May 2025

PROJECT BRIEF

Canungra Emergency Research and Educational Facility

Presented by

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Background Information

Natural disasters are a perpetual unpredictable threat, destroying lives and property globally. In the Asia Pacific region, impacts from climatic disasters cause massive human casualties, comprehensive infrastructure destruction, ecosystem impacts, and huge financial losses. Indeed, initial NSW flooding reports (Daily Telegraph, 4/6/22) recorded 83 flood-related rescues – with significantly more rain (and rescues) to come. One woman was "clinging to the tree … for an hour … when rescue workers arrived about 9 pm on Saturday night." " The sad reality is bushfire incidents are increasing in intensity, and the social and financial costs are spiralling out of control." "A 2016 Climate Council report stated that bushfires currently cost the NSW region around 100 million dollars annually, and this is forecast to rise to $800 million by 2050."

The frequency and intensity of natural disasters are increasing. According to the UN Office for Disaster Risk Reduction[1], between 1980 and 1999 there were 4,212 natural disasters worldwide, whilst, between 2000 to 2019, there were 7,348, close to double. Of the top ten countries by occurrence in this period, seven were in the Asia/Pacific region, with approximately 367 disaster events occurring worldwide per year.

First image :Floods in Maryborough, Queensland, Australia, February 2022. Photo credit: QFES

Second Image:
A house burning in Lake Conjola, New South Wales, on New Year's Eve. January 2020. Photo credit: Matthew Abbott for The New York Times

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[1] Reference for the above figures is the UN Office for Disaster Risk Reduction Report – "The Human Cost of Disasters – An Overview of the Last 20 Years 2000-2019" https://www.undrr.org/publication/human-cost-disasters-overview-last-20-years-2000-2019

Table 1

Some Recent Australian Disasters

Category	Eastern Australia Flood 2022	Bush Fire 2019 - 2022	Tropical Cyclone Debbie 2017
Lives Lost	22	34	14
Property Lost	15k+ [2]	10k+	2,300 [6]
Wildlife Lost and/or rescue	Rescued 620 [3]	Lost 3b [5]	Lost - Damages impacted the Great Barrier Reef [7]
Damage Bill	AUD 2.5b+ [4]	AUD 103b+	AUD 3.5b+

[2] Source: The Guardian [3] Source: ABC News [4] Source: QLD Gov
[5] Source: WWF Au [6] Source: Cyclone Debbie Review [7] Source: WWF Au
Other sources: Wikipedia

Australians can therefore expect disasters to become part of our normality. Additionally, man-made events such as chemical releases, fires, explosions and transportation incidents still occur regularly. Effective, capable emergency response is needed, to minimise human impacts and physical damage arising from these occurrences.

The effectiveness of disaster response and recovery management is determined by the expertise of deployed personnel and available resources. The Royal Commission into National Natural Disaster Arrangements Report (Royal Commission report of October 2020) clearly articulates the need for robust, multi-skilled emergency response personnel who work collaboratively with an agile approach, regardless of organisational origin.

To create multi-skilled emergency response professionals and first responders (i.e. firefighters), requires completion of Certificate III in Public Safety (Firefighting and Emergency Operations training). Emergency Services Officers (ESO) in the Mining and Resources industry require Certificate III in Emergency Response and Rescue and Certificate IV in Healthcare to complete their training.

Excellent though these training and education programs are, they lack practical hands-on experiences in dealing with rapidly evolving, high-risk situations, like embankments and cliff rescues, fast-moving/dangerous water situations, helicopter evacuations, and rescuing individuals from collapsed structures (buildings/tunnels), and submerged vehicles. Currently available existent training facilities, provide their training in relatively benign, controlled environments, for example inside sheds and warehouses.

There is a lack of:

- A facility that offers close to real-life scenarios (e.g., submerged vehicles, collapsed tunnels, air rescues under extreme weather conditions).
- A facility that allows students to experience multiple terrain and weather situations, including simulated storms and high winds.
- A dedicated helicopter rescue simulation environment wherein students can practice activities such as crewman (including winching and drop zone), payload, patient packaging and care.
- A facility that, via its realism, promotes real-time risk assessment and response as demanded by actual field conditions.

Enter the proposed Canungra Emergency Response and Education Facility

This document seeks funding to advance CEREF. The CEREF training facility will provide emergency responder trainees with realistic, effective training and skills to identify and mitigate risks, contain damage and minimise public risk exposure. CEREF will drive successful operational, community and national outcomes by enhancing the capacity of first responders and others to operate in challenging rescue scenarios and constraints imposed by weather and equipment.

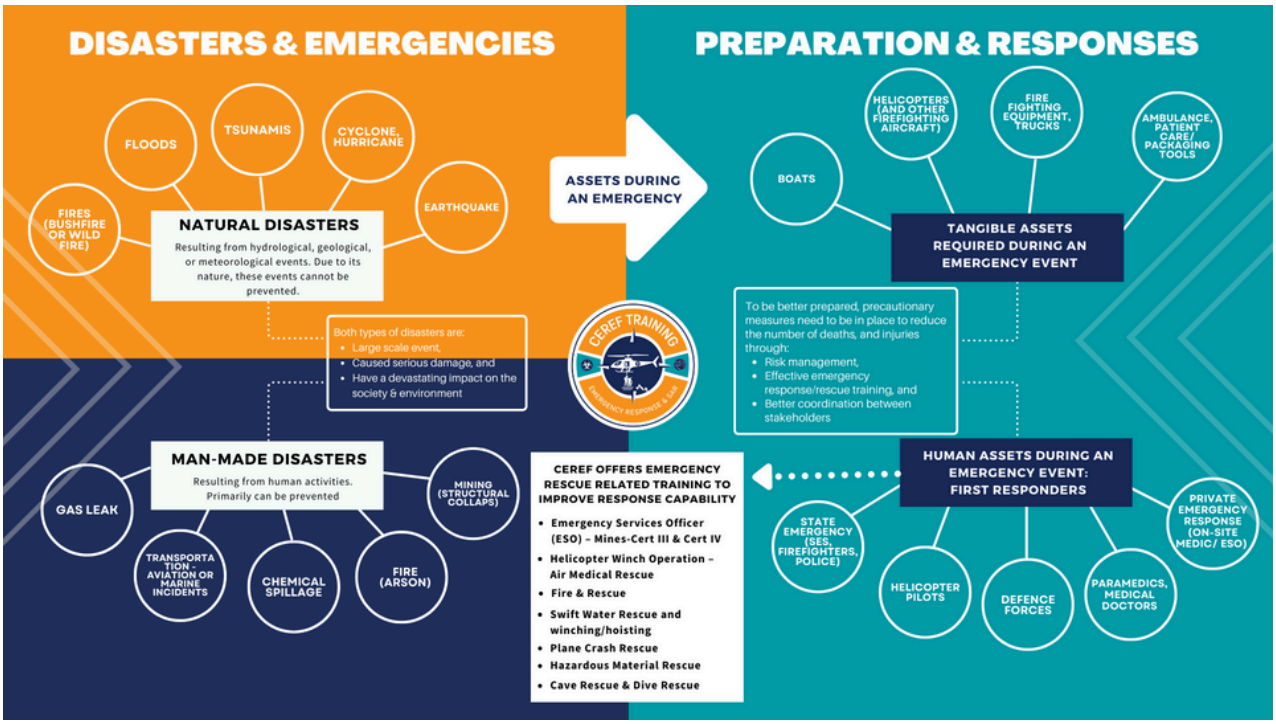
CEREF will prepare emergency workers for future natural or man-made disasters. During training, students will be immersed in hands-on, realistic emergency scenarios. These include rescuing individuals from submerged vehicles (a purpose-built pond is on site), collapsed structures (to be built), and airlifting victims under difficult conditions (a hanger and hoist will be constructed where varying wind, rain and water conditions can be simulated). Some on-site accommodation will be available, thus allowing for night training.

Onsite accommodation will enable the invitation of select first responders from Pacific Island nations to deepen operational and national connections. CEREF training will provide valuable opportunities for interaction and learning with other emergency service professionals.

CEREF's facility design, materials and construction will be assessed to meet the BAL FZ. The facilities will incorporate multiple environmentally sustainable features including water harvesting, various recycling systems and solar power. CEREF's proposed facility has also been favourably received by the Defence Department as well as TAFE, both offering to participate in the construction and maintenance as part of their respective re-education/apprenticeship programs.

CEREF training, including advanced technological concepts and equipment, will produce trainees with greater functional abilities that will enhance available resources and capabilities. This, in turn, will aid in the speedy recovery of victims and communities, nationally and internationally regardless of the type of disaster, but will equably, be dependent on disaster magnitude and resourcing for overall outcomes.

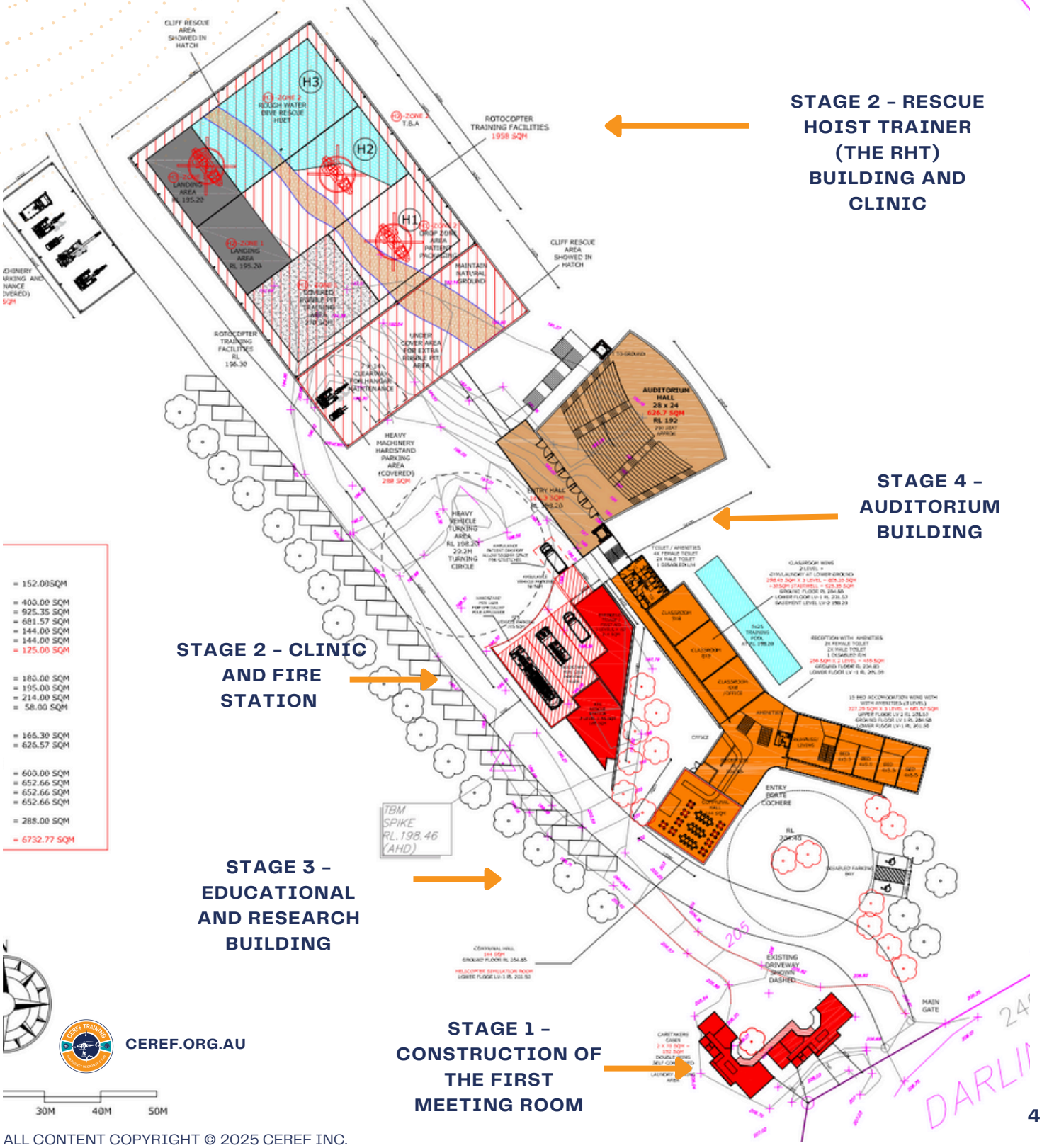
Figure 1 – CEREF Preparation and responses to Disasters and Emergencies



OUR AIM

1. To create a state-of-the-art venue, space, and facility where public/training organisations can train and hire (see Letter of Support in Appendix A);
2. To expose young people/school students to career possibilities in emergency services;
3. To provide a venue for combined operations activities and competitions between emergency services organisations and companies; and,
4. To provide a place for companies to test new equipment in a controlled environment.
5. To forge closer ties with Pacific Island nations by offering free advanced rescue training and on-site housing to senior personnel from those countries.

FIGURE 2 - PROPOSED MASTERPLAN DRAWING



CEREF.ORG.AU

CEREF has Four Proposed Stages

CEREF will ultimately comprise four construction phases on 50 acres of a freehold property. The master plan above has been presented to the Local Council, who replied with favourable feedback and support. CEREF has received letters of endorsement from, the Assistant Minister for Road Safety and Freight Transport, The Hon, Scott Buchholz MP and Fire and Safety Australia CEO, Steve McLeod (Attached in Appendix A and B).

Stage 1 in Brief

Achievements to date:

- Acquisition of 50 acres of property located at 93-131 Kidston Road, Canungra, just 45 minutes north of the Gold Coast Coolangatta Airport and 60 minutes south of Brisbane Airport, respectively, by road.
- Preliminary 'Masterplan' drawings of Stages 1 to 4 (shown above)
- Collaboration with Queensland University of Technology (QUT) and PROMETHEUS Space Technology (Greece).
- Received letters of support from The Honourable Scott Buchholz MP (see Appendix B), Steve McLeod, CEO of Fire Safety Australia (see Appendix B), and Professor Felipe Gonzalez from QUT (see Appendix C).

1. Stage 1: Secure initial funding of $1,500,000, which will be spent on meeting Council requirements and the DA submission, security gate and construction of the first meeting room.
2. Stage 2: Construction of the Rescue Hoist Training (RHT) facility, a simulated helicopter/airlift rescue facility (This facility is modelled after The Bavarian Mountain Rescue Centre facility in Bad Tolz, southern Germany, which experiences consistent demand for the provision of helicopter evacuation training) and a clinic.
3. Stage 3: Construction of the Education and Training Facility with limited on-site accommodation.
4. Stage 4: Construction of, e.g., the auditorium, 'rapid river environment', and additional accommodation.

Proposed use of initial funds ($1,500,000 includes DA-development Approval)

- Architectural plans for buildings and costs associated with Stage 2 Construction of the Rescue Hoist Training (RHT) Facility
- Environmental impact analysis and other council-required consultants' reports
- Plant, equipment, and staffing cost estimates
- Council application and assessment fee
- Installation of the front security gate and fencing
- Administrative fees

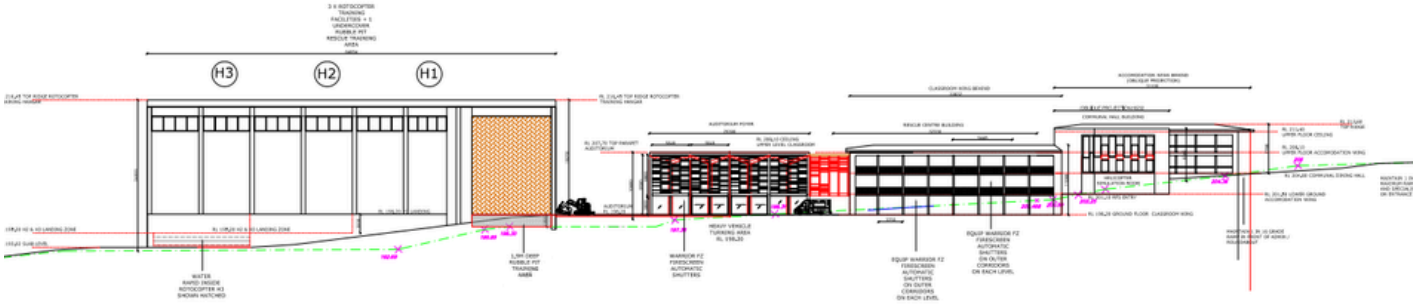


Figure 3 – CEREF Facility Overall Elevation

The Future

Stage 2

After completing Stage 1, our next milestone is securing funding for Stage 2, which requires $100 million. During this stage, we'll initiate the construction and launch of the first training facilities in a series: the Rescue Hoist Training (RHT) and High Altitude/Space Training Cells.

Stage 2 entails constructing approximately 2,294.92 square meters of dedicated space for RHT and space training cells. Additionally, it involves erecting structurally sound buildings to house the necessary engineering for RHT installation, constructing three climate-independent cells, temporary training rooms, acquiring mobile equipment, and developing roads and parking facilities.

Table 2 outlines the proposed training courses for Stage 2 and their anticipated revenue. It's worth noting that CEREF operates as a not-for-profit entity, meaning any income generated will be reinvested to further enhance our mission and capabilities.

TABLE 2
PROPOSED TRAINING COURSES AND ANTICIPATED REVENUE

Ref	Training	Objectives and Goals	Potential Annual Income
1	Dive Rescue	To train people in resurfacing unresponsive diver	$4,300.00
2	Cave Rescue	To train people in saving/rescuing victims trapped in caves. To develop strategies in rescuing people in challenging conditions	$12,000.00
3	Working at Heights	To provide real-life scenario-based training for people working in roles such as roofers, tilers, ceiling maintenance repairs, SES for tarping	$31,050.00
4	Confined Space/Rescue	Search and rescue at the underground facility Tanks	$20,700.00
5	Swift Water Rescue and winching/ hoisting (for helicopter Rescue)	To train people to rescue victims caught in floods, rapid rivers, and storms. Providing close to real-life scenarios	$19,600.00
6	Cert III in Emergency Response and Rescue, and Cert IV in Health Care	To provide students with a training environment where they are exposed to a real-life situation, such as in the mining environment. Providing training for emergency night calls Providing a unique and real-life scenario to the employees/emergency personnel in the resource industry (and other emergency services personnel) by exposing them to/ preparing them for all possible emergencies such as car/vehicle rollover, rescue victims in cliff/embankment position, and fire.	$840,000.00
7	Security Training	To provide training for individuals who would like to work/ break into the resource industry as a security officer.	$234,000.00
8	Helicopter Winch Operation – Air Medical Rescue	To undertake helicopter winch operations	$300,000.00
Ref	Facility Hire & Others	Types of equipment or room	Potential Annual Income
1	Facility Hire	Meeting rooms, board room, zoom/online meeting/recording room, Tower, Rapid river, Drones, Research & Development, testing environment/space, Science Lab, Training space in the bushland, trees, foliage environment, Car crash pad, Breathing Apparatus, and others	$20,000
2	Facility Hire	Rescue Helicopter Trainer (RHT) Hire, Organisations using RHT to conduct their own training, such as SAS, Police, and Defence.	$14,400,000
3	Accommodation	On-site accommodation, 15 rooms, 300 nights per year at $100/room	$450,000
4	Food and beverages	On-site food and beverages	$30,000

Concluding Remarks

Preparedness

The CEREF facility is designed to prepare people for a role in emergency services, including the resource industries. As a privately funded and independent not-for-profit organisation, CEREF will be a First Responder nexus in the southern hemisphere and globally to provide a one-stop, full-service training facility, providing unique, accredited emergency training.

Personnel

The training facility will be managed and operated by highly experienced, skilled and accredited First Responders, providing services locally, nationally, and globally. These employees can provide valuable life experience directly to students during training, enhancing their training experience and potential contribution to current and future employers.

Facility & Training Environment

Training opportunities provide real-life environmental scenarios, covering the spectrum of weather conditions and situations typically experienced in natural disasters. State-of-the-art technology, equipment and facilities combine to service a range of global businesses and industries, the full suite for emergency services, defence forces and students year-round, incorporating day and night operations.

Rescue Training

Specific courses will include an intensive two-week on-site training module involving hands-on training in high-risk activities such as HUET/ underwater rescue, helicopter winching crew coordination, and operating around hazardous chemicals. Training will include rescue in various challenging built and natural environments, such as cliffs, embankments, and structures, during day and night operations.

Technology

Advanced technology will feature in the facility to enable students to experience the impacts of the spectrum of weather conditions whilst handling emergency events, like a strong wind, rapidly flowing or rising water, and the use of AI/drones in times of critical structure collapses.

BOARD MEMBERS

TROY CUFF
CEO, FOUNDER OF CEREF AND CHAIRMAN OF THE BOARD

JUSTICE OF THE PEACE, DIPLOMA APPLIED SCIENCE PARAMEDICAL, DIPLOMA WORK HEALTH & SAFETY AND CERT III IN EMERGENCY RESPONSE.

Troy Cuff is an Emergency Management and Safety Specialist with over 30 years of experience in responding to emergencies and volunteering at major disasters across Australia, including wildfires and floods. He has collaborated with various organizations like Red Cross and QFES, gaining insight into the training emergency responders receive and identifying gaps, particularly in real-life helicopter rescue scenarios.

Driven by a passion for enhancing emergency response education, Troy founded CEREF, aiming to create a world-class training facility that simulates rescue environments. With 50 acres of rough terrain at his disposal and strong connections through an experienced Advisory Board, he is committed to advancing training and technology in the field of emergency services while also teaching at TAFE Queensland.

OTHER BOARD MEMBERS

ROBERT BOTT – HEALTH SAFETY AND SECURITY

MASTER OF APPLIED SCIENCE AND MASTER OF MANAGEMENT IN OCCUPATIONAL HYGIENE AND ENVIRONMENTAL

Rob has had a diverse career spanning both public and private sectors: nine years in the defence force, 16 years in law enforcement including counter-terrorist and bomb response duties, and twenty years in health and safety across multiple industry sectors.

Rob's experience has led to a drive to assist others to meet and exceed their potential in first response roles. Two post-graduate degrees, years as a first responder and responsible roles in major resource projects have provided Rob with the knowledge and experience to understand industry and trainee needs. Alongside the dissemination of knowledge, Rob also understands the need to safeguard proprietary knowledge, materials and trained personnel that will belong to CEREF and become its operational collateral.

ADAM BERNHARDT – BOARD MEMBER

EXECUTIVE SAFETY LEADER FOR AIRBUS AUSTRALIA

Adam's career saw him work all over the world as a special operation professional for law enforcement up until his most recent role as the Senior Manager of Safety Systems for a Brisbane based helicopter organisation, charged with looking after both aviation and people safety for several civilian and military helicopter programs.

MATT CARTWRIGHT - FUNDRAISING DIRECTOR

EMERGENCY TRAINER AND ASSESSOR

Matt began his lifesaving career as a lifeguard in Canada 20 years ago, working with organizations like the Red Cross and Lifesaving Society. After moving to Australia, he joined Coast Guard and SES QLD, focusing on both active roles and training. His business development background has helped him establish businesses in sales, cleaning, and training. With a Certificate in Training and Assessment, Matt teaches in various emergency services areas, including first response and water rescue. As a Board member, he aims to develop CEREF into a leading facility for emergency and tech rescue training and research.

LYDIA HALIM – CO-FOUNDER OF CEREF, RECRUITMENT ADVISOR

HUMAN RESOURCES MANAGEMENT AND LOGISTICS COORDINATOR

Lydia has over twenty years of experience in human resources and executive support across local government, not-for-profit, and commercial sectors. She provides high-quality services to stakeholders, including CEOs and board members. Results-oriented and a skilled problem solver, Lydia strives for innovative service delivery while effectively managing priorities and projects. Adaptable and approachable, she is passionate about excellent service. Lydia excels at connecting candidates with businesses through effective recruitment and plays a key role in coordinating stakeholders and resources associated with CEREF.

NOEL PNG – BOARD MEMBER

TECHNOLOGY, INNOVATION AND INVESTMENT

Noel brings professional experience in space technology and satellite imagery to disaster management and other applications. His career in space began in 2019 in the UK and Germany, and he returned to Singapore to further develop ventures involving space and AI technology aimed at serving the Southeast Asian market. Noel is a strong advocate for youth activism and believes that the current generation of young people has a vital role in addressing society's most pressing issues.

DAVID BUSHMAN – BOARD MEMBER

AEROSPACE ENGINEER AND BUSINESS DEVELOPMENT LEAD

David Bushman has over 30 years of experience in safety and disaster preparedness in aerospace, having served as a safety diver for astronaut training, a safety engineer for the Space Shuttle Solid Rocket Motor, and Director of Engineering for rocket testing safety and OSHA compliance. He has been a Mission Manager focused on test aircraft safety, contributed to the Next Generation Air Traffic Control System, and ensured safety compliance at Spaceport America. Additionally, David has volunteered with the American Red Cross, managed wildfire shelters, participated in a pandemic drill, and served on Community Emergency Response Teams in New Mexico and San Jose, California. He is also a certified American Heart Association instructor, retraining medical personnel, holds a Mechanical Engineering degree and an MBA, and developed a PPE course for the Department of Homeland Security.

APPENDIX A

The Hon.
Scott BUCHHOLZ MP
Federal Member for Wright

Mr Troy Cuff
Canungra Emergency Research & Educational Facility
Darlington & Kidston Streets
Canungra. 4275.

Troy_cuff@hotmail.com
0488 772 930

Dear Mr Cuff,

I was most interested to hear of your plans for the construction of the new project you propose to construct in the Scenic Rim at Canungra. The Canungra Emergency Research and Educational Facility (CEREF) to be positioned on the 50 acres you have purchased next door to the township offers a very accessible venue for a training facility. The varied terrain on your property will expose participants to a large range of differing environments and so enhance the programmes offered at the proposed training facility to make the whole experience very well worthwhile.

There is no doubt that a facility such as you propose would be of enormous benefit to not only the Emergency Services Workforce on all levels, the Australian Defence Force and all other volunteer organisation as well as offering youth organisations such as the Junior SES, Scouts and Guides real time/real life experiences in emergency response and management. Large companies who also need to offer their staff real life scenarios for Vertical and Tower Rescue, Road Crash situations, Hazmat, Mines Rescue and Plane Crash rescue as well as the myriad of other emergency situations we Australians find ourselves faced with, would, I am sure be pleased to utilise the programmes.

I think your plan to have onsite accommodation is worthy. Living onsite will enable participants to really immerse themselves in the very intensive programme such as you are planning.

I am pleased to write this letter in support of your proposal and would like to be kept appraised of your progress with your venture.

Yours sincerely,

Scott Buchholz

The Hon. Scott Buchholz MP
Federal Member for Wright
Assistant Minister for Road Safety and Freight Transpor

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APPENDIX B

CEREF Letter of Support

28th February 2022

Mr Troy Cuff
CEREF Facility
93-131 Kidston Street, CANUNGRA, QLD 4275

Dear Mr Cuff,

On behalf of Fire and Safety Australia, we endorse the CEREF Canungra Emergency Research and Educational facility and its potential in meeting industry demand, to ensure realistic training for emergency response professionals.

Fire and Safety Australia (FSA) has more than 115 employees nationally, and we are a large provider of emergency response and medical personnel in industrial, mining, construction, renewables, and oil & gas environments. We work with many of Australia's largest companies, in high-risk environments. FSA sees a large opportunity that the CEREF facility could provide companies like FSA and our emergency responders, to ensure that they are well prepared to save life and property in the event of an on-site incident.

FSA would be a user of this facility, and many of our employees and clients would highly benefit from the realistic training proposed in the CEREF facility.

On behalf of Fire and Safety Australia, I am happy to express our support for this development, and we will be a user of the facility once completed. We feel that this facility will be of enormous benefit for the industrial emergency response industry, and that this will lead to a higher standard of training for emergency responders.

Please reach out to me if I, or my organisation can provide any further assistance.

Steve

Kind Regards,

Steve McLeod
CEO
Fire and Safety Australia
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www.fireandsafetyaustralia.com.au – www.nsca.org.au

5 July 2024

Troy Cuff
Emergency Response Adviser
TAC Resources
PO Box 220
CANUNGRA QLD 4275

Dear Troy,

On behalf of the Queensland University of Technology Centre for Robotics, I am writing to express our enthusiastic support for the innovative use of technologies to address the bushfire threat in Australia, specifically in the Queensland region. We recognise the pivotal role that TAC Resources plays in this innovative journey.

We firmly believe in the importance of utilising cutting-edge technologies and strategies to enhance early detection capabilities for efficient disaster management of Australia's bushfire threats. By embracing global innovations, Australia can position itself at the forefront of bushfire management technology.

The software developed by Prometheus Space Technologies promises enormous benefits to Emergency Services responders, especially the Rural Fire Services and other organisations. Access to real-time data will enable swift decision-making, efficient resource allocation, and better coordination among response agencies, leading to a more effective and targeted bushfire response.

Moreover, the development of mobile applications tailored for community alerts and evacuation plans will significantly enhance public safety. Timely notifications and clear instructions during emergency situations are crucial in ensuring the safety of residents during a bushfire.

Please do not hesitate to reach out if you require further information or assistance regarding our support.

Sincerely,

Professor Felipe Gonzalez (CPEng, GAICD, FHEA, MAIAA, MIEEE, FRAeS)
Chief Investigator, QUT Centre for Robotics Electrical Engineering and Robotics (EER) School, Faculty of Engineering | Queensland University of Technology S Block, Room S1104, Gardens Point Campus, QUT, Brisbane, QLD, 4001 ph +61 7 3138 1363| email felipe.gonzalez@qut.edu.au
CRICOS No 00213J Graduate of Australian Institute of Company Directors (GAICD) Chartered Engineer Engineers Australia, CPEng Fellow of the UK Higher Education Academy, FHEA Member American Institute of Aeronautics and Astronautics, MAIA Member of Institute of Electrical and Electronics Engineers, MIEEE Fellow of Royal Aeronautical Society, FRAeS
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