

OUR YEAR IN STORIES

Annual Review 2015



UK
ENGINEERS
WITHOUT BORDERS



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INTRODUCTION

Engineers Without Borders UK wants to change how engineering is taught, practiced and perceived.

We are part of a global social movement that believes that engineering has a vital role to play in addressing global issues. The problems that we face today, such as mitigating climate change, ensuring universal access to water, sanitation and energy, and providing resilient communities for us all to enjoy, require engineering as part of the solution. At Engineers Without Borders UK we believe that engineering can, and should, be a fundamental driver of change so that people everywhere enjoy equitable and sustainable lives. Too often the perception of our sector runs against this, shaping a narrative that reinforces the notion that engineering is about solely technology and not about people. We want to challenge that perception and challenge the status quo.

This 2015 annual review tells our year in stories. Over the following pages you'll read about people who we work with, who fundraise for us, who volunteer with us and who engage with our initiatives. We can give you numbers and statistics about our work but, in truth, it is often not easy to accurately measure the real impact of a social movement. As you read this review you won't fail to recognise the outstanding difference that Engineers Without Borders UK makes to so many people's lives, whether that be directly on international projects with a partner organisation, through our education work or as members of the Engineers Without Borders UK community. We all stand together as one movement, united for change.



OUR ACHIEVEMENTS

PETER HANSFORD

Chair of Engineers Without Borders UK
(and passionate Saracens fan)



Likes

Rugby,
golf,
travel



Dislikes

Commuting,
IT glitches,
warm beer



Favourite invention and why?

iPhone - it has made
my life much easier
and it's cool!



Olivia Hobson working with our partners
Caminos de Agua, formerly CATIS, in
Mexico on water filtration systems.

© CC- Engineers Without Borders UK

Primary school children participating
in hygiene education programme run
by our partner Reignite in Cameroon.

© CC- Reignit

We entered 2015 committed to continuing the work we had started to consolidate Engineers Without Borders UK and build a solid foundation for future growth. We have made good progress against that commitment over the last 12 months but equally, if not more so, this year has also been punctuated by significant achievements and progress in virtually all areas of our work.

We have improved our youth outreach programme by updating our two workshops about universal power and water access

to be more relevant to the post-sustainable development goals world. We continue to deliver them at schools and youth groups across the country but have also broadened our reach by presenting them at national events such as the Raspberry Pi Competition finals and the Big Bang Fair.

The EWB Challenge, a design competition that is embedded in university education, goes from strength to strength with an impressive 24 UK and Irish universities taking part in the 2014-15 iteration. We now reach more than 15% of all undergraduate engineering students in the UK with this

programme and the endorsement of the Engineering Council and the Engineering Professor's Council at the start of the summer points to a very positive future. During 2015 we also supported more than 65 volunteers working on international development projects with partner organisation in 14 countries. We have improved the focus of our international work by concentrating on three themes; water, sanitation and hygiene (WASH), renewable energy and the built environment and, to be able to better demonstrate our impact, we have started to develop longer term and deeper relationships with our partners.

At a strategic level, the second half of 2015 has been dominated by a review process that has seen us design a new strategy to cover the period 2016-21. Our new strategy is bold but, with its emphasis on global citizenship and how engineering can contribute, it is very relevant in our increasingly interconnected world.

I hope you enjoy the stories over the following pages, they illustrate a really bright year in our history.



WISE HERO NOMINEE

LAURA PEACH

Wind Turbine Engineer
(and film star)



Likes

sunrises, the countryside, food



Dislikes

slugs, teeth, ear wax



Favourite invention and why?

The mobile phone - we take it for granted these days but it's such a huge enabler in so many important ways



The WISE Hero Award celebrates the inspirational story of a woman using a science, technology or engineering qualification to make the world a better place. In October 2015 a long term Engineers Without Borders UK volunteer, Laura Peach, was shortlisted for this prestigious national prize.

Laura has been involved with us since she was a student at Sheffield University and has played a vital role in the development and delivery of our international placements programme. Each year we support the capacity of a number of partner organisations working on development projects by providing them with skilled engineers. In her role as

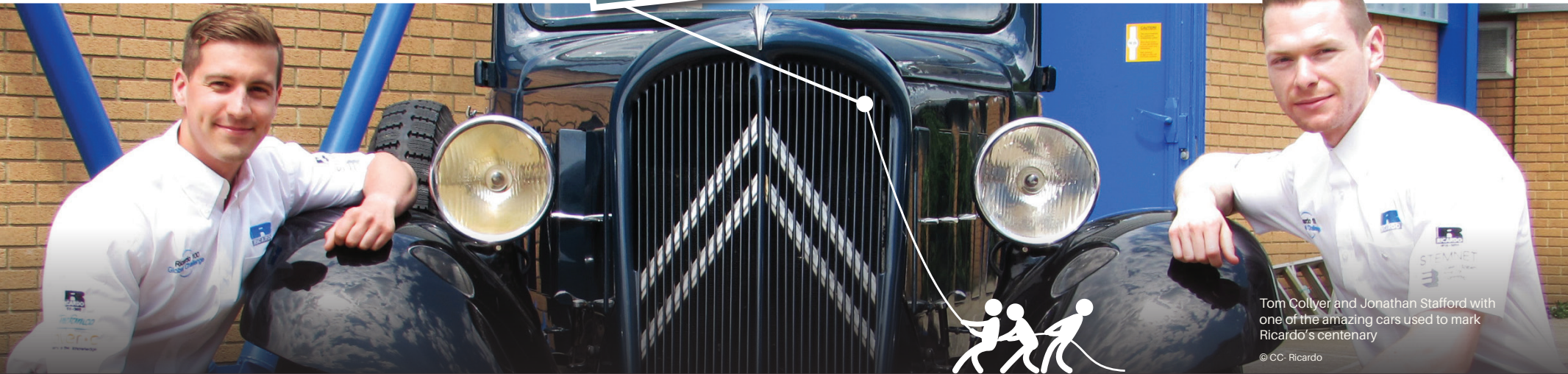
the Placements Programme Coordinator, Laura, alongside the rest of the International Partnerships team, was responsible for coordinating all of our international placements and organise the pre-departure course.

When asked about the impact that her involvement has had on her life, Laura says 'it is a formative experience - I have decided to pursue a career in engineering for social good in the UK. Now I just need to make a plan to make that career happen!'. She goes on to say that she has seen examples of people who, as a result of their involvement with Engineers Without Borders UK have gone on to change their career ambitions 'from making loads of money to engineering for social good'.



© CC - Laura Peach

PUTTING THE FUN IN FUNDRAISING



Tom Collyer and Jonathan Stafford with one of the amazing cars used to mark Ricardo's centenary

© CC- Ricardo

If you were in the Snowdon National Park last summer you may have seen Jonathan and Tom on the path up Snowdon. They'd be hard to miss since they were wearing a tandem wooden box that was styled on a diesel land-speed record vehicle which their company, Ricardo, had helped design. Not surprisingly, many people were interested in what the pair were doing so Jonathan and Tom took the opportunity to spread the word about the work of Engineers Without Borders UK.

Their noteworthy climb up Snowdon was part of a series of fundraising events that Jonathan and Tom took part in as part of Ricardo's centenary celebration. They also visited the Engineers Without Borders UK office with a variety of amazing cars,

including a McLaren road car, much to the excitement of the Engineers Without Borders UK staff and pupils from the local school! In total, Jonathan and Tom raised more than £2000 for our work.

When asked why they had chosen Engineers Without Borders UK to raise money for, Jonathan said 'Engineers Without Borders UK had similar values to Ricardo but, more than that, they are different from other charities because you can actually see the results of their work in the activities they carry out. They also involve students which is helping publicise engineering as a career path'. Tom added that 'Engineers Without Borders UK's work is so valuable, it doesn't matter what you can do or give to raise funds - every little counts in making a difference'.

TOM COLLYER

Test Engineer
(and Wannabe guitar hero)

Likes: Black and gold guitars, Belgium beer, V8's

Dislikes: Tangled ear phones, having your biscuit break off in a cup of tea whilst dunking it, waving to someone you think you know and it turns out to be a total stranger

Favourite invention: Cable ties - an engineer's life saver!

Tom and Jonathan climbing Snowdon to fundraise for Engineers Without Borders UK.

© CC- Ricardo

JONATHAN STAFFORD

Senior Design Engineer
(and brum brum man)

Likes: Chicken, cars, music

Dislikes: Cucumber, bad breath, dairy

Favourite invention: The engine



EWB CHALLENGE WINNERS FROM BIRMINGHAM CITY UNIVERSITY

LAURA LEYLAND

Senior Lecturer, Birmingham City University (and dogsbody)

Likes:

Ale, beach, cake

Dislikes:

Ants, anchovies, advocat

Favourite invention and why:

Gore-Tex, waterproof and breathable - holiday in UK - it's required!!!



Laura Leyland at the EWB Challenge finals

© CC - Engineers Without Borders UK

SHAMUL HOQUE

Student (and part of the EWB Challenge winning team)

Likes:

Nutella, Ice Cream and New York style meaty pizza

Dislikes:

Spiders, Marmite, selfie sticks

Favourite invention and why:

Back to the Future Doc Brown's DMC Delorean Time Machine. Because I love travelling so I will use the machine to travel anywhere around the world, and travelling



Shamul Hoque at the EWB Challenge finals

© CC - Engineers Without Borders UK

In June 2015, a team from Birmingham City University were selected as the winners of the 2015 EWB Challenge for their innovative rainwater capture device. The winning prize was a place on the summer school that Engineers Without Borders UK coordinates with our partner CATIS in Mexico.

Laura Leyland, a Senior Lecturer at Birmingham City University told us that the EWB Challenge enabled her to introduce new project-based learning around the global context in a meaningful way for her students. She continued 'The UK students who went on to the Mexico summer school have all been motivated to continue work on elements of the design as their final year projects. More generally, as a result of EWB Challenge, we have modified our teaching schedules to allow more facilitated support to students and over the next curriculum review we are investigating

ways of integrating teams across different courses'. She says that the EWB Challenge has led to an increased awareness that engineers in the UK are, by default, designing solutions which are only ever going to be applicable to a tiny proportion of people and the way we educate our future engineers should be addressed to recognise this.

Shamul Hoque, one of the members of the winning team, says that being involved with the EWB Challenge raised his awareness of global challenges

and also that engineering is part of the solution. He says that he has been inspired to continue his studies and 'utilise my engineering skills to help create a sustainable world for the human population'. He also says that his experience in Mexico opened his eyes to the impact that engineering can have on people.

The EWB Challenge is currently part of the undergraduate engineering curriculum at more than 25 UK and Irish universities.

INNOVATIVE VOLUNTEER MATT BOWMAN

Senior Engineer (Automation and Controls)
(and Cider Cyclist)



Likes:

Blue bikes, camping gadgets
and most things British



Dislikes:

Tortellini, skinny jeans and
the misuse of non-stick pans



Favourite invention and why:

Swiss Army knife



In September 2015 our work with Learning Planet on remote internet provision in rural Nepal was nominated for an Institution of Engineering and Technology (IET) Innovation Award. One of the volunteers who worked on the project, Matt Bowman, now volunteers for us in our international partnerships team, working as a coordinator for our projects in Asia.

Matt originally got involved with Engineers Without Borders UK to champion the cause in his company and looks back on his work placement in 2013 as an experience that challenged his perceptions, something that he finds difficult to sum up beyond saying 'I'm a much more rounded individual because of my involvement'.


In his current role, Matt realises that it may be some time before the full impact of any one Engineers Without Borders UK project is realised, partly because of the scale of the problems we are addressing and partly due to cultural change. However, when asked about the value of volunteering for us, he said 'I think where we have the biggest impact is in working with Engineers Without Border UK's partners to understand their problem and to then help recruit the best engineer possible to assist'.

Matt is part of a team of 6 volunteers who assist our staff with the coordination of our international placements and, in 2016, our new Global Engineer Fellowships. Their work, as well as the efforts of our other volunteers, mean that we can achieve so much more. You can find out more about volunteering opportunities with Engineers Without Borders UK on our website. Simply select the 'Join the Movement' option from the top menu bar.

Matt Bowman installing wireless mesh
network with our partner Learning Planet
volunteer cc- Engineers Without Borders

Photos: © CC - Engineers Without Borders UK





**“BECAUSE OF ENGINEERS WITHOUT BORDERS UK...
I KNOW THAT THE APPLICATION OF ENGINEERING ENABLES
NEW POSSIBILITIES TO ARISE WHICH HAVE THE POTENTIAL
TO BENEFIT EVERYONE.”**

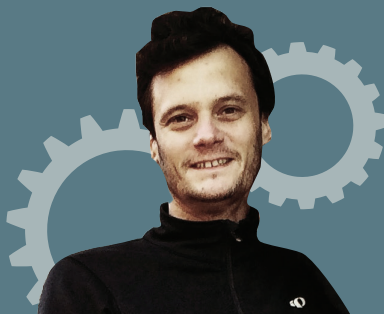
MATT BOWMAN

Senior Engineer (Automation and Controls)

ALUMNI AND PARTNER

JOE MULLIGAN

Associate Director, Kounkuey Design Initiative (KDI)
(and Sugarcane Consumer-in-Chief)



Likes:

Coffee, more coffee
and Sundowners



Dislikes:

Stubbed Toes,
Bad Bureaucracy
and Yellow Snow



Favourite invention and why:

The Internet because so many voices that
would never have been heard are now out
there trying to share their experiences,
demand their rights and make positive change



Joe Mulligan has been involved with Engineers Without Borders UK for more than a decade. He was one of our first international placement volunteers in 2005 and is now the Associate Director of one of our long standing partners in Kenya, Kounkuey Design Initiative (KDI). During 2015, two Engineers Without Borders UK placement volunteers, Anna and ???, helped KDI to workshop, design, and initiate construction for a new Productive Public Learning Space project in Kibera, Nairobi. We also contributed to KDI's 2-year research and action program on urban flooding, working on river surveying, community preparedness, household level structural adaptations, drainage mapping and GIS.

We have partnered with KDI on their Productive Public Spaces projects since 2011 because the availability and affordability of a decent educational environment is a massive challenge for Kibera's families. The projects each improve the quality of the environment and the education received by 100s of children, and create a public facility serving the wider community. As a direct result of the school assessment work completed by Engineers Without Borders UK, KDI have been funded to develop another Productive Public

Learning Space in 2016.

Joe says, 'we see these two Engineers Without Borders UK supported programmes as a next stage in our vision of how a sustainable and engaged development in Kibera might take place. We want to build grounded, responsive and integrated projects that fulfill real needs identified by residents and coordinate these efforts, supported with robust data, to influence and enhance the wider initiatives of the local and national government'

He goes on to say, 'Engineers Without Borders UK's work on drainage mapping has attracted the interest of local and County government who are looking to invest in flood risk reduction after the 2015 rains'. When asked about the value of our support to KDI's work, Joe says that the experience has given him 'a lot of hope about the future of the engineering industry. The young engineers that have come to work with us have been universally open, engaged, inquisitive and respectful. They've listened and learned first and foremost which is very important in a place as complex as Kibera'.

KDI are one of our partners for our pilot of the Global Engineer Fellowships initiative in 2016.



Joe Mulligan leading a KDI community workshop in Kibera, Nairobi

© CC - KDI

STUDENT PRESIDENT TO TRUSTEE

ALEXA BRUCE

Water Engineer, Arup (and world explorer)

Likes:

Lumpy custard, coffee,
that super soft spot on
the back of your wrist

Dislikes:

Fennel, sniffing, unevenly
distributed sandwich filling

Favourite invention and why:

Spiralizer — life changing



During her first week at university Alexa Bruce joined the founding committee of the Engineers Without Borders UK member group at University College London (EWB UCL). She went on to lead EWB UCL's first Member Led Partnership project in Peru, lead a second project in Kenya and served two terms as society President. When looking back at her time in one of our university member groups, Alexa says that she learnt that when considering the complex issues around intervening in development projects, 'Enthusiasm and passion are not enough. The best engineering solution in the world becomes redundant when you do not take time to consider the context properly'. In December 2014, having completed her degree, Alexa was elected to the Board of Trustees of Engineers Without Borders UK and is halfway through her two-year term.

As a Trustee, Alexa has worked alongside the rest of the Board and the Engineers Without Borders UK staff on our strategy review during the second half of 2015. She says that this has been 'a great learning experience, requiring me to interrogate my own thinking around the role and purpose of Engineers Without Borders UK in society in general, and in the civil society sector specifically'.

In August 2015, Alexa was one of 6 young engineers shortlisted for the NCE Graduate of the Year Award and thinks that her involvement with Engineers Without Borders UK played a large part in her selection because it has shaped much of her experience to date and helped build her skill base. 2015 was the second consecutive year that an Engineers Without Borders UK volunteer has been shortlisted for the award.



EWB UCL Member-Led Partnership
project in Kenya

Photos: © CC Engineers Without Borders UK

OUTREACH CORDINATOR

MARCUS BISHOP

Student at Imperial College London
(The Pi Piper of volunteers)

Likes:

Cake, badminton rackets, and my mobile



Dislikes:

Dirty plates, running out of change when you need it, getting mud on your shoes



Favourite invention and why:

The bicycle. It has really made an impact on many cities and lives with the ability to transport yourself across great distances. Bicycles are often the primary mode of transport and they're really important. People have used their ingenuity and engineering skills to make loads of things out of bicycles. They're catalysts for imagination!



Two St Margaret's School students participate in our a Youth Outreach workshop Power for Everyone, Everywhere.

© CC - Engineers Without Borders UK

Marcus got involved with Engineers Without Border UK during his first year at university in 2012.

The following year he took over as our volunteer Outreach Coordinator and worked on a project in the Philippines. Marcus went on to be the EWB Imperial College London member group president.

Marcus had the following to say about his time volunteering for our Outreach programme:

'We introduce students to what STEM is and why it was important. In doing so, we were bombarded with questions from kids about how they could do science and engineering when they grow up. It triggered ideas in their heads about what other things they wanted to do. The kids got an understanding of engineering in the context of society. As long as they get some principles about

sustainability and what STEM is, I think it has a lasting impression because we're new at the school. These out of the ordinary things have a lasting impression. And we hope to improve every time we do a workshop and that that lasting impression improves over-time for when we do the next workshop.'

Marcus says that since his involvement with Engineers Without Borders UK, his belief is defining development and how to get involved has changed. It's hard to have a positive change associated with what you're doing which might be miles away but you have to start with helping people. In Marcus' words 'route causes of problems are more complex than I first thought and what I really like about Engineers Without Borders UK is that it doesn't aim to solve the world's problems but it aims to highlight, to especially young people, these complexes where they didn't see them before.'

PROMOTING THE GLOBAL DIMENSION

DR ELIZABETH HAUKE

Senior Teaching Fellow and Field Leader for Global Challenges, Imperial College London (and fast talker, slow runner)



Likes

Books, Marmite, tea

Dislikes:

Daddy long legs, people wearing masks, slow internet connection

Favourite invention and why:

Smartphones – I love being able to immediately access information about anything that I'm interested in

Since 2012 Dr Elizabeth Hauke has been part of team that delivers the EWB Challenge at Imperial College London. The EWB Challenge is a design module that is embedded in undergraduate engineering courses at more than 25 universities across the UK and Ireland. It replaces the traditional design problem statements with alternatives that have been developed with one of Engineers Without Borders UK's international partners.

We were so impressed by Dr Hauke's efforts to include elements of global responsibility in what she was teaching to her students that we encouraged her to apply for an EU Global Dimension in Engineering Education (GDEE) Award in January 2015. We were also involved in the GDEE programme, alongside partners from across Europe and we were delighted when Elizabeth won the award for curriculum design.

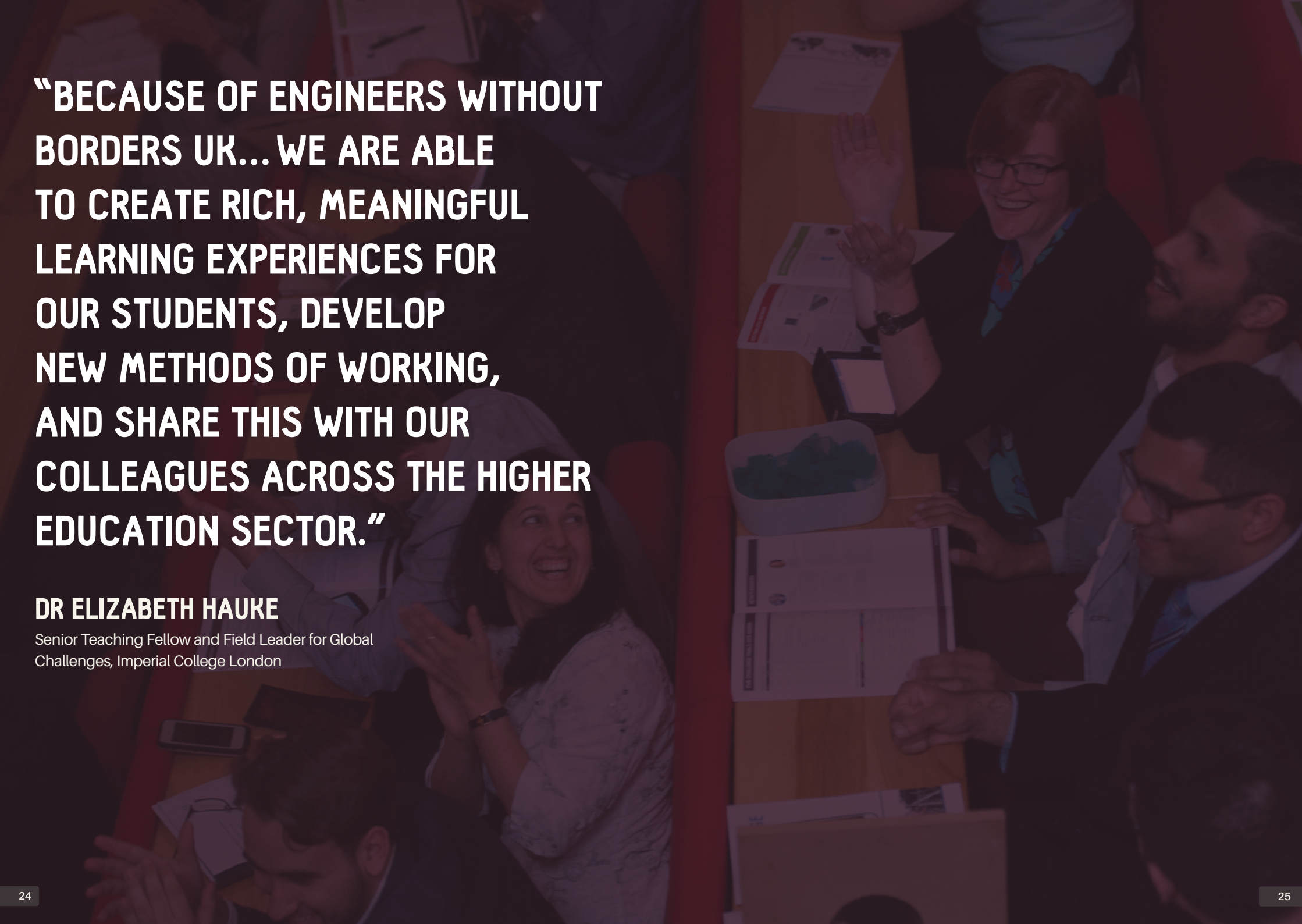
As Dr Hauke says 'our students love participating in the EWB Challenge and having the GDEE award reassures them that their efforts are worthwhile, and that working in this new way is valuable'. When questioned further about the value of the

EWB Challenge, she said that 'working with Engineers Without Borders UK allows our students to make a connection with a real-world community, which would be very hard for us to facilitate ourselves. I've also been inspired to develop the richness of our approach with the students'.

In September 2015, Dr Hauke presented a paper about incorporating the global dimension into engineering design at the International Conference on Engineering and Product Design Education that she had co-authored with Dan Craddock, the EWB Challenge Manager and Katie Cresswell-Maynard, our Head of Learning, Research and Innovation.

© CC - Elizabeth Hauke



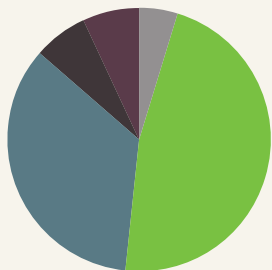


**“BECAUSE OF ENGINEERS WITHOUT
BORDERS UK... WE ARE ABLE
TO CREATE RICH, MEANINGFUL
LEARNING EXPERIENCES FOR
OUR STUDENTS, DEVELOP
NEW METHODS OF WORKING,
AND SHARE THIS WITH OUR
COLLEAGUES ACROSS THE HIGHER
EDUCATION SECTOR.”**

DR ELIZABETH HAUKE

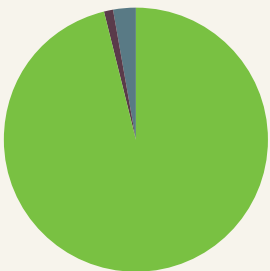
Senior Teaching Fellow and Field Leader for Global
Challenges, Imperial College London

OUR FINANCES AND OUR SUPPORTERS



INCOME

● Donations	43.5k
● Grants	416k
● Sponsorship	307.5k
● Gifts in Kind	58.5k
● Investments	0.5k
● Fees for goods and services	61k
TOTAL	887k



EXPENDITURE

● Charitable activities	499k
● Fundraising	5.5k
● Governance	14k
TOTAL	518k

Without the generosity of our supporters we would not be able to achieve the stories that you’ve just read. Thank you to the following donors who supported our work during 2015.

Platinum

The Halcrow Trust
The Anglo American Group Foundation

Gold

The Bechtel Group Foundation

Silver

Arup
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Bronze

The Alcoa Foundation
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The Family and friends of Kim Waterhouse

Regular donors

We would also like to say a very big thank you to all of our regular donors for their continued support. We really appreciate it

LOOKING FORWARDS...

DOUG HARPER

Chief Executive of Engineers
Without Borders UK
(and closet Made in Chelsea fan)



Likes:

Wooden clothes hangers.
Decent whisky with two
ice cubes in it, over-ripe
avocados

Dislikes:

Overcrowded swimming
pools, peanut butter,
shopping centres

Favourite invention and why:

My kindle - makes reading
when travelling or out
and about so much more
practical

Doug Harper and Monkey

As we reflect on the last year, I think that all of us that are involved with this fantastic movement for change called Engineers Without Borders UK can be rightly proud of our achievements. In so many areas of our operations we have improved and made progress - our financial position, the quality of our programmes and the working conditions for our staff are three examples from many. The stories in this annual review are indicative of many others and reflect the diversity of the impact that we are having on the engineers, our partner organisations, on engineering education and on the communities in which we work. However, whilst pride is justifiable, complacency is not and we still have important work to do.

In 2016 we have the opportunity to launch and start working to our excellent new five year strategy. We will see a shift in our focus with much greater emphasis on encouraging engineers to be responsible global citizens

and how the engineering community and wider society can work together to ensure that all engineering is environmentally sound, ethical and culturally sensitive. We will continue to question what we do, and how we do it, to ensure that we are catalysing real and systemic change rather than enforcing stereotypes and old fashioned paradigms about human development. We must make sure that any interventions we make in people's lives, or their communities, are appropriate and well considered. Undoubtedly these reflections will rightly result in further changes to the initiatives we coordinate and how we go about our business but we remain resolutely committed to leading a movement that inspires, enables and influences global responsibility through engineering.

Thank you for your support and interest during 2015, I'm excited for what we can achieve together in 2016.



SUPPORT THE MOVEMENT

Engineers Without Borders UK relies on its members, volunteers and supporters to continue the work that we do. We achieve a lot but we want to do more.

If you've been inspired, informed or interested by the stories in this annual review please help us tell many more in the year ahead.

Text EWBX15 £5 to 70070

to donate £5 to Engineers Without Borders UK now or visit www.ewb-uk.org/donate to find out other ways to support our work.



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www.ewb-uk.org



Pre-departure training
in May 2015

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