ENGINEERS WITHOUT BORDERS UK

CHOOSE HOPE

UK
ENGINEERS
WITHOUT BORDERS

ANNUAL REVIEW 2019/20


WE HAVE
NO PLANET B,
AND TIME IS
RUNNING OUT.
Engineers Without Borders UK
engages and galvanises
the engineering community
to serve all people
and our planet
better than ever before.

TIME TO ACT

Here we are, approaching the end of 2020. The year that was meant to kickstart the decade of delivery; the ten-year countdown to achieving the UN's Sustainable Development Goals.

It's turned out to be very different.

The impact of the global COVID-19 pandemic on everyone's lives and livelihoods has been wide reaching and is still ongoing. We have all been challenged in so many different ways. From disruption to the day-to-day activities we have been accustomed to, to fundamentally changing how we can hold relationships with other people – be they our friends, family, colleagues or the person you pass on the street. We've all had to adapt to help reduce the risk of transmission.

Just because COVID-19 has caused so much to pause, unfortunately other crises have not stopped. We are still facing a climate and biodiversity crisis and humanitarian crises continue to occur. As an individual in the midst of all this, you might find yourself feeling hopeless, not knowing what to focus your attention on. You might even wonder whether a life disconnected from the rest of the world is a better idea – perhaps setting

up in the wilderness or leaving this planet completely. In reality, these options are only possibilities for a few, and do little to address the underlying issues contributing towards these crises.

The way we live on planet Earth is not sustainable, nor is it equitable. To have any hope of the human species continuing to live and flourish here, change is needed.

Engineering has a big role to play in giving us that hope.

It is engineering that has found a way to provide clean water, saving lives from waterborne diseases. It is engineering that has found new ways to deliver our electricity, without putting the climate at risk. It is engineering that has built our homes, our workspaces, our places of leisure, giving us safety and protection from the elements. But engineering has only achieved those things when the people involved have chosen to achieve them.

Now is the time for the engineering community to choose to contribute towards our collective hope for a better, sustainable and more equitable future in the best way that engineering can: by accelerating the delivery of the practical ways in which we can realise that hope.

We've been working hard at Engineers Without Borders UK over the last year to shift engineering mindsets and skillsets towards addressing those challenges that are fundamentally important to the future of all on this planet. I am under no illusion that our work is close to being done, but through our focus on building the movement and working with our international family of Engineers Without Borders organisations we are doing everything within our power to make headway.

And you can be a part of this. You can choose to have hope in a future that is better for all people and the planet we live on.

Katie Cresswell-Maynard,
Chief Executive

Read on and learn more about what our movement has achieved the past year to facilitate real change and find out how to join our movement.

INSPIRING A GLOBAL MINDSET

It is clear engineering plays a pivotal role in addressing social and environmental justice, but evidence shows that how we are currently educating those going into engineering is failing to prepare them to tackle these challenges.

Over the last year we built on this ethos by working in partnership with educators, industry leaders and our community across the world.

Engineering with, not for

Now in its ninth year, the Engineering for People Design Challenge has provided nearly 35,000 university students the opportunity to design solutions to real-world issues, whilst considering the social, environmental and economic impacts of their designs.

In 2019, we launched a partnership with Engineers Without Borders South Africa and Engineers Without Borders USA, extending the reach and impact to over 7,000 students at 38 universities across South Africa, UK, Ireland and the USA.

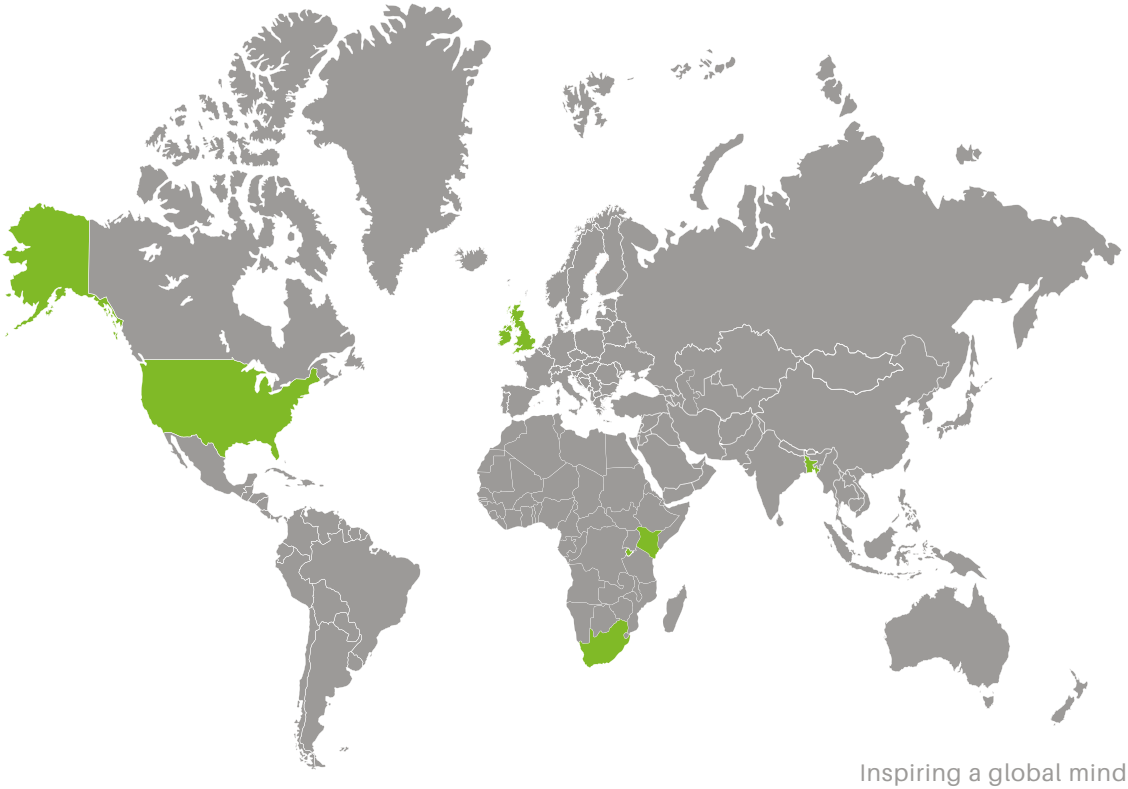
To assess the student's ideas, over 200 professionals from across the globe volunteered their expertise and provided real-world feedback.

“I now understand there is a lot more involved in the process of implementation than just the design. “

Student participant, Engineering for People Design Challenge

Helping accelerate clean energy access

We established a partnership with Efficiency for Access to support the delivery of the new Efficiency for Access Design Challenge. The global, multi-disciplinary competition sees teams of final year undergraduate students design affordable and high-performing off-grid appliances and supportive technologies to help accelerate access to clean energy. During its first year, 98 students from nine universities in Bangladesh, Kenya, Uganda and the UK sought to address barriers that limit growth in this industry.



COLLABORATIONS AND CAMPAIGNS

We need a more diverse engineering community to ensure that the views and experiences of many are heard; we need to evolve our engineering approach to be more inclusive, moving away from engineering for the people and instead to engineering with the people.

To ensure we are inspiring lasting change we have continued to collaborate across the sector. Including continuing our partnership with STEM Learning, enabling university Chapter members to become STEM ambassadors and deliver hands-on outreach workshops to 1,350 primary and secondary school students; inspiring the next generation of globally responsible engineers.

"It is a truly rewarding experience as you witness children's joy, enthusiasm and aptitude for problem solving."

STEM Ambassador

We pledged to be part of This is Engineering an initiative coordinated by Royal Academy of Engineering and Tomorrow's Engineers, which challenges widely held stereotypes about the sector through imagery.

In partnership with the Design and Technology Association we developed the Sustainability Design Challenge, which highlights how engineering can improve quality of life. In 2019/20, over 100 teachers were trained to deliver the programme, reaching more than 2,000 students aged 14-18.

We launched our Change Makers campaign showcasing the work of just a handful of individuals from the thousands in our community. Reaching 41,000 people in its first week alone this campaign aims to inspire by hearing from those who are delivering global responsibility in practice.

"It's no longer acceptable to sit at your desk and do your engineering and not think about the consequences."

Tom Newby, Change Maker

INFLUENCING ENGINEERING

Through sharing knowledge, advising the sector on embedding global responsibility and collaborating with Engineers Without Borders organisations around the world, we are shaping the future and driving global change. In the last year we have achieved this through...

Enhancing education

We built the awareness and capability of 90 of our university community leaders; these student and academic champions influenced the mindset of 5,500 students through educational programmes, and 3,000 individuals during 209 extra-curricular activities.

We joined the Royal Academy of Engineering's Education for Engineering group, guiding discussions on sustainability in engineering education.

We facilitated the Engineering Professors Council's exploration of their role with respect to engineering ethics.

Shaping the profession

Joining the Engineering Ethics reference group run by the Engineering Council and the Royal Academy of Engineering, which has provided us with a platform at

a strategic level to advise on engineering ethics in the profession.

Becoming a member of the Engineering Council's Sustainability Guidance review working group, providing the opportunity to increase the sense of urgency and responsibility when considering sustainability in decision making.

Collaborating globally

Through maintaining our position on the Board of Directors of Engineers Without Borders International we continue to play an active role in shaping the organisation's strategy to facilitate and grow the global movement.

We have strengthened partnerships with cousin Engineers Without Borders organisations and are now starting to build a collective voice to influence the sector, focusing primarily on the competencies that should be central to engineering education and the profession, if engineering is going to serve all people and our planet.

WE ARE INFLUENCING CHANGE

ENHANCING EDUCATION

Improving in curriculum and extra circular activities, to ensure the engineers of tomorrow are equipped to tackle today's challenges.

SHAPING THE PROFESSION

Contributing our collective voice through consultations, reviews and steering groups and partnering with companies to shape the future of the profession and the planet.

COLLABORATING GLOBALLY

Working with our Engineers Without Borders cousins to embed global responsibility in engineering, around the world.

TO ENSURE THE ENGINEERING COMMUNITY SERVES ALL PEOPLE AND THE PLANET BETTER THAN EVER BEFORE

BUILDING A BETTER FUTURE

Global indicators tell us that we are exceeding our planet's resources to cater to the few, whilst millions still have no access to basic necessities such as running water. As a result, we are at serious risk of planetary breakdown and increasing levels of inequality.

Our international placements aimed to address this by providing pro bono engineering to projects around the world, building the capacity of partner organisations and their communities to deliver ethical, environmentally sound and culturally sensitive engineering solutions.

We continue to be proud of our contribution over the last 15 years. But recognise we must challenge ourselves to do far more than we've ever done before, including a moral obligation to reconsider our model for working internationally to ensure we're not perpetuating out of date power paradigms. As a result, we took the bold decision to pause the existing programme in 2018/19, in favour of developing a new tack.

Our final programme cycle ended in 2019, during which we provided 27,400 hours of support, working with:

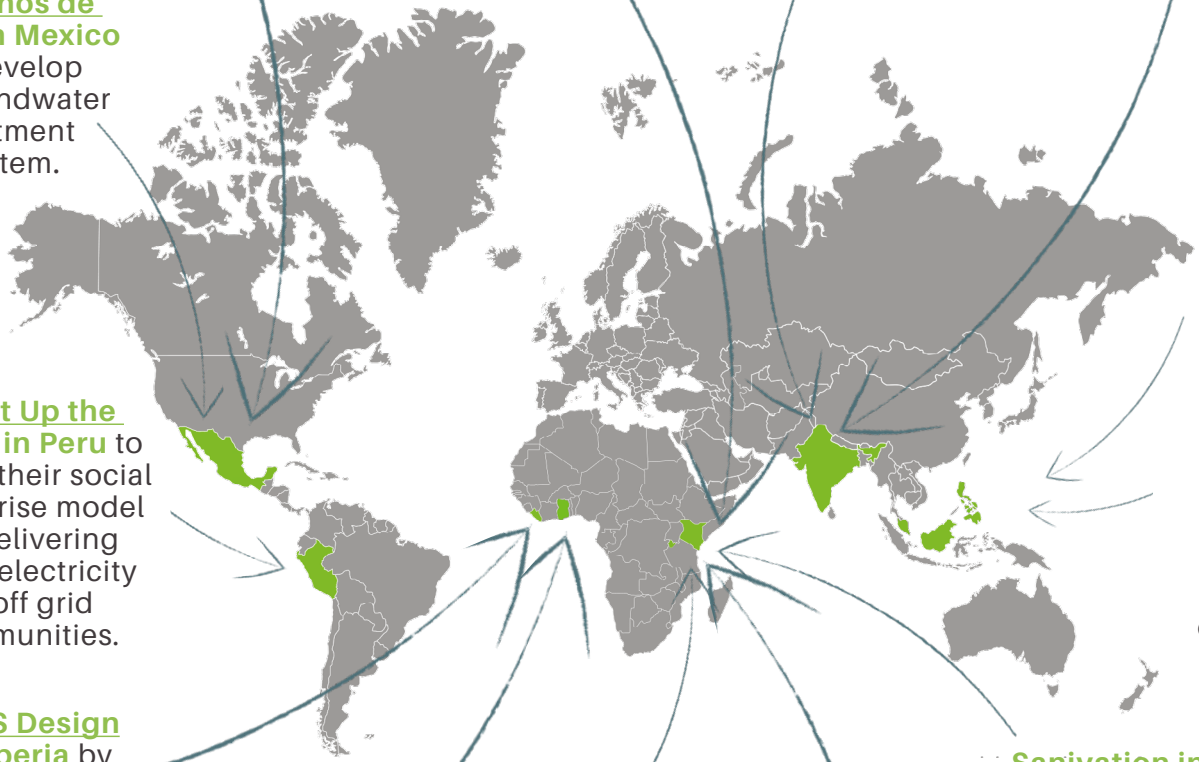
Sistema Biobolsa in Mexico to develop improved biogas devices which can be manufactured easily and suits the needs of those using them.

MASS Design in Rwanda to build structural engineering capacity in their local design team through training and systems improvements.

Prakti in India to improve the design and streamline the manufacturing process of their cookstoves so they are even cleaner, healthier and cheaper to produce.

United for Hope in India to pilot a solar energy project to improve living standards and access to electricity.

Caminos de Agua in Mexico to develop a groundwater treatment system.



TONIBUNG in Borneo to develop a flow control system to increase the efficiency and reliability of the energy supply to remote communities.

Light Up the World in Peru to assess their social enterprise model for delivering clean electricity to off grid communities.

SIBAT in the Philipines to provide civil engineering support for off grid micro-hydro power systems.

MASS Design in Liberia by supervising the initial construction phase of a two-storey maternity and paediatric hospital.

Sanivation in Kenya to commission a pilot faecal sludge treatment plant to reduce human waste by turning it into fuel.

WSUP in Ghana to oversee the design and construction of borehole water systems and to form water supply management structures in 10 communities.

Energy 4 Impact in Kenya to optimise data collection for off-grid energy system.

KDI in Kenya to support with community adaptation projects in Kibera, mitigating the impact of flooding on local neighbourhoods.

LOOKING BACK

As the final years of our 2016-21 strategy come into view, we have begun to analyse not just the last few years of impact, but the last 15, since the charity was founded.

We have recorded the accounts of staff, partners and volunteers alike to help us reflect on the lessons we have learned, whilst also supporting us to shape our current and future organisational purpose. Collating these contributions, three key learnings emerged from our first 15 years:

1. All engineering impacts on people and the planet at both local and global levels.

What we have learnt through working on community led projects in resource constrained environments has significant value to the mainstream of engineering. We're now challenging ourselves to mainstream globally responsible engineering.

2. Working globally requires working in true equitable partnership.

We believe we're now achieving true power balance in our collaborations with our cousin Engineers Without Borders organisations rather than perpetuating historic power and privilege paradigms.

We're now challenging ourselves to work equitably with others across all our work internationally, rather than working alone.

3. We are successful if we mobilise the power of our movement.
Our strength is in the number of diverse voices that are willing to collectively challenge the status quo and demand change so that engineering serves all people and the planet better than ever before. We're now challenging ourselves to listen and learn from all voices and provide the leadership required to achieve collective impact.

"The climate debate has advanced and things that you would have thought unthinkable a few years ago, are not anymore."

Jon Prichard, Chair of the Board of Trustees and Chief Executive of IChemE

LOOKING FORWARD

As we look to the future, there is still work to be done.

We only have 10 years to reach the United Nations Sustainable Development Goals and avoid catastrophic climate change. Engineering is necessary in achieving this agenda, but the engineering community has to choose to focus on addressing these challenges.

Building and construction industries are responsible for 39% of all carbon[1] emissions, making it one of the largest contributors to greenhouse gas emissions in the world. In 2018, it was recorded that in the UK only 12% of engineers were women, and only 7.8% of engineering professionals were from Black, Asian and Minority Ethnic backgrounds. Such a low proportion should make us all question the diversity of thought, as well as experience, of those who are currently designing facilities for millions of people to live, work, learn and play in.

COVID-19 has impacted – and will continue to impact – people's lives and livelihoods on an individual level as well as industries

[1]World Green Building Council. (2019). New report: the building and construction sector can reach net zero carbon emissions by 2050. 23rd September 2019.

[2]Neave, S. et al. Engineering UK 2018: The State of Engineering. p.13.

as a whole. Our future is likely to be very different to what we thought it would be. Now is the time for engineering to focus on a more sustainable, equitable and hopeful future.

From 2016 to 2021 our strategy called us to inspire, engage and influence our community and the wider sector. As we look ahead to 2021 and the crucial years to follow, we must review the current state of the sector and the impact of our work to create a new strategy that will meet the needs of today and tomorrow. And we want your input.

Join our movement to be involved in our new strategy and stay up-to-date with our latest opportunities. By doing so, you will be joining a diverse cohort of people passionate about engineering, from those who have been involved in the organisation for the last 15 years to those who have joined more recently, spurred by their interest to do more in light of the climate and biodiversity crisis and UN Sustainable Development Goals.

Choose hope and add your voice to a movement that is striving to serve all people and the planet better than ever before.

JOIN THE MOVEMENT

www.ewb-uk.org

WITH THANKS TO OUR 2019/20 PARTNERS:

Programme Partners

Caminos de Agua
Design and Technology Association
Efficiency for Access Coalition
Energy 4 Impact
Engineers Without Borders South Africa
Engineers Without Borders USA
Kounkuey Design Initiative
Light Up The World
Makers Valley
MASS Design Group
Prakti
Sanivation
SIBAT
Sistema Biobolsa
STEM Learning
TONIBUNG
United for Hope
WSUP

Funding Partners

Anglo American Foundation
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