

# Annual review

2021-2022



UK  
**ENGINEERS**  
WITHOUT BORDERS

# Introduction

What a year! Throughout 2022 we have continued to build on our established programmes, while piloting new approaches and developing tools for the future.

Our popular Engineering for People Design Challenge attracted more participants than ever, eager to learn about global responsibility in engineering through a bespoke community-centred design brief. The Grand Finals, involving 36 student teams and their educators marked a hugely welcome return to in-person events. We continued to develop all of our design challenges, piloted a business-focused advocates programme, deepened our university partnerships, and broadened our influencing reach.

Throughout the year, we have worked to develop and test a competency framework, for launch in 2023. The Framework will overlay engineers' technical skills with the competencies of global responsibility, and will be central to our efforts to grow capacity and drive change in the coming year and beyond.



John Kraus  
Chief executive,  
Engineers Without Borders UK

# Inspire

To encourage lifelong, meaningful commitment to globally responsible engineering.

## Energising engagement

We have aspired to reach a more divergent cohort of audiences through tailored workshops and events including sessions on engineering ethics and the Decade of Action. We actively sought opportunities to collaborate by sharing our platform with organisations such as the [Doughnut Economics Action Lab](#), who provided an [introduction to the model](#) and its relation to cities and the built environment.

In September 2022, we hosted a popular in-person member event [where we heard from Dr Ehab Sayed](#), Founder and Director of [BIOHM](#). The event brought together individuals from across the UK and beyond with a shared passion to drive change across the sector.

In November, we hosted a rich [Constructive Conversations](#) virtual panel discussion exploring the disconnect between education and industry. We heard from panellists Catriona Schmolke, Trustee and Vice President of the Royal Academy of Engineering; Lynsey Clarke, Global Senior Director of Sustainability at Jacobs; Dr Goudarz Poursharif, Associate Dean-Education for the College of Engineering and Physical Sciences at Aston University; and Toni McLaughlin, MEng Aeronautical Engineering student and previous EWB Glasgow President.

Student Chapters across the country have been extremely active delivering a wide range of activities including litter picks, solar energy workshops, design sprints and opportunities to collaborate, such as EWB Glasgow and EWB Strathclyde, who delivered a panel on Sustainability in Education. We also hosted an in-person Building Community Leaders event at Sheffield University for Chapter committee members where we facilitated training sessions on public speaking, how the UN Sustainable Development Goals interact with engineering and the concept of global responsibility.

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Engineers Without Borders UK brought me into contact with people from many different disciplines. This exposed me to viewpoints outside the narrow sphere of my engineering degree, which was invaluable.

Isha Kulkarni,  
former UCL Chapter  
president and now  
Senior Associate,  
RMI India



Chapters ran

**279**  
events

and engaged

**4,977**  
people





Sarah Peers



Isha Kulkarni



Jonathan Fashanu

## Inspiring stories

We have published more inspiring Change Makers stories from across our network this year including; Isha Kulkarni, former UCL Chapter president and now Senior Associate, RMI India; Sarah Peers, Group Head of Sustainability at Spirax-Sarco Engineering plc; and Jonathan Fashanu, Founding Director, DASH.

## Joining forces

We have also had fascinating contributions from those in our movement covering [Dyslexia Awareness Month](#), [EV and Inclusive Transport](#), Critical [Skills](#) and the [Pakistan flooding](#).

We are an official supporter of [Tomorrow's Engineers Code](#), joining nearly 250 organisations working toward common goals to increase the diversity and number of young people entering engineering careers.

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3,711 people completed our Globally responsible virtual experience programme

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# Upskill

To equip the engineering community with the skills and expertise to be globally responsible.

## University partnerships

We have moved into our second year of our strategic university partnerships with [TEDI-London](#) and [City, University of London](#). During this time we have actively supported City's Hackathon and provided bespoke workshops to both institutions on the competency framework, supporting them to build strong team values and skills. Elsewhere across the strategic university space, our Head of Engineering has represented Engineers Without Borders UK on Imperial College's Industry Advisory Board for Civil and Environmental Department.



More than

**60,000**  
students

have participated in the  
Engineering for People  
Design Challenge

## Design Challenges

The impact of our design challenges grows each year. Our flagship programme, the [Engineering for People Design Challenge](#), aims to bring to life real-world challenges in a safe and supportive environment, through a project-based learning approach. The Challenge reached over 12,000 students this year across Cameroon, Ireland, South Africa, the UK and the USA. Since its inception in 2011, the Engineering for People Design Challenge has benefited over 60,000 students worldwide.

[Reshaping Engineering in February 2022](#) reached students and industry professionals across the sector and globe. The programme challenges participants to consider how they would reshape engineering to evolve the sector to meet the needs of all people and the planet.

Once again, we co-delivered the [Efficiency for Access Design Challenge](#), a global, multi-disciplinary competition that empowers teams of university students to help accelerate clean energy access. This year's Challenge reached 23 universities and 167 participants across four continents. You can explore this year's design [online now](#).

“

The Engineering for People Design Challenge allows students to contextualise their learning in a real life scenario.

Dr Goudarz Poursharif,  
Aston University





“

[The Reshaping Engineering design challenge] is hands down one of the best professional engineering activities I've done in my career so far.

**Bethany Hall, Reshaping Engineering 2022 winner**

# Drive change

To collaborate with organisations to enable globally responsible engineering to become mainstream.

## Finger on the pulse

Over the last year we have featured on panels across the sector including the Engineering Professors Council, Ministry of Defence Sustainability Conference and the Conservative and Labour party conferences. We have facilitated sessions at the IStructE conference with educators, on future skills, and presented our competency framework at World Engineering Education Forum conference in Cape Town, South Africa.

Our CEO has delivered keynotes at the Engineering Design Show on the “What, Why and How” of global responsibility in engineering, in addition to an industry audience of geotechnical engineering specialists at a Tensar event.

We ran two workshops with the ICE and the Joint Board of Moderators to upskill individuals who accredit civil engineering degree courses in line with the updates to JBM's Guidelines for Developing Degree Programmes to "make the Climate Emergency a central cultural feature".

## Advocating for our future

The Advocate programme was a successful nine month pilot programme delivered in partnership with Jacobs. The programme was designed to equip participants with the skills required to advocate for positive change within the business. Sixteen professionals from Jacobs participated and collectively contributed over 640 hours of time, committed to 66 personal actions, and identified a critical shift to drive within the business.

The programme included Reshaping Engineering, participatory workshops, focus groups, and action learning sets. Upon conclusion, the advocates nominated co-captains who will continue to organise sessions with the group to ensure they deliver against their critical shift.



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I jumped at the chance to learn the advocacy skills that would help me more effectively promote the importance of biodiversity and sustainable development.

Jo Cullis,  
Senior Associate  
Director at Jacobs &  
Advocate participant







The 'Global responsibility of engineering' report draws on the experience of engineers working in the built environment sector, alongside an extensive review of existing literature, recommendations are made to:

- Promote a shared understanding of global responsibility
- Create consistent and shared approaches across the profession
- Evolve governance to enable critical reflection
- Evolve professional competencies and graduate attributes to require demonstration of deep commitment to acting responsibly.

## Insight

We published the '[Global responsibility of engineering](#)' report which explores the extent to which global responsibility is embedded in engineering practice, the practical barriers holding back progress and the actions required to transform the culture of engineering.

We provided an assessment to the UN Global Compact's Measuring Up Report on the UK's performance towards meeting the UN Sustainable Development Goals. The report included our key recommendations to improve engineering education.

Throughout the year, we supported two Masters students at the University of Warwick to develop their dissertations on Moving from 'Engineering for Task' towards 'Engineering for People and Planet': Evaluating attempts to crowd-solve problems and Researching what competencies and methods create the ability to produce sustainable and equitable design.

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There is no doubt that we have passed the point where we can afford to sit on the fence and wait for others. [...] Global responsibility in engineering is not a choice if you believe in our collective long term future.

**Katie Cresswell-Maynard, Executive Director at Engineers Without Borders International**

We published and presented a conference paper on 'Pedagogical Approaches to Project-Based Learning: Meeting The Education Needs Of The Globally Responsible Engineering Workforce' at the International Symposium of Engineering Education, where we were supported by Engineers Without Borders South Africa.

We also worked with Engineers Without Borders South Africa to deliver a workshop and present a paper at the World Engineering Education Forum and The Global Engineering Deans Council 2022. The workshop explored *What is our responsibility to act, and advocate for systemic change within engineering education and practice?*, and provided an opportunity to critically reflect on engineering education over the past decade and to consider what is required to prepare engineers in addressing the world's most challenging issues. The paper, *Designing for holistic learning opportunities: Reflections from the Engineering for People Design Challenge* shared experiences from participants and educators in South Africa.

We have supported Constructivist to deliver the Regenerative Design Lab, a six-month accelerator programme for leading engineering and construction industry professionals, to support each other in applying regenerative principles in practice. Our participation allowed us to deepen our understanding of the regenerative principle, and to gain a better understanding of the Lab format, which we can apply in our own work.

“

The Regenerative Design Lab has provided me with a vision of hope for a construction industry which can truly make the world a better place. It gave me the time to begin to understand and think regeneratively and the confidence to take this into my project work, to clients and the wider industry.”

Regenerative Design Lab participant,  
2022 cohort





“

By working with Engineers Without Borders UK, we combine our expertise and independence as the UK national academy for engineering, with their experience in advocating for global responsibility. Through the partnership, we're beginning to support universities to ensure that graduates enter the workplace with the skills they need to address the urgent challenges of our time.

Juliet Upton, Head of Education and Skills policy,  
Royal Academy of Engineering



## Developing competency

This year we have put significant effort into developing a unique competency framework that supports the concept of globally responsible engineering. To ensure we are evolving an approach that meets the sector's diverse needs, we have consulted widely. We have run workshops with the CEOs of the Professional Engineering Institutes; our trustees; student Chapters; strategic partners; industry representatives and educators.

Due to launch in early 2023, the competency framework will be supported by relevant resources to guide individuals, teams and organisations on their journey to develop competence in global responsibility.

## Addressing the skills gap

We have also been working closely with the Royal Academy of Engineering on a tool to support the reshaping of engineering degrees. We expect this tool to be published in 2023.





# With thanks to

We would like to thank our sponsors, partners, collaborators and allies who support our efforts to put global responsibility at the heart of engineering to achieve a more safe and just future for all.

## **Partners**

Anglo American Foundation  
Bentley Systems  
Expo Technologies  
Jacobs  
Johnson Matthew  
RS Group  
Publitek  
Spirax Sarco

## **Collaborators**

AzuKo  
Constructivist  
Royal Academy of Engineering

## **Recognising those who have been putting global responsibility at the heart of their engineering:**

Engineers Without Borders South Africa  
Efficiency for Access coalition  
TEDI-London  
City, University of London  
Govan Community Project  
Centre for Appropriate Technology