes for the environmental protection and capacity building initiatives of SPREP Member countries.

Develop Human Capacity

Through this initiative, Pacific island students will have the opportunity to engage in regionally relevant knowledge and career development. Academics and students will be supported to work with partners across the Pacific region.



Enable Knowledge Transfer Through Skills and Training

Development activities will be implemented with targeted regional and nationally recognised colleges and training institutions to support the delivery of sustainable training. Programmes will strive for gender balance and include technical and managerial aspects such as project planning, financial management, monitoring and evaluation.

Targeted PhD and doctoral training initiatives will see supervisors from academia working alongside relevant Pacific institutions and industry to broaden graduate knowledge, skills and attributes, improve the employability of graduates and facilitate the translation and commercialisation of research outcomes in areas of regional relevance and impact.

Build Regional Capacity Through Public-Private Partnerships and Enterprise Development

The partnership will prioritise work that supports regional strategies and frameworks. The comparative and competitive advantages of the private sector will be harnessed to improve the delivery of environmental management services, particularly in relation to the region's climate change priorities, through applied research.

Initiatives will have a measurable and beneficial economic, cultural and social impact within the region built on new employment opportunities created as a result of acquired knowledge, innovation and commercial outcomes.

DEVELOPMENT ACTIVITIES

Research Focus Areas

Key to the development of the partnership is the identification of priority research projects that strengthen the capacity of Pacific island countries to achieve resilient and sustainable communities.

Over the past year, UON has consulted extensively with SPREP to understand areas of critical need. This Research Roadmap outlines potential focus areas and opportunities for future collaboration. Key to the sustainable development of the partnership is a research development strategy that can achieve an increase in the capture of funding between partners around environmental protection research projects.

Targeted PhD Scholarships

UON has committed resources to support targeted PhD Scholarships to begin in January 2018.

The scholarships will provide opportunities for Pacific island nationals to work on identified research projects aligned to SPREP's Regional Goals with co-supervision from UON academics and relevant regional universities.

A Research Associate will support scholars while pursuing their own programme of research.



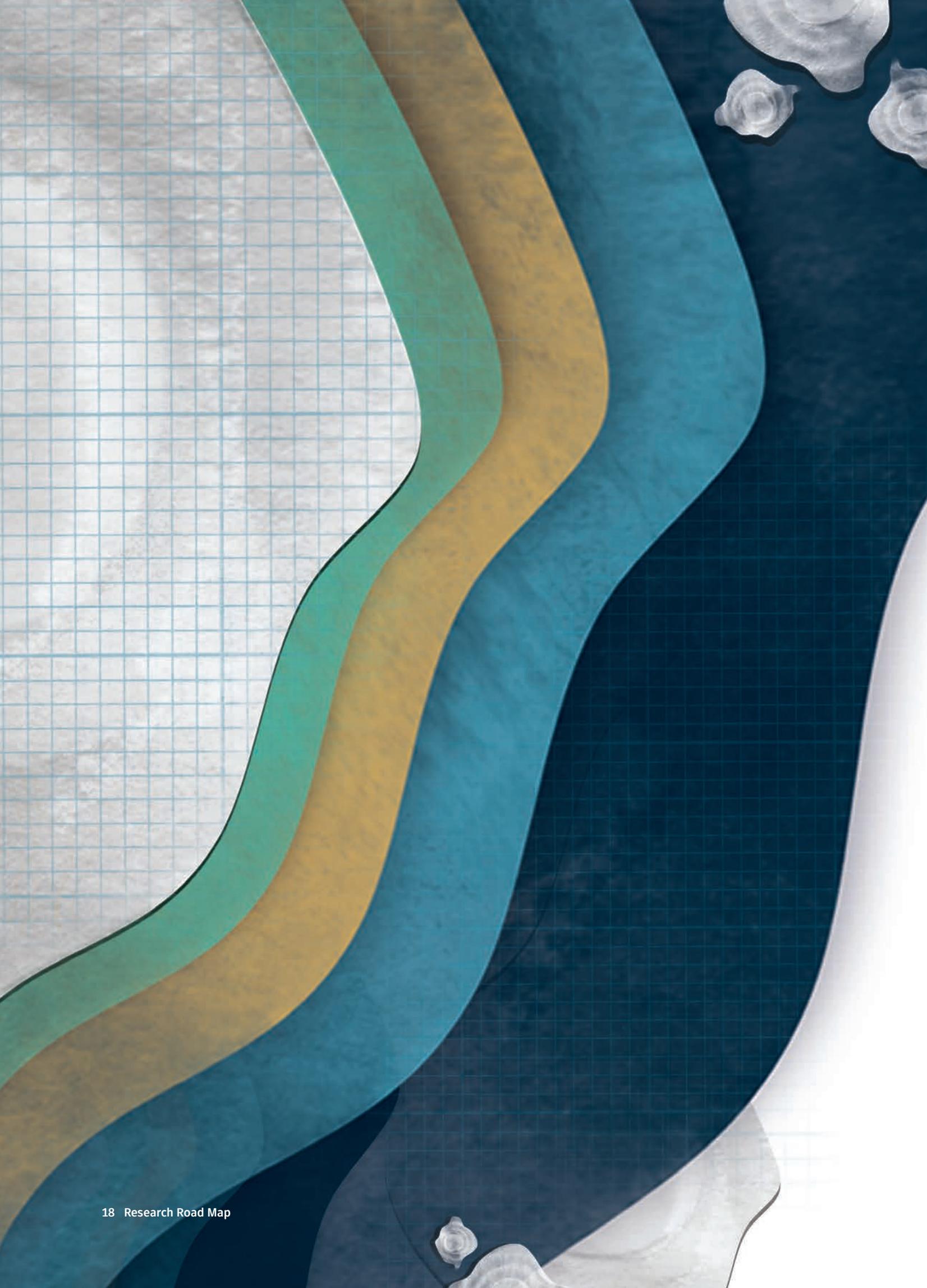
Research Skills and Training

The transfer of knowledge through the delivery of doctoral, vocational and block training is an important focus of the node.

The development of accreditation pathways and funding avenues to upskill future research populations and local communities has been identified as a critical need. In the first instance, UON will work with SPREP to secure funding to establish a Higher Degree Research programme in Environmental Practice.

Innovation Incubator

Building on successful UON industry engagement models, the Pacific node in Apia will support research, industry and government engagement to transfer research knowledge and build competitive advantage through innovation.





RESEARCH FOCUS AREAS

SPREP Member countries have identified four regional goals critical to achieving resilient and sustainable Pacific communities:

- **Climate Change Resilience**
- **Ecosystem and Biodiversity Protection**
- **Waste Management and Pollution Control**
- **Environmental Governance**

While each goal is a key focus, all four are closely interrelated. The node will support regional goals through dedicated research projects matched to relevant UON research capabilities.

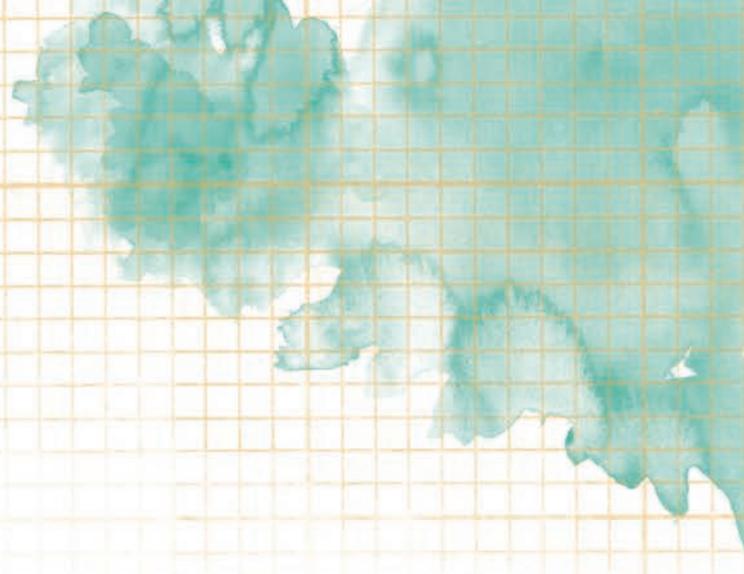
CLIMATE CHANGE RESILIENCE

For Pacific island Members, the economic, social, and environmental costs of climate change and disasters are high and forecast to increase.

As the coordinator of climate change action in the region, SPREP continues to lead the region's response to climate impacts. SPREP promotes integration of climate change adaptation and disaster risk management through capacity building using an ecosystem based approach.

SPREP Priority Objectives

- Strengthen capacity to lead, prioritise, and manage national climate change adaptation, mitigation and disaster risk reduction in fulfilment of Member countries' national environment and development goals and voluntary and legal obligations under regional and international agreements.
- Minimise multiple pressures on vulnerable Pacific island ecosystems by implementing ecosystem-based approaches to climate change adaptation, including responses to ocean acidification and sea level rise, to sustain biodiversity and the provision of ecosystem services that support livelihoods and sustainable development.
- Enhance national meteorological and hydrological capacity in weather forecasting, early warning systems, long-term projections, and improved climate services to support Members' decision-making and coordination through the Pacific Meteorological Council.
- Through the hosting of the regional office of the World Meteorological Organisation, provide enhanced meteorological support to Members.
- Support Pacific island Members to access and manage climate change finances and their national accreditation processes. As a Regional Implementing Entity for the Adaptation Fund, Green Climate Fund and via other financing mechanisms, SPREP is able to maximise access to and leverage climate finance for Members.
- Support Pacific island Members to develop policy responses to issues of loss and damage, and climate change and disaster induced population mobility.



UON Expertise: At a Glance

- Climate attribution of extreme events
- Methodologies for vulnerability, impact and risk assessment, including methods to identify at-risk hotspots
- Climate change impacts, adaptation and communication
- Community participation and engagement
- Capacity building training for public, private, and community-based organisations
- Community led knowledge sharing
- Weather related traditional knowledge development and dissemination
- Tropical cyclone forecasting and development of contemporary tropical cyclone risk profiles and other climate related extremes
- Use of geographic information systems and remote sensing in environmental decision making
- Tropical island shoreline vulnerability
- Wave transformation and modelling of coral reef systems
- Morphological change of coral reef systems
- Tsunami inundation modelling
- Understanding drivers and impacts of hydroclimatic variability and change
- Physical and statistical/stochastic hydrological and climate modelling
- Hydroclimate forecasting and scenarios (seasonal to multi-decadal)
- Built environment adaptation
- Modelling climate change induced human displacement
- Examining co-existence for energy and water/food security for vulnerable populations
- Population health needs and environmental impacts
- Mental health impacts of climate change
- Qualitative methodologies for human health and social impacts associated with climate change

Opportunity Snapshot: Tropical Island Shoreline Vulnerability

Coral reefs are the most effective natural barrier from waves allowing human populations to establish on tropical coasts and reef islands. Crucially, coral reefs are in widespread decline due to natural and human induced pressures. The widespread loss of reef building corals is likely to affect the efficiency of coral reefs in reducing wave energy and responding to rising sea levels. A loss of live coral cover leads to a reduction in the three-dimensional structural complexity and reduces the ability of the reef to lessen wave energy. This results in larger wave heights in back-reef environments and in the near-shore zones, increasing coastal erosion on tropical shorelines. There is now increasing concern regarding the capacity of degraded and stressed coral reefs to maintain coastal protection from waves at present and under rising sea levels. Identification of what factors are the most crucial for dissipating wave energy is an important area of investigation for enhanced coastal management of tropical coastlines.

UON researchers are interested in developing a tool for coastal risk assessment purposes that is tailored to tropical reef shorelines. This will involve field based site specific and generalised investigations that assess structural coral reef health in relation to the reefs ability to dissipate wave energy and thus its capacity to protect the coastlines and islands behind the reef. The proposed tool will allow for assessment of the relative risk of coastal erosion on tropical reef shorelines based on site specific data that can be collected with minimal scientific equipment. The project has the possibility to be expanded for use by coastal managers and planners.

ECOSYSTEM AND BIODIVERSITY PROTECTION

Healthy ecosystems are foundations for sustainable development, adaptation and resilience to climate change.

Pacific environments also support globally significant levels of biodiversity that form part of our critical ecosystems and support significant tourism economies.

SPREP Priority Objectives

- Effectively manage and protect marine and coastal ecosystems, mitigation of the impacts of fisheries activities to ensure healthy populations of threatened species, and reduce the release of marine pollutants that increase human health risks in order to achieve healthy and productive oceans that support food security and sustainable development.
- Support the conservation and sustainable use of marine, coastal, and terrestrial ecosystems and biodiversity, consistent with regional and international commitments.
- Prevent the extinction of threatened species and support measures to sustain their conservation status.
- Significantly reduce the socio-economic and ecological impact of invasive species on land and water ecosystems and control or eradicate priority species



UON Expertise: At a Glance

- Prediction of coastal vegetation response to changing sea conditions by combination of hydrodynamic, vegetation dynamics and eco-geomorphic numerical models
- Wave attenuation effects due to natural landscape features and man-made structures
- Eco-geomorphic modelling of interactions and feedbacks in complex ecological systems and human-ecological systems (e.g. infrastructure encroachment on ecosystems, engineered coastal defence, land clearing)
- Geomorphic changes in the coastal landscape such as sediment processes like erosion, deposition due to waves and tides and biological processes in mangroves and reefs
- Blue Carbon storage and sequestration
- Hydrologic modelling and sediment connectivity
- Prediction of pathways of run-off and associated soil erosion
- Soil moisture including vegetation feedbacks and land surface eco-hydrology
- Marine micro plastics
- Land use management and geoscience based technologies
- Improving agricultural catchment models
- Measuring and modelling the impacts of agricultural land management on water quality and quantity

Opportunity Snapshot: Hydrodynamic Attenuation Effects in Coastal Wetland Vulnerability

A new study by UON School of Engineering researchers and collaborators, published in the prestigious *Nature Communications*, has found that the world's coastal wetlands may now have the same average life expectancy of a human being - approximately 80 years. The study factors in for the first time the role of attenuation (the ability of man-made structures to restrict the flow of water), predicting a decay far quicker than previously expected of coastal wetlands as sea levels rise.

Mangroves and saltmarsh provide a critical role in ecosystem food webs, providing habitat for fish, birds, and other fauna. These vegetation communities are also effective buffers that protect the coast and inland areas from erosion and reduce wave heights in the presence of storm surges and tsunamis. Mangrove and saltmarsh soils are also effective long-term sinks for atmospheric carbon.

The research team hopes that by more accurately understanding the outlook for mangroves, saltmarsh, and other coastal vegetation communities, their survival can be assured. The researchers will use this ecosystems approach to assess the vulnerability and recovery capacity of valuable coastal ecosystems to climate variability and change, including effects of changes in average conditions (sea-level rise), possible increase/decrease in accretion rates, and impacts of extreme events (flooding, tropical cyclones, storm surges) with applications for tropical deltas, estuaries and reef environments of the Asia-Pacific region.

WASTE MANAGEMENT AND POLLUTION CONTROL

SPREP has the lead responsibility for regional coordination and delivery of waste management and pollution control action and uses the strategic management framework, Cleaner Pacific 2025, in guiding regional cooperation and collaboration.

SPREP Priority Objectives

- Minimise the adverse impacts of chemicals and all wastes on human health and the environment through environmentally sound life-cycle management in accordance with agreed regional and international frameworks, including Cleaner Pacific 2025, and significantly reduce the release of pollutants to air, water and soil.
- Strengthen national, regional, and international mechanisms for waste management including chemicals, hazardous wastes, ship and aircraft-generated waste, marine plastic litter, and other marine debris.
- Recover resources from waste and pollutants through composting (nutrient recovery), recycling (material recovery), energy recovery, and other measures in order to minimise waste and contribute to economic and social development.
- Improve waste and pollution monitoring of receiving environments to enable informed decision-making on appropriate measures to protect human health and the environment, and to reduce associated environmental damage.

UON Expertise: At a Glance

- Nutrient management from wastewater irrigation
- Phytocapping landfill sites
- Microbial carbon use efficiency
- Microaggregate facilitated carbon stabilisation in soil
- Biowastes for carbon sequestration
- Waste heat recovery systems using co-generation plants and heat pumps
- Waste minimisation techniques (biochar, char from coal tailing, chemical looping of MSW)
- Hybrid energy systems using organic waste streams
- Energy efficient waste water treatment plants (aeration power reduction)
- Utility scale energy storage (calcium looping, phase-change chemical looping, ilmenite looping)
- Microgrid scale energy storage (chemical looping energy on demand system for microgrids, miniaturised chemical looping energy on demand system for residential application)
- New technologies for significant aquifer contamination
- Modelling bio-economy to achieve zero carbon systems
- Assessing and managing cumulative impact from agricultural and resource industries
- Advanced waste water treatment technologies and water recycling systems
- Rehabilitation and management of mined buffer lands
- New fertilisers, soil amendments and delivery mechanisms to enhance the performance of soils.

Opportunity Snapshot: Green Waste to Energy

Green waste is a significant post disaster waste problem that is poorly dealt with in the Pacific region and is exacerbated by poor management that results in widespread disposal to dump sites, landfill or open burning. There is potential for post disaster green waste streams as well as green waste gathered during regular collection to be better utilised for the recovery of energy and agricultural products. SPREP in conjunction with UON researchers have identified a range of tests on various green wastes using UON partner technologies that will provide important new information on a range of green wastes for their reuse and resource recovery potential as an energy source.

The pilot study involves the characterisation and the gasification rate of various biomass products. The major advantages of the new process technologies include:

- Greenhouse gas reduction. The UN's Intergovernmental Panel on Climate Change has concluded that the use of fuel ethanol properly produced from woody or fibrous biomass results in almost no carbon dioxide emission.
- Positive energy balance for ethanol production. The process used converts fibrous biomass to ethanol and generates surplus electricity from combustion of the lignin co-product.
- Closed loop water cycle. This process captures production water and other liquids and treats and recycles them.
- Use of waste fibre as feedstock. This process enables the use of abundant supplies of waste fibre from existing industries, particularly sawmill wood residue and sugar production waste known as bagasse.

ENVIRONMENTAL GOVERNANCE

Assisting countries to develop capacity in environmental governance, policy development, planning, monitoring, and reporting for sustainable environmental outcomes, and to keep pace with socio-economic development.

SPREP Priority Objectives

- Strengthen national sustainable development planning and implementation systems including through the use of Environmental Impact Assessments, Strategic Environmental Assessments, and spatial planning.
- Improve national capacity for good environmental governance supported by technical assistance for the development of policy and legislation, and in support of the implementation of Member international and regional commitments.
- Strengthen environmental data collection, monitoring and analysis reporting.
- Strengthen access to funding mechanisms and use funds effectively and efficiently to deliver required interventions.
- Strengthen synergies between science, policy, and traditional and local knowledge to guide decision making

UON Expertise: At a Glance

- Organisational response, recovery and coastal planning for implementation post disaster, and risk reduction
- Regional database development, data monitoring and compilation
- Applied regional economics, indicators of changing economic and workforce structure
- Food security and the governance of local knowledge in agriculture
- Intellectual property, free trade agreements, law and development in Asia and the Pacific regions for policies and legislation regarding sustainable management
- Energy, resources and environmental law
- Development and delivery of UN certified, disaster and development related education, training and enrichment programmes, at distance or face-to-face,
- Bespoke capacity analysis and capacity building programmes to increase the resilience of organisations and their ability to leverage the UN Sustainable Development Goals
- Policy review and analysis of governance effectiveness
- Legal research and project management across various jurisdictional contexts
- International investment and trade law
- Natural resource governance
- Land use planning and energy law
- Environmental regulation and public participation in decision making processes
- Policies and legislation for the management of offshore mineral resources
- Decision making frameworks for disaster mitigation
- Human vulnerability and the structural conditions within society that lead to disasters
- Resilient and sustainable housing systems
- Governance in the context of disaster and construction management
- Organisational disaster response capabilities, technology integration, innovation and supply chain management

Opportunity Snapshot: UON Disaster and Development Research Group and UNITAR CIFAL Newcastle

The Centre International de Formation des Autorités et Leaders (CIFAL) Newcastle serves as a capacity building centre for Small Island Developing States in the Pacific region underpinned by a commitment to providing community-based education and outreach activities. All CIFAL Newcastle activities are certified by the UN through the United Nations Institute for Training and Research (UNITAR) and/or the United Nations Office for Disaster and Risk Reduction (UNISDR).

CIFAL Newcastle also acts as UNITAR's hub in the Pacific region for disaster risk reduction. CIFAL Newcastle is a unique mechanism to build capacity by working with government agencies, planners, emergency services and international and community representatives. The UON Disaster and Development Research Group offers education and training in disaster preparedness and reconstruction and sustainable development and risk reduction, ranging from non-award short courses (such as an intensive short course introducing post disaster project management) through to internationally recognised, world-leading postgraduate programmes (e.g. Graduate Certificate in Disaster Risk Reduction).



TARGETED PHD SCHOLARSHIPS

In line with SPREP's Regional Goals, UON is committed to supporting and developing researchers through the provision of targeted PhD scholarships to be offered to Pacific island nationals. The students will work on identified projects in an area relevant to SPREP and its Member countries. A UON Postdoctoral Coordinator will support student placements alongside assigned UON academic supervisors.

The scholarships have been established to support research activity by providing opportunities to develop and strengthen climate-related research and advance collaboration aligned to UON's NeW Futures Strategic Plan to 'drive global and regional impact' and to be recognised as a lead University for regional research engagement.

The scholarships are designed to provide supported encouragement for the development and advancement of knowledge and expertise which will aid the environmental protection initiatives in the region.

The scholarships are designed to:

- Demonstrate transferable skills within a Pacific region context
- Stimulate innovation by bringing new thinking and skills to collaborative projects
- Establish and strengthen relationships between the University and Pacific partners
- Provide Higher Degree Research candidates with practical experience to increase their employment opportunities beyond a university setting

The scholarships aim to provide Pacific countries greater access to research, analytical and problem solving skills. The initiative is designed to offer:

- New ideas and fresh perspectives to advance innovative projects
- Access to university skills and technical research expertise
- Use of a dedicated co-working space at the research node
- Research supervision opportunities for industry partners

RESEARCH SKILLS AND TRAINING

A goal of the Pacific node is to ensure that knowledge gained through research extends beyond the life of individual research projects to evidence-based practice underscored by quality professional standards across a wide range of sectors.

The Pacific node will harness opportunities to work with governments, vocational providers and relevant agencies to provide experiential, interdisciplinary and regionally focused learning opportunities addressing social, commercial and environmental challenges facing the Pacific island region.

In consultation with partner organisations the Pacific node will develop:

- Tailored short courses and professional training to boost innovation and sustainable transformational change within the region
- Vocational training to build private and government sector capacity
- Doctoral training to equip Higher Degree Research graduates with the skills to lead technical programmes and facilitate technology transfer leading to new industries and enterprise

Priority areas identified in early stage consultation with SPREP include:

- Climate services
- Invasive species
- Integrated ocean management
- Environmental Impact Assessments
- Remote sensing techniques
- Hazardous and solid waste management
- Chemical usage
- Marine contamination – ocean health management
- Spatial planning and geographic information systems

In the first instance, UON will work with SPREP to secure funding to establish a Higher Degree Research programme.

UON will also actively target funding streams to enrich the learning experience of undergraduate students such as honours internships via programmes such as the Australian Government Department of Foreign Affairs and Trade's New Colombo Plan.

INNOVATION INCUBATOR

An Innovation Incubator will function as the engine room of the node providing links and access to existing research programmes and advancing opportunity, growth and innovation across research, government and the private sector. The incubator will form part of UON's Integrated Innovation Network (I2N) and will share global best practise programmes in innovation and entrepreneurship.

The power of the Incubator will be in its network, giving business unprecedented access to research and industry expertise, training and education opportunities, operational and testing assets, and business know-how.

An important point of difference is that this Incubator will be aimed at organisations in the later stages of the innovation process. This is characterised by technology in the demonstration phase, such as system prototyping in an operational environment, then progressing on to commercialisation and deployment.

The Incubator Will Support Strategic Initiatives by Offering:

- Opportunity to engage with researchers in best practise industry / academic collaboration and leveraged funding frameworks
- Access to programmes delivered by the UON Integrated Innovation
- Access to workshop and industrial research infrastructure to test, pilot and demonstrate innovation to market
- Multi-disciplinary collaborative opportunities
- Access to business expertise and knowledge
- The opportunity to tap into larger, stronger networks and programmes
- Safe working and testing environments

Features of the Innovation Incubator:

- Effective engagement with partner organisations
- Access to University research programmes
- Leveraged funding streams
- Accelerator programmes
- Access to industry expertise
- Professional training and research education

Enterprise, Innovation and Transformational Change: NIER, The University of Newcastle

Supported by a \$30million grant from the Australian Government's Education Investment Fund (EIF), NIER comprises extensive research laboratories, offices and industrial-scale pilot plant workshops. It is the centrepiece of the University's rapidly developing Energy and Resources Precinct with industry partners co-locating with NIER researchers to access a comprehensive suite of activities, services and solutions which add value to their organisations.

The NIER model has seen remarkable success with contributions to knowledge and understanding in areas such as clean energy production and minimisation of carbon emissions. Through the Global Impact Cluster for Energy, Resources, Food and Water, NIER will transfer and embed its successful model of industry engagement into the Innovation Incubator to fast-track solutions for enterprise.

ENGAGE WITH US

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