



engineers
without borders
australia

Achieving the Aims

To 2020 & beyond:
reflecting & reimagining



Annual Report
2018-19

Board Chair's message

In 2018 Engineers Without Borders Australia celebrated 15 years of engineering a better world. For the past decade and a half we've been connecting, educating and empowering people through humanitarian engineering. We've been creating solutions for social change, redefining engineering and creating a global movement.

For the past five years we've been developing appropriate solutions to empower those most in need and accelerate inclusive sustainable development through engineering and technology. We've redefined engineering as a community-centred profession that provides leadership in the creation of a more sustainable and inclusive world. We've worked with our partners to inspire and mobilise a global community in engineering for social change.

Our success is a direct result of the ongoing commitment of our donors, partners, supporters, members, volunteers and dedicated staff. The myriad of achievements outlined in this annual report are a testament to the combined efforts of these key people. People like you. People who make a difference in the world.

Organisations like Engineers Without Borders Australia can only exist because of passionate people who take action to engineer a better world. Engineers have an increasingly important leadership role to play in working with communities to enable them to reach their full potential.

As our Strategy 2020 comes to a close we can be very proud of the contribution that we've made to engineering a better world. As we look forward to the next 10 years and link to the 2030 Agenda for Sustainable Development we will accelerate our efforts to make a difference for communities both at home and abroad. We look forward to continuing to work with you to create a world where everyone, everywhere lives a life of opportunity through equitable access to engineering.



Gavin Blakey OAM
Chair EWB Australia
Board of Directors



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EWB Australia respectfully acknowledges the Traditional Owners of the country on which we work.

EWB Australia 2019



CEO's message

I am pleased to present to you *Engineers Without Borders Australia 2018–19 Annual Report*, a pivot point from which we can both reflect on the previous financial year and our outgoing strategic plan, and also touch on the future with *Beyond 2020*—our new strategic plan.

Wrapping up our current strategic plan, one that has informed our work and direction for the past five years, I am pleased to say we have successfully delivered on nearly all of the 27 objectives we agreed to back in 2015. To highlight some of our key achievements, this annual report is structured around the three overarching external aims of that plan, which are all currently tracking well:

Aim 1: Solutions for Social Change

- ▶ Placed 42 International Field Professionals in Cambodia, Timor-Leste and Vanuatu since 2016, 18 of whom are women
- ▶ Over 15 pro-bono projects supported through our Engineering On Country program
- ▶ Over 20 strong partnerships with community organisations
- ▶ 8,000 people directly benefiting from the solutions (in Cambodia, Timor-Leste and Vanuatu) we have developed with about 40% of whom are women

Aim 2: Redefining Engineering

- ▶ 64 members in our Women In Engineering (Feto Enginera) program in Timor-Leste
- ▶ EWB Challenge reached 45,000 students since 2015
- ▶ More than 1,600 Design Summit participants since 2015
- ▶ 121 research projects undertaken through EWB since 2016
- ▶ Nearly 37,000 Australian students engaged through the School Outreach workshops.

Aim 3: A Global Movement

- ▶ EWB Australia was invited to present at several international conferences
- ▶ Our *Engineering Redefined* report is regularly referred to in the engineering sector when planning for improved diversity
- ▶ The EWB Challenge has inspired and supported the delivery of similar influential programs in the UK, South Africa and the USA.



Field visit to Aoral District, Kampong Speu Province, Cambodia.

Reflecting on how EWB has measured up internally, we've successfully invested in our people and built a culture of passion, purpose and impact. Our recent Culture Survey of staff showed we are on par with the for-purpose sector in terms of engagement; our results indicate a much higher-than-average response in relation to staff members' passion for the organisation, including clarity about our purpose and impact.

We've also improved the impact of our work and are investing in the tools and systems to support this. Our Impact Framework has guided conversations with our Chapters and informed planning across our network this year. We also successfully passed the intensive DFAT re-accreditation in March.

Evidence of our increased social capital includes recent media on EWB's ethical partnerships approach that prompted a flood of support across Australia. In terms of financial stability, although some funding streams declined across the previous year, others increased so that our overall position remains solid.

Acting on recommendations from a membership model review in late 2018, we are working to strengthen our support base by building opportunities for members to more easily engage with and support us—no matter who they are, or what stage of life they are in.

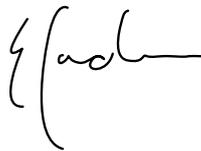
We are now preparing for a ten-year strategic plan (2020–2030), aligned in timing with the United Nations Sustainable Development Goals (SDGs). Our new strategic plan will have:

- ▶ a simple narrative clearly outlining what we want to do and how we want to do it
- ▶ complementary one-pagers for our programs, built from and testing our Theory of Change
- ▶ a solid business model that enables our plan
- ▶ a marketing plan that allows us to amplify our message and evolve our brand
- ▶ simple indicators of success that will allow us to track our progress and realign as necessary.

With a clarity of purpose, or 'Northern Star', we will plan each year to be agile, responding to the changing world where detail is amorphous and difficult to predict. This will also allow us to accommodate emerging strategic opportunities identified through our movement of communities, chapters, volunteers, partners and supporters.

Increasingly, EWB Australia is seeing not only our relevance but also our unique value as an ecosystem of engineering skills and practitioners of a human-centred approach. Together we will create a future where no-one is left behind; where everyone has what they need to build the life they want; where engineers who want to make a difference find a home of like-minded others and where, as a profession, we are establishing the structures and the environment where social and sustainable outcomes are at the front and centre of decision-making.

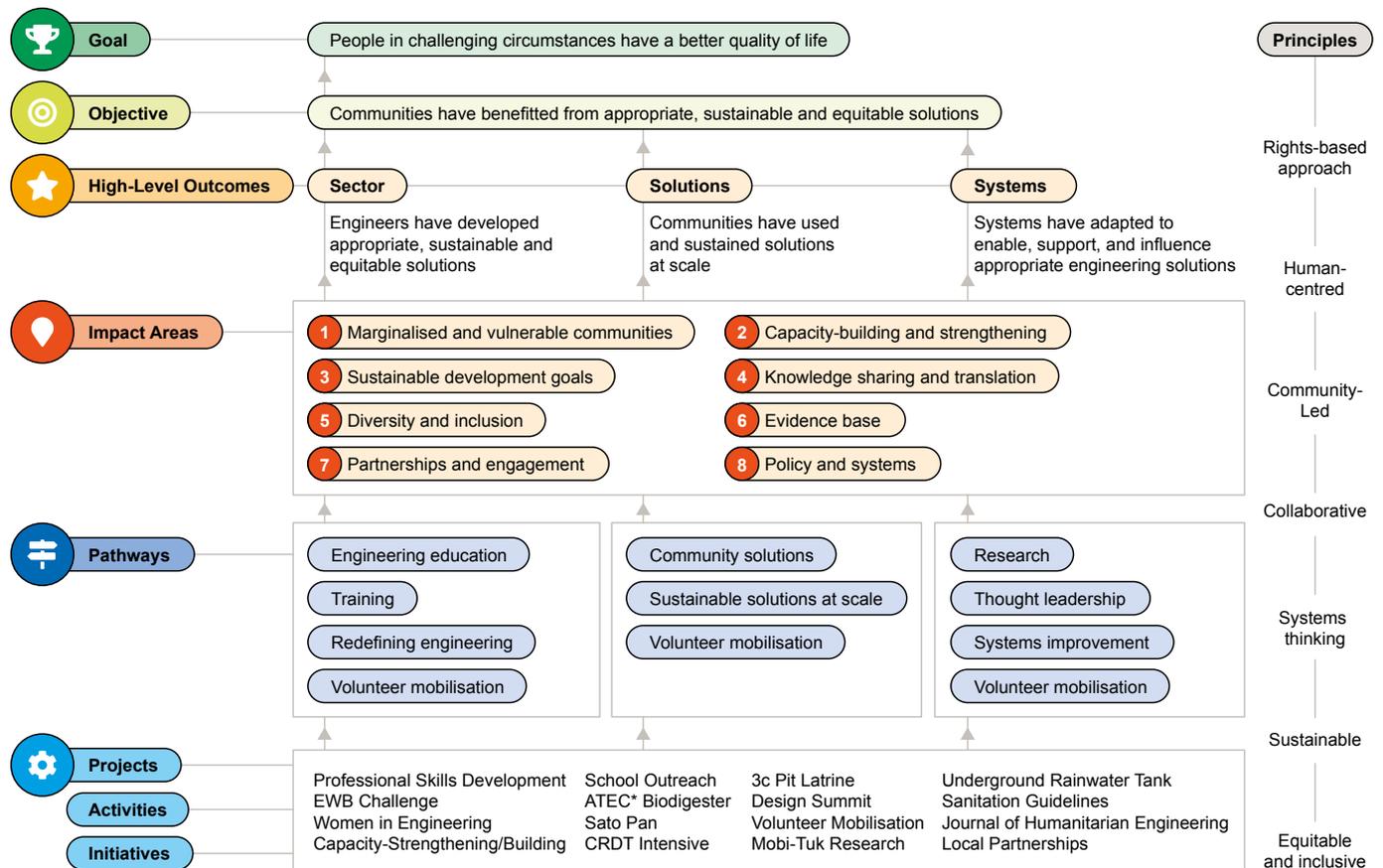
Best



Eleanor Loudon
Chief Executive Officer
Engineers Without Borders Australia



Launch of EWB Australia's Impact Framework



The end of 2018 saw the launch of EWB Australia's Impact Framework. Linking EWB Australia's *Beyond 2020* Strategy to organisation-wide operations, the Impact Framework is an important document that aligns our organisation to a common impact goal—highlighting the strategies and pathways to achieving this, and how progress can be measured.

EWB Australia's impact goal is for people in challenging circumstances to have a better quality of life.

EWB Australia's impact goal is for people in challenging circumstances to have a better quality of life. To achieve this, we must first reach our objective where communities are benefitting from the use of appropriate and sustainable solutions. We aim to do this by strengthening capacity within the engineering sector, ensuring communities have access to and are using appropriate solutions, and influencing systems that enable appropriate engineering and community solutions.

EWB Australia is well positioned to achieve these outcomes through cross-sectorial collaborations and partnerships, community engagement, capacity development, professional skills development, engineering education and delivering appropriate technical solutions. To enhance delivery of our impact to communities we have started strengthening our country teams to better support community engagement—through the appointment of Country Managers in both Timor-Leste and Vanuatu as well as an Engineering On Country Lead in Australia. A newly created Solutions Development Lead role is also based in-country in Cambodia.

The Impact Framework provides the direction for all EWB programs, projects and initiatives to better map our work towards the common impact goal, objective and outcomes. It articulates EWB Australia's commitment to the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs). Identifying specific SDGs and targets that EWB Australia's work contributes to will enable EWB Australia to be more effective in delivering its work and better achieve positive outcomes for communities.

Our year in numbers

July 2018 to
June 2019

International Program



Over 1600 individuals directly benefited from our program, with 56% female



7 field professionals strengthened capacity of over 90 local staff

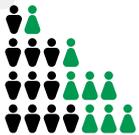


21 partner organisations across 3 countries (Cambodia, Timor-Leste, Vanuatu)



7 technologies proto-typed and trialled with community partners

Design Summit



375 participants with 44% female



11 trips (Cambodia, India, Malaysia, Nepal, Samoa, Timor-Leste)



50 facilitators and mentors



6 academics joined 5 trips

Engineering on Country



4 pro-bono engineering projects in progress in WA (3) and Qld (1)



5 Aboriginal community partner organisations

EWB Challenge

9,930

university students engaged



24 Australian and 2 New Zealand universities participated



86 design ideas shared with community partner

Research



37 research projects completed



13 universities and 7 research partner organisations involved

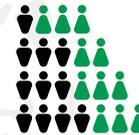
60+

Over 60 university students participated in the program

School Outreach

358

schools involved in School Outreach workshops



22,073 school students participated



59 professional engineer volunteers participated



1,012 workshops conducted



524 university student volunteers participated



13 regioneering trips to remote Australia (SA, Qld, NSW, Vic)

ARUP

aurecon

KOMATSU

Bentley
Advancing Infrastructure

4 corporate delivery partners (Arup, Aurecon, Komatsu, Bentley)



Aim 1: Solutions for Social Change

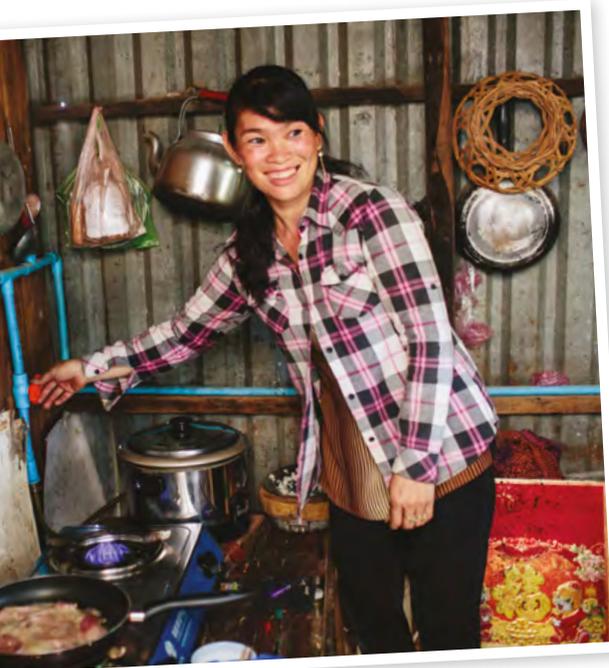
▲ We will enable appropriate solutions to alleviate poverty and accelerate inclusive, sustainable development through engineering and technology.

ADDRESSING THE AIM: HIGHLIGHTS

ATEC* Biodigester

The ATEC* Biodigester is a golden example of how EWB Australia's Challenge and Research programs can help create scalable solutions for impact. As a social enterprise of which EWB Australia was a founding shareholder, now with a 30% shareholding, some 1,400 units have been sold, creating over 28,000 tonnes of fertiliser and 550 million litres of biogas used by Cambodian households.

Use of the ATEC* Biodigester by Long Sokhon and her family, living in a floating village on Cambodia's Tonlé Sap (a seasonally-inundated lake) has contributed to improvements in their quality of life. Long's health has improved in the absence of the wood-fire smoke that once caused continual headaches and problems with her lungs. Her rice and sesame crop production has doubled and the increased savings contribute to her childrens' education.



Appropriate Technology Solutions

In two communities in Prey Veng Province (southern Cambodia), a trial of two environmental sanitation technologies (3C Pit and Sky Latrine) took place in 2018. Monitoring of these new technologies has revealed benefits and barriers, and how best to continue further trials.

In 2018 and 2019, in seven Cambodian provinces, a partnership involving government, NGOs and multilateral organisations has enabled EWB Australia to trial the SaTo latrine pan and monitor over 100 households' use of it to identify challenges but also benefits, like savings in water and time. Increased access to sanitation has also led to better health outcomes.

Influencing Institutions and Systems

EWB Australia's recent work with national government departments in Cambodia and Vanuatu has enabled a stronger environment to support appropriate solutions for social change, including the drafting of national Sanitation and Hygiene Guidelines and Standards (in collaboration with the Department of Health in Vanuatu) and the strengthening and dissemination of the National Guiding Principles on Sanitation in Challenging Environments for Rural Households (in partnership with the Cambodian Ministry for Rural Development).

"The guiding principles can inform technical strategic direction, policy focus, program/project design and suitable intervention modalities to ensure sustainable, equitable, reliable and affordable access to sanitation services for all communities living in challenging environments, as a contribution to improve public health, education and socio-economic development outcomes."—His Excellency TRY Meng, Secretary of State Ministry of Rural Development of the Royal Government of Cambodia.

Water shortage solution for Cambodian families

Climate change has brought about significant drought and rain-scarcity is creating serious challenges in Cambodia.

drought and rain scarcity has greatly reduced agricultural production, which in turn has affected food security. It has also had an impact on farmers' livelihoods—negatively affecting health and reducing opportunities to generate income.

Significant drought does not solely affect farmers—it also has an impact on families, women and children. Results from the study showed that women were more vulnerable to extreme climate hazards due to their high workload and increased susceptibility to health problems, along with a lessened opportunity for education. The journey for women—who are mostly charged with collecting water—is hot, long and arduous.

With more rural communities demanding better systems to collect and store rainwater, EWB Australia partnered with RainWater Cambodia (RWC) to explore the development of low-cost rainwater harvesting systems capable of storing significant volumes of water.

Established in 2003, RWC focuses on water, sanitation and hygiene improvement and has much experience in this sector. A key area of expertise for RWC is rainwater harvesting for households, schools and health clinics—making them a perfect partner for this project. EWB Australia provides technical human-centred engineering support to the project.

In 2015 a team of local university students took part in the RainWater Cambodia Design Challenge, with the water challenge in Kampong Speu Province as their brief. It is one of many projects where EWB engages with Cambodian engineering students to develop their human-centred design approach, to provide practical experience in the development of real-world solutions. Not all ideas progress to development though. Rather, the process is designed to develop students' skills. Sometimes, however, an idea emerges that is of particular interest, and that's exactly what happened to some of the students who took part in this Challenge.

Based on an idea arising from the Cambodian Challenge program, EWB commissioned RWC to undertake a pilot project to design and construct underground rainwater tanks. The pilot aimed to determine how underground rainwater tanks could

The majority of families living in rural Cambodia cannot yet rely on piped water systems. Very often, the alternative water sources and supply systems are not safe. Surface water is contaminated, and springs and groundwater are not always easily accessible, or are unsuitable for human consumption due to contaminants such as arsenic.

According to Chray Pom, a Ministry of Rural Development director, half of Cambodia's rural population—more than six million people—lack access to clean water. Within this general context, relying on sufficient rainwater as a safe source of water is crucial.

However, access to rainwater is increasingly challenged by recurrent drought brought on by climate change. There are also challenges such as unpredictability and delay in the arrival of rainfall in the early wet season, the total amount of rainfall, and the duration of the wet season.

When the water supply for family needs is assured, additional methods for water collection can then be further explored for agricultural use.

In 2012, the Royal University of Phnom Penh undertook a study analysing social vulnerability to climate change in Kampong Speu Province. The study indicated that drought was the most severe hazard from 1999 to 2011 because it occurred in both lowland and upland areas of the province.

Among the 420 communities affected by drought in 2002, Kampong Speu province was the most severely—but not the only one—affected. Significant



4 field professional volunteers placed with RainWater Cambodia since 2015



10 households
57 individuals pilot tested underground rainwater tank



20+ RainWater Cambodia staff & interns' capacity strengthened

SDGs



facilitate households to have year-round access to water for domestic use.

The system developed was based on traditional collection and storage methods combined with a modern risk-management approach, with the aim to provide a safe, sustainable water supply. Once the water supply for family needs is assured, additional methods for water collection can then be further explored for agricultural use.

The underground rainwater tank uses local materials such as wood, bamboo, a hand pump and low-density polyethylene (LDPE) in its construction. The ability to access local materials and supplies is critical to the success of this project and to ensure the system is easily maintained into the future.

The pilot was successfully completed early in 2019 with the installation of two tanks, and EWB Australia and RWC are now seeking funding to provide underground rainwater tanks to more families in Kampong Speu.

The pilot was successfully completed early in 2019 with the installation of two tanks. The families based where the tanks were installed are really satisfied with the system. The underground water tanks ensure the availability of safe water for a much longer period after the end of the rainy season than they have previously experienced.

Moving this solution forward, EWB Australia and RWC are investing resources to conduct additional trials of the system in other drought-prone areas of Cambodia. As the technology utilised has proved to be successful, we are eager to progress the next phase of the trial, which is ensuring that the system is adopted and replicated on a larger scale in Cambodia.

This project receives support from the Australian Government through the Australian NGO Cooperation Program (ANCP).



EWB Volunteer Field Professional Shiona Fitzgerald works on the underground rainwater tank system in Kampong Speu Province, Cambodia.

Engineering On Country

Partnering with Aboriginal and Torres Strait Islander communities for engineering and infrastructure solutions On Country

EWB Australia doesn't only work "in-country" with our neighbours in Southeast Asia and the Pacific, we also work "On Country" with Aboriginal and Torres Strait Islander communities right here in Australia.

Since 2009, EWB Australia has worked with Aboriginal and Torres Strait Islander communities in Queensland, the Northern Territory and Western Australia on a range of community-identified projects. These have mostly taken place through long-term partnerships developed directly with communities, and since 2014 through the EWB Connect (pro-bono) program.

This financial year sees a new iteration of our Engineering On Country (EOC) program, which was re-resourced in mid-2018 through two successful fundraising campaigns. Initiatives under the EOC program currently include:

- ▶ **Pro bono:** providing pro-bono engineering and professional services to communities (supporting 15 projects to date)
- ▶ **Professional Skills Development program:** training and developing the skills of the engineering professional services sector to engage effectively and facilitate people-centred, problem-solving approaches
- ▶ **Research and Development:** creating new knowledge and approaches in engineering innovation and technology to enable communities to prosper on country.

Over the past year, EWB Australia has worked with an Indigenous-owned consulting firm to co-develop a five-year strategic plan (2020–2024). The draft EOC strategy is shaped as a five-year journey, designed to create a cumulative effect of growth, learning and program revision. This roadmap will ensure we deliver engineering outcomes and solutions within the context of local Aboriginal and Torres Strait Islander culture, knowledge, customs and story—because we believe all relationships thrive on a two-way sharing of knowledge and culture.

Implementation of the strategy will commence in July 2019. The objective of the EOC strategy is to work in partnership with Aboriginal and Torres Strait Islander communities to ensure they have:

- 1 **Improved access to engineering, technology and infrastructure**
- 2 **Increased capability to live safely and productively On Country and pursue their community aspirations.**

“What does ‘On Country’ mean for Traditional Owners themselves? In very simplified terms: Being present on their traditional lands as its custodian, where Country is indivisibly and inseparably an interconnected set of thoughts, values, beliefs and customs.”

– Indigenous Workforce Consultants, June 2019.

In framing the EOC strategy, EWB Australia embraces in all its meaning the idea of “On Country”, and uses the Yarning Circle as a model of project engagement and delivery. Yarning circles are a timeless way of learning, used by Aboriginal and Torres Strait Islander people to learn from a collective group and build respectful relationships. Yarning Circles are based on the principles of caring and communicating. They create a respectful platform for dialogue where people can share unique and individual perspectives, experiences and knowledge. The diagram below shows the EOC Yarning Circle, the players that yarn together and find a mutual way forward, and the connectedness of the key components of working on Country.

SDGs



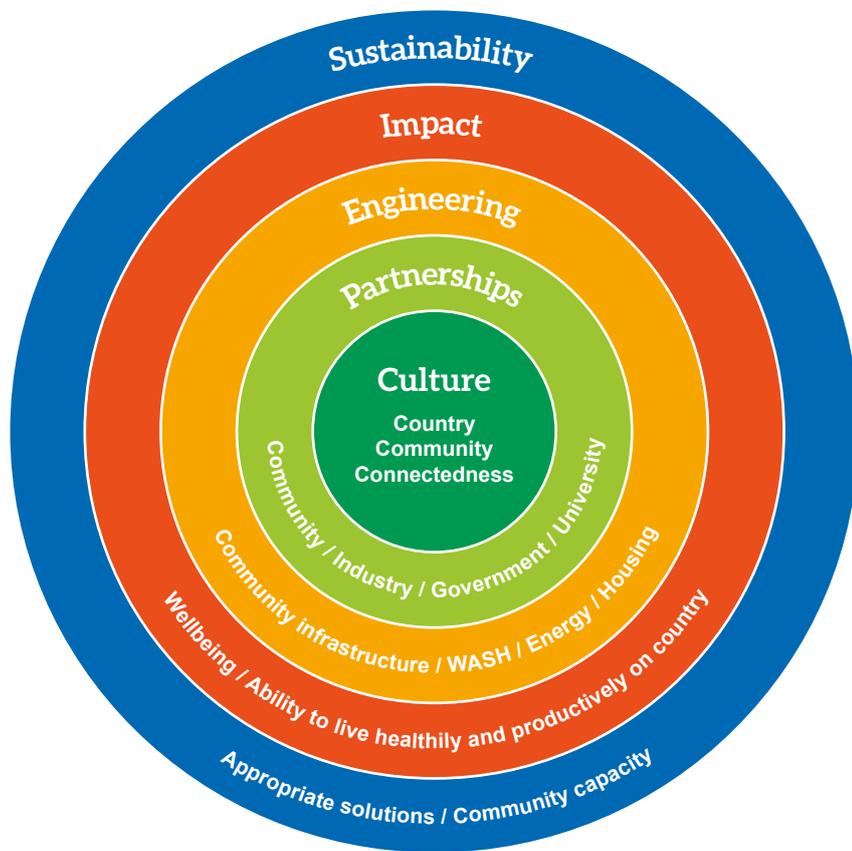


Figure 1: Engineering On Country Yarning Circle

The centre of the Yarning Circle emphasises the importance of Culture, Country, Community and Connectedness in underpinning all measures of community wellbeing. Subsequent layers build on this and each other to add to the program’s approach.

One co-design project underway is the Youth Accommodation, Training and Employment Complex (YATEC), or Wungurniyangurru, in Broome. The Yawuru People are the Traditional Owners of Broome and surrounds and the YATEC project was initiated by a partnership between Nyamba Buru Yawuru (NBY: representatives of the Yawuru People) and Community Housing Limited (CHL), responding to a shortage of suitable youth accommodation in Broome and high levels of homelessness among young people. The lack of housing had social, employment, education, as well as physical and mental health implications for young people and families.

A process of co-design is planned for later this year with NBY, CHL, Yawuru youth, EWB and pro-bono design practitioners, to develop design principles to guide future project design and implementation. These principles will also be used to leverage economic and social support.

Another key EOC community partner is the Centre for Appropriate Technology (CfAT), based in North Queensland. EWB Australia and CfAT have worked together for many years, and are currently developing plans to deepen our support for appropriate infrastructure for homelands communities in Cape York.

Other activities planned for the future under EOC include Community Partnerships with skilled secondments to support mentoring and capacity building, and a program facilitating community-centred research and appropriate technology development on Country.

Sanitation in Challenging Environments—more than just building toilets

Behind the scenes of our SCE projects in Cambodia and Vanuatu

EWB Australia has been working in the Asia-Pacific region for 16 years to help improve access to safe and reliable water, sanitation and hygiene services and infrastructure. Beneficiary wellbeing is prioritised in this work through consideration of social inclusion, gender equality, governance accountability and transparency, and social and economic equity.

Over a quarter of Cambodians (four million people) and a large proportion of Ni-Vanuatu people live in challenging environments where it is difficult or unsafe to implement and maintain sanitation infrastructure. These locations are usually in rural areas and include: floating villages, flood and drought-prone areas, hard rock areas, and high groundwater and coastal areas.

The difficulties associated with improving Sanitation in Challenging Environments (SCE) in tropical countries like Cambodia and Vanuatu are exacerbated by climate change and natural disasters. EWB Australia is working closely with communities, governments and diverse partner organisations in both countries to improve access to sanitation.

Working in and with partner countries to improve SCE involves much more than just building toilets—it is exceptionally complex. Solutions need to find a compromise between affordability, complexity of design, construction and environmental impact. Collective action is required to ensure implementation of projects is well-coordinated, sanitation systems are supported by functioning supply chains and scaling (where possible), that sanitation products are of appropriate quality, sustainable and tested to ensure they are adapted to local contexts. Sometimes communities need to learn to use technologies they may not be familiar with.

A key element of the Cambodian project has been the development of National Guiding Principles on Sanitation in Challenging Environments for Rural

Households, a highly consultative process involving government (national and provincial), NGOs, UNICEF, World Health Organisation, organisations representing people with disabilities, gender stakeholders and communities themselves.

The Guiding Principles were endorsed by Cambodia's Minister of Rural Development, Ouk Rabun, in June 2019 and translated into Khmer. Their purpose is to define the key issues of SCE in Cambodia, to facilitate a coordinated and consistent approach and to provide information about appropriate sanitation technologies for the very diverse range of challenging environments across the country.

In a similar vein, EWB Australia has been jointly working since 2017 with EWB New Zealand and the Environmental Health Unit team from the Vanuatu Ministry of Health to develop national hygiene and sanitation guidelines and standards for rural areas in Vanuatu. The purpose of these guidelines and standards is to improve consistency in sanitation interventions as well as the quality of sanitation designs, accountability and monitoring.

“We need to have one standard for all NGOs and communities to ensure better quality of toilets.” “We need to ensure quality for sustainable products, not breaking down after the project's life cycle.”— government officials in Sanma Province, Vanuatu, regarding the sanitation context in their province.

A community socialisation testing phase is underway involving community workshops and the construction of demonstration toilets to ensure the guidelines are appropriate for the local context. Three different demonstration toilet types have been constructed, including a ventilated improved pit (VIP) latrine in Sanma Province with an additional tap inside the toilet to provide women with privacy to wash menstrual clothing.

SDGs



Pour Flush demonstration toilet in Malampa Province, Vanuatu.



The trials in Vanuatu have led to improved bills of quantities and standard drawings, user preferences regarding inclusive design features, an understanding of both the importance of the design criteria and levels of information required to operate, and the creation of maintenance posters. The construction of an inclusive toilet (accessible to people with disabilities, in particular wheelchair users) with a septic tank is scheduled for Sheffa Province later this year. The sanitation guidelines are expected to be finalised in November 2019 and translated into Vanuatu's three official languages.

The SCE project in Cambodia has also involved field testing. Nearly 100 toilets using the SaTo (Safe Toilet) latrine pan have been installed into households in seven provinces in mountainous areas. Chhoeurn Chhorn, Team Leader at the Department of Rural Sanitation and Hygiene, Ministry of Rural Development, Cambodia, said "Water is scarce in these mountainous regions. SaTo pan is good because it only uses a small amount of water, is easy to install, is lighter and cheaper than ceramic, so it saves money."

After a trial period, an assessment was carried out and community members' suggestions for improvements have been noted. Chhoeurn also talked about the benefits of the project: "Before they practiced open defecation and now they use SaTo pan. It has reduced the amount of diarrhoea, improved health, and the environment around their house is better than before." If utilised on a large scale, this system would help in

"We need to have one standard for all NGOs and communities to ensure better quality of toilets." "We need to ensure quality for sustainable products, not breaking down after the project's life cycle."

– Government officials in Sanma Province, Vanuatu, regarding the sanitation context in their province

the reduction of WASH diseases at a population level.

Access to sanitation, hygiene and clean water doesn't just prevent the spread of disease, it is also linked to a range of positive social and economic outcomes including increased school attendance, employment and food security, reduced hunger and poverty, and even energy production. EWB Australia recognises access to safe, secure, dignified and affordable water and sanitation services as a fundamental human right.

This project receives support from the Australian Government through the Australian NGO Cooperation Program (ANCP).



Outside inclusive demonstration toilet in Sheffa Province, Vanuatu.

A new department dedicated to realising new & appropriate technologies

▲ Building new ways to connect our engineering network to amplify community-led solutions.

Over the past 15 years, EWB Australia has built a strong reputation in best-practice community development work that has been focused on building the capacity and capability of engineers, organisations and governments in the countries within which we work. This has allowed appropriate and sustainable solutions to be developed locally to meet community-identified needs and aspirations. That approach has worked very well, and continues to do so.

What if we could do even more to improve the lives of people in challenging situations by embracing the engineering capacity and capability of our network?

But we've been thinking: what if we could do even more to improve the lives of people in challenging situations by embracing the engineering capacity and capability of our network to design appropriate, low-cost technologies for use at the individual, household or community level?

EWB Australia is uniquely positioned as an independent entity to facilitate the development of solutions for social change through cross-sectoral collaborations between community partners, corporate engineering firms, academic institutions, other organisations, enterprises and our volunteer movement.

To this end, a new Technology Development department was established in May 2019. It will enable EWB Australia to both lead and support the development of equitable, sustainable and scalable place-based and community-driven technologies that are appropriate for individuals in communities.

The department will also see EWB Australia consulting to vision-aligned organisations in support of technology development projects.

EWB Australia's Technology Development department is currently focused on a range of projects to develop assistive technology to support people with disabilities to access agriculture-linked livelihoods in Cambodia and Indonesia. These projects sit within the AgriLab (a partnership with Light For The World) and are led by Dr Andy Drain, who joined EWB Australia as the department's Technology Development Lead in March 2019, and is based in Cambodia. The AgriLab is continuing work that began in 2017, developing a rice seeder for people with limited mobility along with several other appropriate technologies.

"Essentially, the rice seeder is a low-tech drum seeder, designed to drop rice onto a field in the right locations with less labour than traditional methods," said Andy. "It will allow people with mobility impairments to plant rice without the physical challenges associated with the traditional technique of broadcasting and transplanting that include constant bending and throwing seeds."

Andy conducted a field trip to Kampong Tralach, Cambodia in May 2019 to test and refine a prototype of the rice seeder and address issues identified by the community. The result of this work is a refined, locally manufacturable unit that reduces labour input during rice seeding. The unit is currently in its testing phase.

Prior to joining EWB, Andy completed a PhD project investigating collaborative approaches to human-centred engineering, working closely with community in both creative capacity building and participatory design processes. Andy has a long-standing association with EWB Australia, having facilitated a number of Humanitarian Design Summit programs in recent years and he brings with him core capabilities as a mechanical engineer and industrial designer, as well as experience in human-centred design.

SDGs



Dr Sam Perkins, EWB Australia's Head of Education, Research and Technology Development, highlighted another important outcome of the establishment of the new department: "EWB has been waiting for a formal and consistent mechanism to graduate the many great ideas developed by students who engage with our undergraduate engineering education programs. Now, the concepts, ideas, prototypes and research that are seen to be desirable by individuals or communities and show strong promise will be supported to reach their potential."

Sam emphasised that "although we are embracing technology and engineering, the starting point and foundation is in response to community-identified needs, aspirations and technology development processes. We are consciously avoiding the unhelpful examples of community development that are technology-led."

Over the next financial year, EWB Australia's Technology Development department has a number of exciting and impactful projects on the horizon in a range of fields, with new community partners.

These projects receive support from the Australian Government through the Australian NGO Cooperation Program (ANCP).



Trial of the rice seeder prototype, Kampong Tralach, Cambodia.



Aim 2: Redefining Engineering

 We will redefine engineering as a community-centred profession that provides leadership in the creation of a more sustainable and inclusive world.

ADDRESSING THE AIM: HIGHLIGHTS

Pro Bono

EWB Australia has brokered 15 On Country pro-bono projects since 2015, working with community partners to support communities by connecting them with professional pro-bono services—linking projects with professional technical skills and advice.

“This project works because you’ve got [engineers and community members] working collaboratively with their own areas of expertise. No single knowledge group is considered greater than the other.”—Rachel Lattimore, Community Housing Limited (CHL), on the Nyaliga Aboriginal Corporation Water and Energy Investigation project (2018) that connected Nyaliga Aboriginal Corporation and CHL with corporate partner, Arup. The project explored options for the provision of reliable and safe off-grid drinking water and electricity generation so the community could develop their land.

Women in Engineering

Established in 2014, the Feto Enginhera (Women in Engineering) group in Timor-Leste now has more than 60 members. Focusing on strengthening the sector through supporting female engineers and sharing ideas, it inspires current and future Timor-Leste women to foster their engineering identity. Linking with EWB Australia’s Professional Development Skills program has provided technical and professional skills development opportunities for Timorese women professionals, graduates and university students from various engineering backgrounds.

“I am so grateful to join this group because it is a network of women that offers inspiration, support and professional development. They have helped me improve my communication skills, broaden my knowledge, enhance my professional network.”
—Dircia da Costa, Feto Enginhera member.

Engineering Education

Since 2015 over 1,600 university students have participated in the Humanitarian Design Summit program, heading to over six countries in the Asia-Pacific region with 43 trips, broadening perspectives and building professional competencies and skills to address real-world challenges.

“I now strongly value working alongside community members and understanding their culture before looking at challenges”—Participant, Design Summit India (2018).

Over 58,000 primary and high school students in remote and urban Australia have participated in an EWB Australia School Outreach workshop since 2015. The program prioritises the engagement of students under-represented in STEM (girls, Aboriginal or Torres Strait Islanders and those from regional areas or low socio-economic backgrounds) to explore the social and technical context of engineering. This foundation of engagement in STEM enables and encourages the students to make informed decisions to pursue STEM education and careers further down the track. The program is powered by volunteers from EWB Australia’s network of university and professional engineers who are inspired and trained to deliver these workshops and contribute to positive social change for school students.

“Seeing first-hand the excitement on the children’s faces participating in the STEM program gives me an overwhelming reward that I am achieving and helping a generation of young engineers on their first steps.”—Daren Thanh, School Outreach volunteer.

Eight engineers, eight days, three communities

EWB Australia pilots its new professional skills development program in three remote Cambodian communities

Today's engineers are working within a rapidly evolving global economy and are required to address issues like climate change, technology emergence, automation, urbanisation and poverty alleviation. EWB Australia recognises that traditional engineering roles are changing and that there is a need to develop adaptive, "globally-competent" engineers.

"I made a good group of friends as well as connections for my engineering career. I also gained a greater understanding of how to approach engineering problems. I see it as incredibly useful for my engineering career in the long term and it has planted a seed to do something in this area in the future"

– Andreas Henschke, mid-career mechanical engineer from WSP

SDGs



After an internal review of EWB Australia's training offerings, a strategic, whole-of-organisation approach to training was developed. We have extended our education pathway beyond the tertiary sector and into the corporate sector with a new professional development portfolio. This was seen as one vital step towards achieving our external goal of helping to redefine engineering as a profession making a positive social and environmental impact.

In February/March 2019 Andreas Henschke, mid-career mechanical engineer from WSP, and Leah Sertorio, late-career engineer with Queensland Urban Utilities, were two of eight engineers who travelled to Cambodia for eight days for the Solutions for Sustainable Development Intensive (S4SDI) pilot.

After training sessions in Phnom Penh on the fundamentals of human-centred design, sustainable development and the local culture, the team immersed themselves in three remote island communities

in Cambodia's Kratie Province. Their goal was to provide technical support to EWB Australia community partner, Cambodian Regional Development Team (CRDT), to improve water access and reliability for the communities.

The S4SDI team learned that the communities were sourcing their water from a recently built CRDT supply system that provided raw water from the Mekong River (originally intended for agriculture, to boost farming production during the dry season). The water supply was mainly being used in households and was making people sick because it was not clean enough for drinking.

The team identified short-term recommendations to improve water reliability and accessibility, and long-term recommendations for data collection, design and implementation support to aid CRDT in future developments of their water supply systems. All findings and relevant knowledge were transferred to CRDT to enable capacity building of CRDT members and Cambodian communities in the areas of water infrastructure construction, management and access to safe and reliable water.

While Andreas's reason for participating in the program was to give back to community, as well as filling in some gaps in his professional experience in order to apply for chartership with Engineers Australia, he came out with a lot more than he anticipated.

"There were personal and professional benefits" said Andreas. "I made a good group of friends as well as connections for my engineering career. I also gained a greater understanding of how to approach engineering problems. I see it as incredibly useful for my engineering career in the long term and it has planted a seed to do something in this area in the future."

Leah said she joined the program because throughout her career she has “had a strong desire to utilise my technical skills for the benefit of others”. The relatively short timeframe of the program also meant it fitted in well with other professional and personal commitments.

Both Leah and Andreas identified a key learning of the program for them was that human-centred engineering means approaching engineering problems with more curiosity and consideration in the early stages.

“The program demonstrated to me how important it was to seek to understand first—rather than progress straight to solution mode and solving the ‘perceived’ problem”

– Leah Sertorio, late-career engineer with Queensland Urban Utilities

“I have worked as a professional engineer for over 20 years,” said Leah, “however I had never realised just how limited I was in the way I had learnt in my career how to ask questions. The program demonstrated to me how important it was to seek to understand first—rather than progress straight to solution mode and solving the ‘perceived’ problem—and how important it was to sit in vagueness and uncertainty, despite how uncomfortable this felt, as this space goes against the grain of the engineering mindset. Through trusting the process it surprised me how holistic, feasible, viable and desirable solutions can be borne.”

Andreas agreed: “Another learning I got from the program was the whole idea about sustainable development is to not ‘go in and build something’; it’s to enable the communities you are going to visit, to get them to grow and build their own things—whatever is necessary for them—using their own skills internally, rather than relying on external people to go in or external funding from charities.”

After this successful pilot, EWB Australia is evolving the professional program with another pilot in Broome in the second half of 2019. Further programs are also being scoped for other Australian and Pacific locations in 2020.



Workshop as part of the Solutions For Sustainable Development Intensive, Cambodia.

Scoping for best practice

A deepened EWB Challenge scoping broadens our impact and engagement

Much has been written about the EWB Challenge—our ground-breaking, first-year university program, now in its 13th year. Embedded into the curriculum of 26 Australian and New Zealand universities (and adopted by EWB organisations around the world), the EWB Challenge inspires human-centred thinking on a real-world challenge.

Less visible is the 12-month process, depth of thinking and engagement that builds out the design brief for this program, and which is key to successfully delivering a meaningful learning experience. This year, our Education and Community teams amplified this process, opening exciting new opportunities for impact.

Each year, the EWB Challenge collaborates with a different country and community partner, and in 2018/2019 we worked alongside valued, long-term partner WaterAid in Timor-Leste and local implementing partner Luta ba Futuru. Our strong relationship with WaterAid provided a foundation of confidence to expand our collective thinking on deepening the scoping process and creating opportunities beyond the EWB Challenge.

The 2019 EWB Challenge design brief focused on WaterAid's work with communities across Suco Holarua, in the Manufahi District of Timor-Leste. Suco Holarua, along with much of Timor-Leste, has recently seen significant improvements in areas such as energy access, water supply, and road networks. While coverage is not yet comprehensive, these initial infrastructure improvements are enabling an increase in community opportunity, sustainability and wellbeing.

Over two-and-half weeks, the team spent time in Dili, Same and Holarua, working with local partners and community organisations running workshops and interviews to explore community visions for future development, current local strengths and assets, and potential barriers. Individual interviews and group discussions additionally focused on the perceived strengths of past and current projects in the area, and important considerations for future proposals.

WaterAid EWB Field Professional in Timor-Leste, Tara Bartnik, was an essential link to building out unique elements of the design brief and our ability to connect with community, alongside guiding the overall process through coordinating scoping visits and workshops delivered in English and Tetun. Through this process a number of theme areas identified and incorporated into the student design brief included water access and quality, digital systems, sanitation, climate resilience, health and hygiene, community-led infrastructure and waste management.

It was, however, the community that provided the most potent insights and material. The process was entirely led by community, requiring our team to be comfortable with ambiguity and working without a tightly bound, predefined schedule.

"It was really important to allow for a lot of time, to make sure we didn't pack too much in and insist that people operate on our schedule. It is vital to be respectful of other people's daily priorities—we were completely led by who was in the room, and we followed our partners' lead about how they work with community," reflected Alison Stoakley, EWB Australia's Engineer Education Manager.

The process resulted in the most comprehensive suite of materials we have ever built, including a vast library of items—including a vast library of photos, videos, 360 content, and interactive resources—which were quickly catalogued, processed and shared with community partners for feedback and approval, as well as their own communication and fundraising purposes.

We also more completely folded in our Research Program, with EWB Australia Research Lead, George Goddard, joining the scoping visit and process. For the first time we explicitly framed research projects around our findings, utilising the same insights and resources designed for the EWB Challenge. It helped to build out a briefing structure that supports multiple facets of our engagement with universities, to engage latter-year university research students who are tasked

SDGs



“What we are doing is truly best-practice in community development, as it identifies research that will be important and useful to communities.”

– George Goddard, EWB Australia Research Lead

with going deeper to realise an appropriate solution (and in turn providing a new level of support for our community partners). It resulted in the development of seven research topics specific to WASH, which include new areas of need and—at the community partners’ request—also built on ideas from previous EWB Challenge design responses.

“Very often in research, the focus is on areas of interest that are important to the funder of research, rather than the opportunities identified as important by communities. As a result, a disproportionate amount of research outputs focus on technologies that utilise high-end construction materials, which are often inappropriate or unavailable in many of the communities we work in. This can increase inequity, rather than focus on areas that could have a considerable impact for communities that are being left behind. What we are doing is truly best-practice in community development, as it identifies research that will be important and useful to communities,” said George.

Moving forward, outcomes from these student projects will now also feed into our new Technology Development department (see story page 14) and the EWB Australia Timor-Leste country office, to explore and support iteration of the most viable propositions to be potentially implemented in-community.

EWB Australia CEO Eleanor Loudon, also joined the scoping trip. Having worked in international development for almost 20 years, Eleanor is cognisant of what best-practice looks like when it comes to community engagement.

“Alison and George understood their role, they held no agenda, and they were prepared to follow the breadcrumbs—you don’t know what is going to happen, and you need to be able to ‘hold’ ambiguity, and be prepared to be fully led. The way they were able to quickly build those important relationships and to be constantly recognising and calling out the great

strengths in these communities was amazing. The community knew they were being ‘seen’ and were genuinely respected, which of course they were. It was an incredibly proud moment and a wonderful highlight of my year to see our small organisation (and even smaller team) be able to navigate this project with such deftness,” said Eleanor.

Immediate feedback from universities participating in this years’ EWB Challenge has been humbling, with many sharing how exciting it is for students, and the academics themselves, to be able to access such in-depth interactive resources.

For all involved, this years’ scoping process reconfirmed the importance of a strength-based approach and the benefits of deep engagement with community—to ensure a loud community voice, in order to create the very best outcomes for all.



Community representatives engage in a mapping exercise as part of a scoping workshop facilitated by EWB Australia, WaterAid and Luta ba Futuru staff.

Enabling and inspiring human-centered engineering in Timor-Leste

EWB Australia has worked in Timor-Leste since 2009 on a range of education and training programs that engage local university students and early-career engineers. This work recognises that support is needed to develop Timor-Leste's engineering sector to ensure it is well-equipped to tackle the development challenges posed by a lack of infrastructure and essential services.

With three in 10 people lacking access to clean water, and women facing specific barriers to accessing education and employment, our programs aim to provide pathways of support and inspiration to foster a strong, locally-focused, human-centred engineering movement. Since 2016, over 3,000 individuals have benefited from these programs, and this year two locals joined our team in Timor-Leste, bringing their own experiences and expertise, and applying their acumen to further enable their peers within the Timor-Leste engineering sector.

The EWB Australia Timor-Leste office now has five people, with Chandra Ximenes and Elsa Ximenes the two newest additions to the team. Both Elsa and Chandra recently graduated with engineering degrees and have been active participants in our programs for several years. Welcoming these two talented early-career engineers into our team showcases the potency of skills development in realising our aim of redefining engineering in Timor-Leste.

"During my involvement with Feto Enginhera and EWB I have learnt human-centred design (HCD) skills and how to apply them with communities. Through school outreach I learnt to explain the field of engineering to students, in particular the role that young women can play in the sector. I increased my facilitation, communication, leadership and teamwork skills and this provided me the opportunity to organise and lead several projects and activities such as delivering HCD training to students and leading a capacity building workshop."—Chandra Ximenes, Feto Enginhera (Women In Engineering) Project Officer

"I have volunteered with Feto Enginhera for the last two years, which was really helpful to increase my professional skills and my confidence. I also participated in the EWB Design Summit and attended an internship placement—a really good opportunity for fresh graduates because it gives the knowledge of how to get a job, and if you want to achieve your goals to be successful you need to have some experience."—Elsa Ximenes, Professional Skills Development Project Officer

Chandra and Elsa have already brought an energy and enthusiasm that is influencing their peers in the sector, providing critical role-modelling for other young women across Timor-Leste. They played a crucial role in delivering EWB Australia's Professional Skills Development program in 2018–19 which provides pathways of support and inspiration to foster a strong, locally-focused, human-centred engineering movement. Highlights included:

- ▶ **12 monthly training workshops attended by 360 people** eager to develop their professional acumen and technical capacity
- ▶ **Feto Enginhera (Women in Engineering) volunteer group** of engineers and students grew to 64 women working to collectively share knowledge and build professional and leadership skills via workshops and mentorship. This year the group introduced 600 people to engineering pathways and increased women's participation in industry events
- ▶ **Developing industry partnerships with local businesses, NGOs and organisations** to create trainee opportunities and place recently graduated engineers. In 2018–19 we secured ongoing sponsorship from Caltech for the Design Challenge. There were also 15 internships—12 of these people then secured jobs, including six recruited by EWB Australia partner organisations.



3,000+

individuals have benefited from EWB Australia programs in Timor-Leste since 2016

SDGs

4



5



Aim 3: A Global Movement

We will inspire and mobilise a global community in engineering for social change.

ADDRESSING THE AIM: HIGHLIGHTS

EWB Australia on the global stage

EWB Australia is part of the EWB-International network of 65 EWB organisations. As a member, EWB Australia participates in EWB-International Executive Committee meetings and knowledge-sharing virtual forums—sharing ideas and experiences towards a global movement.

EWB Australia has inspired, connected, learnt and shared knowledge and experiences across many platforms, meetings, and conferences nationally and internationally, including:

- ▶ EWB Australia Head of Community Programs presented at the Pacific Water and Wastewater Conference & Expo 2018 from 6–10 August 2018 in Noumea, New Caledonia

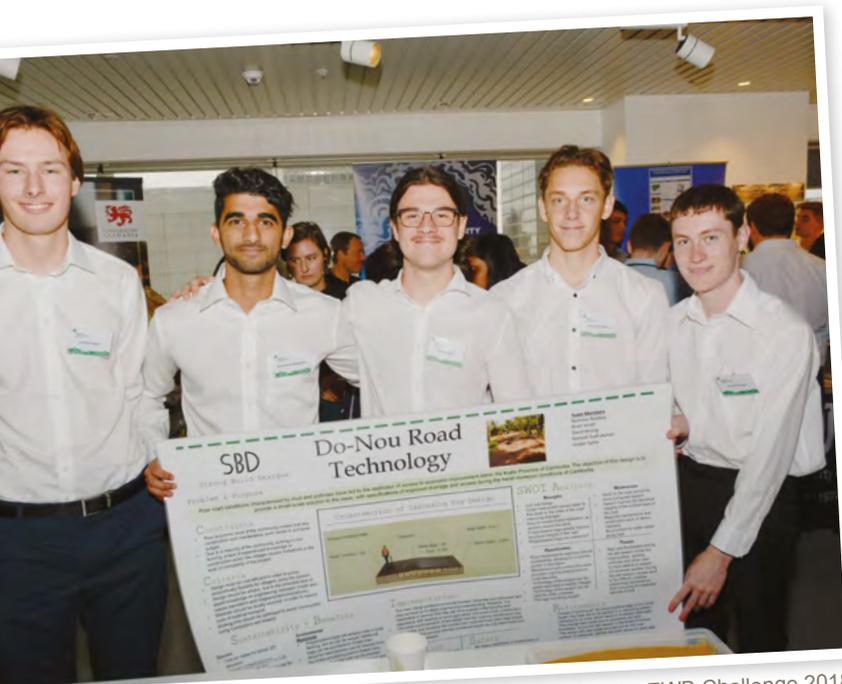
- ▶ EWB Australia CEO presented at the 2018 Global Engineering Congress from 22–26 October 2018 in London, UK
- ▶ Representatives from EWB Australia’s Engineering Education and Training departments attended the 2018 Australasian Association for Engineering Education conference from 9–12 December 2018 in New Zealand
- ▶ EWB Australia Senior WASH Program Manager and EWB Australia Field Professional presented at the Research for Development Impact (RDI) Network’s Leadership for Inclusive Development Conference from 12–13 June 2019 in Melbourne

EWB Challenge adopted by three countries

The EWB Challenge program has reached over 45,000 university engineering students in Australia and New Zealand since 2015. A concept conceived by EWB Australia, curriculum-integrated university design challenge programs are now implemented in the UK, South Africa and the USA via our EWB-International colleagues based in those countries.

The program enables university academics to build the competencies of first-year students in areas such as design, professional practice and sustainable development theory by responding to a real-world project brief, integrated into their curriculum. It provides our future engineers the opportunity to build awareness and grow a broad engineering skill set alongside an understanding of the role technical professionals might play in addressing the interconnected social, environmental and economic challenges facing our world.

“The EWB Challenge really throws you in the deep end and gets you to consider all aspects of the project. You have got to engage with the client and consider the user experience ... not everyone lives the way I do or thinks the way I do.”—Lirou Lourenco, EWB Challenge participant, RMIT.



Finalists in the EWB Challenge 2018

EWB Australia's global reach



EWB Australia CEO Eleanor Loudon

At the Congress, Eleanor and her EWB-International colleagues delivered a workshop with (over 100) participants engaging in a role-playing exercise to deliver an engineering project “in-community” using a human-centred approach. Participants soon realised that the deceptively straightforward task of “building a well for a village” was far more complex when the villagers were consulted directly and many underlying issues were revealed. Good communication and listening were recognised as fundamental to the success of the engineering project—before technical expertise was called upon.

The workshop was a huge success, with one participant declaring: “Wow, I really felt like I was there. I really feel like I know what it is like to work in community!”. The peak body for engineering in Australia, the Institution of Engineers Australia, also participated in the workshop, and recognised that the way EWB works really does contribute to the professional skills required in tackling and working in complexity.

Reflecting on feedback from participants, Eleanor said “That’s what we believe the global network is about; building a movement of engineers who can take their ‘solutions-first’ hat off, listen, especially seeking out those not usually in the room, understand the context and drivers, and then start designing.”

October 2018 was a busy month for EWB Australia, with a cementing of our partnership with EWB New Zealand through a jointly funded placement of our Country Manager in Vanuatu. This role is working to build on our joint programming in the Pacific region.

In further global news, November 2018 saw CEO, Eleanor Loudon and Social Impact Lead, Santisouk Phongsavan presenting EWB Australia’s Impact Framework to the EWB-International Global Virtual Forum—an audience of (up to 65) EWB partner organisations around the world. The presentation highlighted the importance of impact mapping, of using an organisation-wide impact framework and of aligning KPIs with the UN SDGs. Our Impact Framework has been made available to other EWBs around the world.

SDGs



EWB Australia’s participation in international conferences where traditional engineers are exposed to concepts like sustainability and human-centred engineering (in some instances for the first time) is just one way we are helping to build a global community in engineering for social change.

In October 2018 our CEO, Eleanor Loudon was invited to present at the Global Engineering Congress in London, alongside her fellow CEOs from EWB UK and EWB USA. Organised by the World Federation of Engineering Organisations and the Institute of Civil Engineers (UK), the purpose of the Congress was “to determine how to make the UN Sustainable Development Goals (SDGs) a reality”. Significantly, it marks the first time civil engineers have gathered in an international forum to seriously consider sustainability and to develop a manifesto for action relating to the SDGs.

EWB's leadership role in the southeast Asia and Pacific WASH sectors



An inclusive leadership model achieving change with dialogue, not monologue

Most Australians take turning on a tap and flushing a toilet for granted.

Apart from occasional water restrictions during a drought, most people privileged enough to live in urban Australia—and well-serviced rural areas—enjoy a reliable source of clean water and toilets connected to sewerage or septic tanks. We don't give it a second thought. And yet according to the World Health Organisation, in 2017 there were 2.3 billion people around the world living without access to sanitation facilities. That's around one third of the entire world's population!

Against this daunting backdrop, EWB Australia takes a strategic and proactive approach to its role within the global WASH sector. The horizon our WASH (Water, Sanitation and Hygiene) team is constantly walking and working towards is a world with universal, affordable and sustainable access to water, sanitation and hygiene.

EWB Australia has a very clear idea about addressing community-identified needs by taking an inclusive, strengths-based or adaptive role—leading or non-leading—to facilitate the active involvement of our partners in achieving our shared objectives in WASH. This type of leadership model is critical to achieving successful outcomes together.

Since 2004, EWB Australia's WASH program has focused on our closest neighbours in the southeast Asia and Pacific regions, in particular playing a pivotal role in bringing key actors on board to work on WASH in Cambodia and Vanuatu (see story on page 12), and to a lesser degree in Timor-Leste.

Issues relating to sanitation in challenging environments (SCE) like Cambodia and Vanuatu can only be addressed with the full support of government and the participation of multiple diverse actors. The key to EWB Australia's role in WASH is identifying and filling

gaps in our region and collaborating within the sector: establishing networks, ensuring a clear understanding of the respective roles of partners and facilitating conversations to increase awareness about the challenges and needs so that projects can be better-coordinated.

By improving the WASH systems in the countries that we work in, those governments are also more receptive to global developments and contribute to initiatives such as raising awareness of SCE as a human rights issue and engaging in discussion about the United Nations Sustainable Development Goals.

Our role in the Australian national sectoral coordination networks of for-purpose organisations dedicated to WASH allows us to raise awareness in the sector on issues around the lack of technical solutions for communities in challenging environments. This is paired with promoting better coordination in the NGO sector, presenting the results of the testing of new technologies and advocating for financial support for challenging environments.

While responding to community-identified needs is critical to improving the livelihoods of the beneficiaries of its WASH program, EWB Australia also takes a proactive approach in its strategic planning by keeping an eye on the horizon and preparing to adapt to changing global trends. Trends recognised by EWB Australia as having the potential to impact WASH sector focus in the immediate future include: climate change, displaced people, gender equality and persons with disabilities.

Wherever our future plans lead us, a common thread between existing and future projects is our inclusive leadership model. We will continue to work *with* rather than *for* our partners in achieving the fundamental human right of access to safe, secure, dignified and affordable water and sanitation services.

SDGs



From membership to mobilisation

The evolution of our movement

During 2019 EWB Australia reviewed and developed our strategy to strengthen the opportunity for volunteers and mobilisers, which sets the scene for some substantial (and wonderful!) changes to the way we engage with our movement into 2020.

MEMBERSHIP

Since inception, Engineers Without Borders Australia has been fortunate to have a powerful locally connected membership movement underpinning our impact work.

In the first half of 2019 we reviewed our membership structure, seeking to identify ways to better leverage our active and enthusiastic support base to create a more powerful movement for positive social change. Our membership consultant, who conducted the review, remarked that she had rarely experienced an organisation with such passionate supporters. The review recommended that we replace our current membership structure with one where our members are encouraged to transition their membership fee (seen as a barrier to engagement) to a tax-deductible donation, and that we increase the tailored pathways for our movement to more meaningfully engage in our work and mission through volunteering.

EWB supporters will still be able to have a voice in the constitutional governance structure of our organisation for a nominal annual “voting-rights membership” fee.

VOLUNTEER MOBILISATION

The primary purpose of mobilisation is to ensure that EWB Australia’s programs and projects have access to appropriately skilled, knowledgeable and engaged volunteers to support their impact delivery. By ensuring the effective training and mobilisation of

volunteers, EWB Australia has access to a network of human resources beyond EWB Australia staff, whose skills can be channelled into projects that improve community outcomes. This is also an important mechanism for supporting the development of a future-fit workforce to influence and shape an engineering sector that will contribute to positive impact for communities in Australia and internationally, guided by the principles and approaches that underpin our work.

To realise this potential, EWB Australia’s Mobilisation team has been formed and brought together with the Training team, and will be responsible for the direction and support of volunteers engaged across three distinct mobilisation streams:

- ▶ **A Community of Practice (working title):** Open access, volunteer-run groups supporting thematic learning linked to EWB Australia’s Impact Framework and programs, and integrating with our strategic priorities
- ▶ **Volunteer Roster:** People who have met minimum competency and readiness requirements for a specified EWB program volunteer role, and are ready for deployment within a defined period of time
- ▶ **Volunteer Deployment:** Deployment of volunteers to projects and placements across EWB Australia’s Community programs, National Office programs, or community partnership projects.

Mobilisation through volunteering is a critical activity that enables us to contribute to all 17 of the United Nations Sustainable Development Goals. Moving into the next financial year, these mobilisation streams will be developed, communicated and activated. It’s an exciting time and a significant milestone in the evolution of engagement with EWB Australia’s entire movement, as we create clearer pathways and opportunities for these supporters to apply their skills and expertise, and meaningfully activate their commitment to further EWB Australia’s mission.



Thank you for COMeing

from Sarai Hankin
Angie Kitty Selina
Chloe

Jeff & Aaron

 **engineers
without borders
australia**

Motivate, influence, mobilise—partnering in action



Morgan Foster, Environmental Consultant at Aurecon, at the Mathematical Association of Victoria 'Girls in STEAM' event.

EWB Australia's approach to partnership is simple: shared vision, shared purpose and strategic alignment. This approach sees us partnering with like-minded organisations who share our goal—that engineering should create sustainable solutions to global challenges and ensure that no-one, regardless of their circumstances, is left behind.

We have seen our partnership portfolio go from strength to strength over the course of the 2018–19 financial year. We extend our sincere thanks to all of these organisations for their support, both financial and in-kind, and the skills and capacity they have provided to EWB Australia, which has allowed us to reach our community goals.

Partnerships are a two-way street. Over the past year we have conducted thought leadership workshops with our corporate partners, sharing technical expertise in human-centred engineering, and in the process, adding value to their organisations. We have developed professional service offerings that have been well-attended by staff of our partners, bringing different perspectives and skills to their workforce. And we look forward to developing new and

innovative ways to engage with our partners' staff and stakeholders into the future.

An important initiative undertaken this year has been the development and launch of our Ethical Partnerships Framework. As an organisation committed to ensuring that the engineering sector is skilled and knowledgeable in sustainable practice, we feel it important to be transparent and objective in our partnership process. Our robust and tested Ethical Partnership process is multi-faceted and enables us to fairly and objectively assess partnerships in concert and communication with organisations with whom we are engaging. This process has proved invaluable for EWB Australia to evidence our approach to ethical practice, and we are keen to share this with our current and future partners.

The 2018–19 financial year saw growing corporate support for our Redefining the E in STEM schools outreach program. We have trained 50 professional engineers who are now equipped to conduct STEM workshops in schools, both primary and secondary. Focusing on the E in STEM, our experiential workshops are mapped to the Australian Curriculum in every capital city and showcase the technical and engineering careers available to all students. See our story on page 29.

Another highlight this year has been the partnership between our EWB Victorian Chapter, corporate partner Aurecon and the Mathematical Association of Victoria which delivered a practical STEM workshop to a hundred female school students at their Girls in STEAM event.

Alongside existing and new partners, EWB Australia will continue to respond to growing global issues such as climate, inequity and people movement. We believe that the engineering sector and its members are a powerful force for change in response to these challenges, and in the unique position of being resourced, equipped and passionate to make real and sustainable impact. We look forward to welcoming more like minds and to forging many more mutually beneficial partnerships to ensure no-one is left behind.

Outreach to the hardest-to-reach



A massive boost to School Outreach Regioneeering through our passionate volunteers and corporate sponsorship

The EWB School Outreach program in regional NSW this year received a wonderful boost, thanks to one EWB volunteer's passionate pitch to an internal employee grants program.

Aboriginal and Torres Strait Islander people are under-represented in Australia's engineering sector, representing less than 0.4% of higher engineering and related technology education. One of the reasons for this low uptake is that the school experience of STEM does not anchor learning in a culturally relevant context.

Engineers Without Borders Australia's School Outreach Regioneeering focus, in collaboration with IndigiLAB, NSW Aboriginal Education Consultative Group and Narragunnawali, has recently developed new, hands-on, curriculum-linked STEM workshops tailored to Aboriginal and Torres Strait Islander student learning that showcase contemporary and historical science and engineering within Aboriginal and Torres Strait Islander cultures.

Jacky Cai, a 25-year-old graduate in mechatronic engineering, and EWB volunteer since 2015, received a \$10,000 grant through Komatsu's Live Your Dream program, devised to assist its employees to achieve personal goals to help communities.

Jacky used the grant to coordinate a School Outreach Regioneeering trip throughout regional New South Wales, focused on schools with higher populations of Aboriginal and Torres Strait Islander students. In May 2019, Jacky and fellow recent graduates, Laura Deaves and Daren Thanh, plus 13 volunteers from EWB Australia's UNSW Chapter, led workshops in Orange, Wellington, Dubbo, Gilgandra, Coonabarabran, Gunnedah, Narromine, Coonamble, Gulargambone and Trangie, enabling 1,200 primary and secondary students in 61 schools to explore future career paths and enhance their understanding of human-centered engineering.

The team used newly developed content and presentation approaches, developed by Chelsea Hayward during her Mecca MPower project. The workshops encouraged students to explore the role of STEM in contributing to positive social outcomes for communities, tailored to improve engagement of Aboriginal and Torres Strait Islander students participating in EWB Australia School Outreach workshops.

"The activities that I saw today were very relevant and helped students see how knowledge and skills from school can be applied to make a difference. It was also good for students to hear about the diversity of career opportunities in engineering."—Kathryn Christoff, Educator, Coonabarabran High School.

"The week has had to be one of the most rewarding experiences of my life. Connecting students with the power of STEM, both as a career option and as a tool to solve social and environmental challenges facing the community, has been extremely rewarding in itself. Add onto it the gratitude from the students and teachers for bringing excitement about STEM to their schools, this week has been truly amazing."—Jacky Cai, mechatronic engineering graduate.

The EWB Australia School Outreach Regioneeering program is solely funded through foundation grants and corporate sponsorship. In addition to Komatsu, this year EWB Australia also received funding from Mecca (through the MPower grant), Bentley, Bennelong Foundation, Lord Mayor's Charitable Foundation, Civil Geotechnical Consultants, Aurecon and Arup. Some 15 Regioneeering trips will be conducted across Australia over the next 12 months, at least eight of which will focus on supporting indigenous reach and engagement.



61 workshops



1,277 participating students

73% primary school students

48% of the participants were female, compared to 13% within the Australian engineering sector



36% of participants were Aboriginal and/or Torres Strait Islander compared with 2.8% of general population

SDGs



A regioneering trip to Thursday Island in the Torres Strait, November 2018.



**Summary Financial Statements
for the Year Ending 30 June 2019
Engineers Without Borders Australia Ltd & Engineers Without Borders Foundation**

A copy of the full financial statements for the year ending 30 June 2019 is available upon request by emailing info@ewb.org.au

The Summary Financial Statements have been prepared in accordance with the requirements set out in the ACFID Code of Conduct. For further information on the Code please refer to the ACFID Code of Conduct Guidance available at www.acfid.asn.au

**Statement of Surplus and Deficit and Other Comprehensive Income
for the Year Ended 30 June 2019**

	2019 \$	2018 \$
REVENUE		
Donations and gifts		
* Monetary	451,422	372,610
* Non-monetary (1)		
Bequests and Legacies		
Grants		
* Department of Foreign Affairs and Trade	1,161,023	1,298,348
* Other Australian	156,861	102,690
* Other overseas	-	134,916
Investment Income	44,677	35,156
Other Income		
* Membership	35,581	36,563
* Sponsorship/Partners	512,422	612,020
* Earned Income	2,118,482	1,699,824
* Other Income	174,184	133,054
TOTAL REVENUE	\$ 4,654,650	\$ 4,425,181
EXPENDITURE		
International Aid and Development Programs Expenditure		
International programs		
* Funds to international programs	845,946	1,098,844
* Program support costs	577,215	563,131
Community education	1,540,811	1,453,289
Fundraising costs		
* Public	304,753	206,280
* Government, multilateral and private		
Accountability and Administration	834,899	757,926
Non-Monetary Expenditure (1)		
Total International Aid and Development Programs Expenditure	\$ 4,103,624	\$ 4,079,470
Domestic Programs Expenditure	225,686	51,752
TOTAL EXPENDITURE	\$ 4,329,310	\$ 4,131,223
EXCESS / (SHORTFALL) OF REVENUE OVER EXPENDITURE	\$ 325,340	\$ 293,958

Notes:

1. Non-Monetary Income and Expenditure - International Programs

The non-monetary value of the work carried out by our volunteers working directly on international aid and development programs has been valued at \$223,379 (2018 \$524,359)

Volunteers' services have been valued in accordance with the Department of Foreign Affairs and Trade's Recognised Development Expenditure guidelines (January 2019) by applying an hourly rate from the relevant Department of Foreign Affairs and Trade Enterprise Agreement to the number of hours contributed, as recorded by each volunteer.

We consider it is important to report a monetary value of these valuable frontline services to indicate the scale of the contribution of volunteers to users of the financial statements, albeit that the work is done on a voluntary basis.

In-kind donations and volunteer support not directly relating to international aid and development programs are not included due to uncertainties relating to their reliable measurement.

2. During the financial year, the organisation had no transactions in the Political or Religious Adherence Promotion Programs category.

3. The classifications of Revenue and Expenditure adopted above have been re-grouped in presentation for the purposes of this report from those applied in the statutory financial statements. Total reported Revenue and Expenditure is consistent.

**Summary Financial Statements
for the Year Ending 30 June 2019
Engineers Without Borders Australia Ltd & Engineers Without Borders Foundation**

A copy of the full financial statements for the year ending 30 June 2019 is available upon request by emailing info@ewb.org.au

Statement of Financial Position as at 30 June 2019

	2019 \$	2018 \$
ASSETS		
Current Assets		
Cash and cash equivalents	2,419,195	2,320,110
Trade and other receivables	344,322	221,346
Other current assets	386,737	410,569
Total Current Assets	3,150,254	2,952,025
Non-Current Assets		
Property, plant and equipment		
Computer Equipment	17,359	5,155
Financial assets	500	500
Total Non-Current Assets	17,859	5,655
TOTAL ASSETS	3,168,113	2,957,680
LIABILITIES		
Current Liabilities		
Trade and other payables	116,714	163,612
Provisions	136,007	109,892
Other current liabilities	1,210,378	1,263,556
Total Current Liabilities	1,463,099	1,537,060
Non-Current Liabilities		
Provisions	12,618	
Other liabilities	122,458	176,022
Other financial liabilities	30,417	30,417
Total Non-Current Liabilities	165,493	206,439
TOTAL LIABILITIES	1,628,592	1,743,499
NET ASSETS	1,539,521	1,214,181
EQUITY		
Retained earnings	1,539,521	1,214,181
TOTAL EQUITY	1,539,521	1,214,181

Statement of Changes in Equity for the Year Ended 30 June 2019

	Retained Earnings \$	Total \$
Balance at 30 June 2013	745,904	745,904
Excess/(shortfall) of revenue over expenses	210,646	210,646
Balance at 30 June 2014	956,550	956,550
Excess/(shortfall) of revenue over expenses	(253,997)	(253,997)
Balance at 30 June 2015	702,553	702,553
Excess/(shortfall) of revenue over expenses	187,491	187,491
Balance at 30 June 2016	890,044	890,044
Excess/(shortfall) of revenue over expenses	30,179	30,179
Balance at 30 June 2017	920,223	920,223
Excess/(shortfall) of revenue over expenses	293,958	293,958
Balance at 30 June 2018	1,214,181	1,214,181
Excess/(shortfall) of revenue over expenses	325,340	325,340
Balance at 30 June 2019	1,539,521	1,539,521

Table of Cash Movements for Designated Purposes for the Year Ended 30 June 2019

	Cash available at beginning of financial year	Cash raised during financial year	Cash disbursed during financial year	Cash available at end of financial year
Funds received from Department of Foreign Affairs and Trade for the annual Australian NGO Cooperation Program (ANCP)	95,000	1,178,069	1,163,045	110,024
Total for other non-designated purposes	2,225,110	3,697,640	3,613,579	2,309,171
TOTAL	2,320,110	4,875,709	4,776,624	2,419,195

**Summary Financial Statements
for the Year Ending 30 June 2019
Engineers Without Borders Australia Ltd & Engineers Without Borders Foundation**

A copy of the full financial statements for the year ending 30 June 2019 is available upon request by emailing info@ewb.org.au

Directors' Declaration

The directors of Engineers Without Borders Australia Ltd as the directors of the company and as trustee of Engineers Without Borders Foundation declare that:

- (a) The summarised financial statements are consistent with the statutory audited financial statements of Engineers Without Borders Australia Limited and Engineers Without Borders Foundation for the year ended 30 June 2019
- (b) The Full Financial Statements of Engineers Without Borders Australia Limited and Engineers Without Borders Foundation
 - (i) comply with relevant Australian Accounting Standards as applicable and the Corporations Regulations 2001 and Trust Deed respectively; and
 - (ii) give a true and fair view of the financial position as at 30 June 2019 and of the financial performance for the year ended on that date.
- (c) in the directors' opinion there are reasonable grounds to believe that the entities will be able to pay their debts as and when they become due and payable.

On behalf of the Board, this declaration is in accordance with a resolution of the directors.



Director
Gavin Ross Blakey



Director
Mike McCreadie

Dated this ^{14th} day of ^{October} 2019

**REPORT OF THE INDEPENDENT AUDITOR
ON THE ACFID CODE COMPLIANT FINANCIAL STATEMENTS**

**TO:
THE MEMBERS OF ENGINEERS WITHOUT BORDERS AUSTRALIA LIMITED AND TRUSTEES OF
ENGINEERS WITHOUT BORDERS FOUNDATION**

The accompanying ACFID code compliant financial statements of Engineers Without Borders Australia Limited (the company) and Engineers Without Borders Foundation (the trust), comprising the Consolidated Statement of Financial Position as at 30 June 2019, the Consolidated Statement of Surplus and Deficit and Other Comprehensive Income, Consolidated Statement of Changes in Equity and the Table of Cash Movement for Designated Purposes for the year then ended, and explanatory notes, are derived from the statutory audited consolidated financial statements of "Engineers Without Borders Australia" (comprising of Engineers Without Borders Australia Limited and Engineers Without Borders Foundation) for the year ended 30 June 2019. We expressed a modified auditor's opinion on the financial statements of both entities in our respective auditor's reports dated 16 October 2019 (see below).

The ACFID code compliant financial statements do not contain all the disclosures required by applicable Australian Accounting Standards and the *Australian Charities and Not-for-Profits Commission Act 2012*. Reading the summary financial statements, therefore, is not a substitute for reading the audited consolidated financial report of Engineers Without Borders Australia.

Responsibility for the ACFID code compliant financial statements.

The directors of Engineers Without Borders Australia are responsible for the preparation and presentation of the ACFID code compliant financial statements, and that the basis of preparation is appropriate for the purpose in which they have been prepared in accordance with the Australian Council For International Development (ACFID) Code of Conduct.

Auditor's Responsibility

Our responsibility is to express an opinion on the combined summary financial statements based on our procedures, which were conducted in accordance with Auditing Standard *ASA 810 Engagements to Report on Summary Financial Statements*.

Auditor's Opinion

In our opinion, the ACFID code compliant financial statements derived from the audited consolidated financial report of Engineers Without Borders Australia are consistent, in all material respects, with the audited financial statements from which it was derived. However, the ACFID code compliant financial statements should be read in conjunction with our audit report on the statutory consolidated financial statements which contain modified audit opinions.

We qualified our report as follows: As is common for not-for-profit organisations, it is not practicable for the consolidated group to maintain an effective system of internal control over donations and other voluntary income, until their initial entry in the accounting records. Accordingly, our audit on the consolidated group revenue was limited in this regard and therefore we are unable to express an opinion whether revenue including donations and other voluntary income is complete.

LOWE LIPPMANN



LOREN DATT
Audit Principal

Signed at Melbourne on 16 October 2019

Ltr_AUDIT.001



Liability limited by a scheme approved under Professional Standards Legislation

Partners:

Joseph Franck
Joe Kalb

Gideon Rathner
Mark Saltzman

Danny Lustig
Daniel Franck

Principal:

Loren Datt

Consultant:

Philip Behr



A team brainstorm in Koh Dambang, Cambodia (February 2019), as part of the Solutions For Sustainable Development Intensive.

Acknowledgments

Corporate Partners, Supporters & Donors



Community Partners



University Partners



Government Partners



Pro-Bono



Join us and together we can engineer a better world for everyone.



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EWB Australia is a full member of the Australian Council for International Development (ACFID) and complies with the ACFID Code of Conduct, which prescribes the highest standards of development practice. Information about how to make a complaint can be found at www.ewb.org.au/acfid. Complaints regarding a breach of the Code can also be directed to www.acfid.asn



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