



ENGINEERING CHANGE

The Happold Foundation Final Report
Engineers Without Borders UK
March 2018

The Happold Foundation

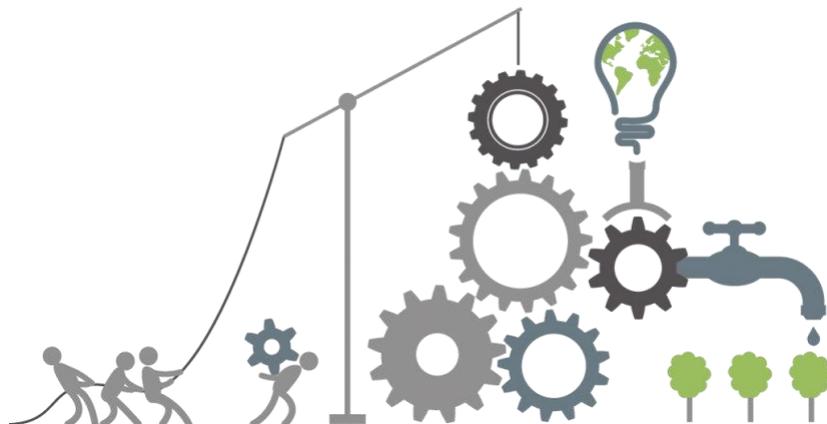


TABLE OF CONTENTS

1. EXECUTIVE SUMMARY.....	3
2. BACKGROUND	3
3. ACTIVITIES.....	4
3.1. REFINING AND EMBEDDING THE GLOBAL ENGINEERING FELLOWSHIPS PILOT FROM 2016	5
3.2. IMPLEMENTING INNOVATIVE AND USER-FRIENDLY DATA COLLECTION METHODS AND DISSEMINATION.....	6
3.3. INCREASING THE INTERACTIVE LEARNING EXPERIENCE FOR THE GLOBAL ENGINEERING COMMUNITY	7
4. LEARNINGS AND REFLECTIONS	8
5. BUDGET EXPENDITURE PROCESS	9
6. SUPPORTING MATERIALS AND EVIDENCE	10

1 . E X E C U T I V E S U M M A R Y

The focus of this grant has been on learnings from the pilot of the Global Engineer Fellowship and continuing a strong monitoring, evaluation and learning process as well as enhancing the dissemination of this knowledge. During 2017, and into 2018, we have been much more involved in the recruitment and training of both our Junior and Senior Fellows, as well as the monitoring of their experience when in-country. We have focused on knowledge dissemination, and the creation of resources that feature the impact of the Global Engineer Fellowships in the UK and abroad.

2 . B A C K G R O U N D

Overall project goal: to embed and improve the impact of globally responsible engineers.

In 2017, The Happold Foundation awarded £10,000 to Engineers Without Borders UK to enhance the impact of our Global Engineering Fellowship programme, enabling UK engineers to contribute appropriately to the delivery clean energy and water projects in Kenya, the Philippines and India.

In addition to delivery of these projects, the grant aims to enable Engineers Without Borders UK to implement innovative and interactive methods of data collection and knowledge dissemination to increase learnings about global responsibility through engineering.

The key objectives of the grant are to:

1. Refine and embed the Global Engineering Fellowship pilot from 2016
2. Implement innovative and user-friendly data collection methods and dissemination from Global Engineering Fellowships
3. Increase the interactive learning experience for the global engineering community

This funding report will cover:

1. The main activities and focus areas of the grant
2. Learnings and reflections
3. Budget expenditure progress
4. Supporting materials and evidence

3. ACTIVITIES

The following activities have been delivered in the period of this grant:

OBJECTIVE	COMPLETED ACTIVITIES
<p>Refine and embed the Global Engineering Fellowship pilot from 2016</p>	<ul style="list-style-type: none"> ● Reviewed partners' and Fellows' feedback from the 2016 pilot ● Adjusted the pre-departure training course content to allow more interaction between Junior and Senior Fellows <ul style="list-style-type: none"> - 6 joint Fellowship sessions at the pre-departure course between Junior and Senior Fellows ● Increased facilitated interaction between Senior and Junior Fellows through the funding of one in-person meeting ahead of departure <ul style="list-style-type: none"> - Held 1 in-person Fellowship project meeting (others were held virtually) - Held a project meeting and training day for three all 2018 fellowships teams in March 2018, which was attended by 12 Junior and Senior Fellows. ● Continued regular communications with partners with regular calls including in the lead up to recruitment for Fellowship teams. 8 in total with Prakti, SIBAT, and KDI. ● Debriefs held for returning volunteers in November 2017 and March 2018
<p>Implement innovative and user friendly data collection methods and dissemination from Global Engineering Fellowships</p>	<ul style="list-style-type: none"> ● Researched impact tracker companies to produce smartphone platform for volunteers to collect data. Operational reviews have led us to decide pause the implementation of this platform, to review for longer term implementation ● Implemented and improved the M&E framework developed in the 2016 pilot ● Introduced covering the costs of using international dial-in codes to enable volunteers with no reliable internet access to join regular (6-8 weeks) thematic group calls for data collection and participate more fully in discussions. This has been successful

	<p>4 calls (August, October, December, February) in each the three areas (Energy, WASH, Built environment).</p> <ul style="list-style-type: none"> ● Collected data included in the 2016 Fellowship reports, published in our Collaborative Partnerships document ● Collected comprehensive data from 3 out of 3 Fellowships ● Facilitated cross-partnership collaboration activities ● Facilitated in-region dissemination events
<p>Increase the interactive learning experience for the global engineering community</p>	<ul style="list-style-type: none"> ● Obtained good quality footage of our Senior Fellows and with videos currently in production. ● Held three alumni events in April 2017, September 2017 and March 2018, with another planned for May 2018. ● Lightbulb Talks: Building Engineering Capacity event held December 2017 with 5 former volunteers ● Launched our photo competition ● In progress - Commission developers to embed interactive projects map, volunteer journeys, impact stories and volunteer videos on our website. Impact stories already online. ● In progress - Develop a 'Globally Responsible Engineer Toolkit' for students and young professionals and share with our members

3 . 1 . R E F I N I N G A N D E M B E D D I N G T H E G L O B A L E N G I N E E R I N G F E L L O W S H I P S P I L O T F R O M 2 0 1 6

Not only have we used feedback and learning from our 2016 Global Engineering Pilot, we have also used our data collection methods from the 2017 Global Engineering Programme to continue to inform planning and practical aspects of the 2018 programme.

We reviewed the feedback from partners and Fellows from our 2016 pilot. We held calls with both parties as well as receiving detailed feedback forms. We used this feedback by implementing it in our pre-departure course as well as using it to develop a better placement application system for next year and in our advertisements of these. This year, both Junior and Senior Fellows from the 2017 cycle sat on the interview panel during recruitment of Fellows for upcoming departures in June.

We adjusted the pre-departure training course content to allow more interaction between Junior and Senior Fellows before they went on their placements. We did this by having 6 joint sessions at our pre-departure course. The sessions covered Risk, Safety and Emergency

Procedures, Communications on Your Placement, Split Solving, Introduction to Our Work in the Thematic Areas, Thematic Group Sessions, M&E and Learning, and Project Planning.

We have since used feedback from both the 2016 and the 2017 pre-departure training courses to inform the planning stage of the 2018 pre-departure training course to ensure that we are continually re-evaluating and implementing change. This course will run over the weekend 18th - 20th May of this year. We will have presentations from Junior Fellows at this training to increase direct dissemination from those who have experienced the programme to the next set of Junior Fellows.

We increased facilitated interaction between Senior and Junior Fellows through the funding of one in-person meeting ahead of departure. We had numerous meetings between the Fellowships before the placement start date and funded a project meeting between the Senior and Junior Fellows whose placement was with SIBAT in the Philippines. Add something here about the Fellowships Day and how the teams going to SIBAT, Prakti and Sistema Biobolsa met and started project planning and bonding.

We continued regular communication with our partners to ensure everything was going to plan and for updates on the work and experience for our Fellows. During this period so far we have had 1 call with Prakti in India, 1 call with SIBAT in the Philippines, and 3 calls with KDI in Kenya. We also held one in-person meeting with Prakti last October, in London and one upcoming meeting in Tamil Nadu, India in April.

We have held a Debrief Day for all returning fellows, both in November 2017 and March 2018. This gave Senior and Junior Fellows an opportunity to discuss their Fellowships both in the context of other Engineer Without Borders projects and also in the wider setting of International Development.

3 . 2 . I M P L E M E N T I N G I N N O V A T I V E A N D U S E R - F R I E N D L Y D A T A C O L L E C T I O N M E T H O D S A N D D I S S E M I N A T I O N

We implemented and improved our MEL framework developed from the 2016 pilot, applying a new baseline survey which we use before all placement volunteers start, we have also restructured our thematic calls in order to provide better results.

During the first half of this grant, we conducted comprehensive research on potential organisations to commission an impact tracker to produce a tailored smartphone platform for volunteers to collect data offline. After a series of operational planning and management meetings, we have taken the decision to pause the implementation of this platform, to review for longer term implementation. We have been successful in using alternative methods to gather and collate data from our Global Fellowship programme in the meantime.

Comprehensive data has been collected from each of the three Fellowships. The overall results from this data is extremely positive, with both Junior and Senior Fellows commenting on the success of the programme.

We have rolled out the use of international dial-in codes to enable volunteers with no reliable internet access to join regular (6-8 weeks) thematic group calls for data collection and participate more fully in discussions. We hold our regular thematic group calls to plan and all of our volunteers are able to join despite any poor internet access.

We have been successful in increasing the knowledge dissemination and cross-partnership collaborations in the regions within which we work. During the rerun of the presidential election in October 2017 our Senior Fellows in Kenya travelled to Rwanda to work with MASS Design, our partner organisation in Rwanda. They shared their knowledge of flood mitigation strategies and community-led public space design with the structural design team at MASS and in return, received advanced AutoDesk training. Another one of our Fellows, who worked with SIBAT last year in the Philippines, is now working with our partner TONIBUNG, in Malaysia to share learnings on micro-hydro power sources.

3 . 3 . I N C R E A S I N G T H E I N T E R A C T I V E L E A R N I N G E X P E R I E N C E F O R T H E G L O B A L E N G I N E E R I N G C O M M U N I T Y

We are currently in the process of waiting to receive our footage of our Senior Fellows and to be able to produce videos.

The production company DuckRabbit is currently shadowing our Senior Fellow Milly Hennayake, on deployment with KDI, after a delay due to elections and instability in Kenya. This film is currently in production.

We have held three events for alumni so far, one of these was our 'Quiz for Change' during the pre-departure course in April 2017. The Quiz was held for those attending the course and for our alumni, we had groups of both attend and raise money for our work with a fun evening out. The second event was presenting at the Institute for Civil Engineers (ICE) in London for their new 'Engineering Lates', our International Projects Manager Sylvia Roberge presented at the event with two alumni from one of our previous KDI placements, Rodoula Gregoriou and Maggie Garfias Royo, where they talked about making a difference globally through civil engineering.

We are currently in the process of embedding an interactive projects map, volunteer journeys, impact stories and volunteer videos on our website. The videos will be available when received from DuckRabbit and our Fellows, and we have posted an impact story online already (included

in the report) with feedback from our Junior Fellows from their placement with Prakti. The projects map and volunteer journeys are yet to be finalised for publishing, but we expect this to happen within the next few months.

We have been working on creating a 'Globally Responsible Engineer Toolkit' for students and young professionals. This work is still in progress, we are currently collating the final resources until it can be published and shared with our members.

4 . L E A R N I N G S A N D R E F L E C T I O N S

This year the overall feedback from our three partners who have hosted Junior Fellows has been overwhelmingly positive. Not only were they impressed with the quality of the Junior Fellows, they also appreciated not having to constantly supervise them directly, therefore reducing the burden on their capacity.

In one case, more formal ties have now been established with the Junior Fellows' academic institution resulting in more testing and research capacity for the partner organisation. This collaboration with Prakti, the Indian Institute of Technology Madras and Imperial College London Chemical Engineering department was wholly facilitated through the deployment of our Junior Fellows.

Senior Fellows reported finding having Junior Fellows to support the technical aspects of their projects beneficial; Junior Fellows were happy with the level of independence they were afforded and being entrusted with more important pieces of work meant they took them more seriously.

One Junior Fellow, who worked with KDI in Kenya said, "The Senior Fellows were really useful, since in the time before we came they became familiar with the organisation and the work, and were able to pass this on to us. I think it was an efficient process, and definitely useful considering that we were only out there for 5 weeks. The Senior Fellows also acted slightly as managers, due to their increased experience, and had outlined some tasks that we could do in the time that we had. This was important because rather than having to contact senior engineers in the UK, we could get an answer or solve an issue much more quickly by discussing it between ourselves."

We have worked to increase the level of knowledge production and dissemination, and to continue to develop ways to improve the Fellowship model as we plan for 2018 activities. We have already scheduled opportunities for returned Junior Fellows to speak about their experience.

5. BUDGET EXPENDITURE PROCESS

Good progress is being made in completing the activities outlined in the initial proposal. We do not foresee any problems in achieving the remaining activities in the following 6 months. Below is a summary of the progress against specific items:

Activity	12 month budget	12 month expenditure	Notes
6. In-country dissemination events	£900	£755	Senior Fellow exchanges between partners including J Hawkins from TONIBUNG to SIBAT, M Hennayake and J Durie from KDI to MASS.
7a. Monitoring & Evaluation & Learning (Direct)	£1,200	£520	Baseline survey implemented and research into potential platforms completed.
7b. Monitoring & Evaluation & Learning (Time)	£2,000	£2,000	Debrief expenditure for Junior and Senior Fellows. Staff time to implement MEL.
9. Communication & Innovative learning platforms	£1,400	£1,399	Costings of alumni events, fellowships events, ICE EngineeringLates, Lightbulb Talk etc.
11. Fellowship Refinement IP Team (Staff time)	£1,600	£1,600	International Partnerships team meetings, partner meetings, partner selection and Partnership Coordinators' training.
12. Fellowship Refinement IP Team (Direct costs)	£900	£524	
17. Support to Fellows	£2,000	£3,483	Delivery of pre-departure training for Fellows and Fellowship days. Costs include travel, venue hire, food, mental health and wellbeing training, cross-cultural work training, and mentor travel costs.
£ TOTAL	£10,000	£10,282	

6. SUPPORTING MATERIALS AND EVIDENCE

Although we are still in progress of finishing a number of materials about the Fellowship model and the impact of our projects, we have still published documents and supporting photographs across our website and social media channels regularly to show the impact. Below we have included:

- Photos of all 3 of our Fellowship teams in the field.
- Photo of one of our Fellowship teams after a joint session at the pre-departure course.
- A photo of our former Fellows and staff member Sylvia presenting at the ICE on their 'Engineering Lates', where the logo of The Happold Foundation was present on slides
- Photos from our Debrief Day
- Photos from our Fellowships Day
- Scans of our published document on 'Collaborative Partnerships' which show a section on our Global Fellowships program and the impact it has, as well as a feature on TONIBUNG and SIBAT in the Philippines where we mention our Fellows.
- A number of screenshots from our social media channels which show us discussing the Fellowships and sharing photos of the teams
- Screenshots of Senior Fellow Audrey Bowie's blog being shared across our social media channels
- Screenshots of Senior Fellow Milly Hennayake's blog being shared across our social media channels
- Screenshots of our International Photo Competition
- Link to the articles published on our website discussing the impact of our Junior Fellows placement in India and the Philippines, who were working in-country for five weeks respectively, with thanks and mention of The Happold Foundation: <https://www.ewb-uk.org/hear-what-our-junior-fellows-say-about-their-time-in-india/> <https://www.ewb-uk.org/our-junior-fellows-reflect-on-their-time-in-the-philippines/>
- Link to video blog made by Senior Fellow Audrey Bowie: <https://videopress.com/v/NnMxo7nt>



The Water Fellowship team in the Philippines with SIBAT



The Clean Energy Fellowship team in Prakti with our 2016-2017 volunteer



Junior and Senior Fellows in Kenya



The Water Fellowship team at the pre-departure course



Discussion at our Debrief Day in November 2017



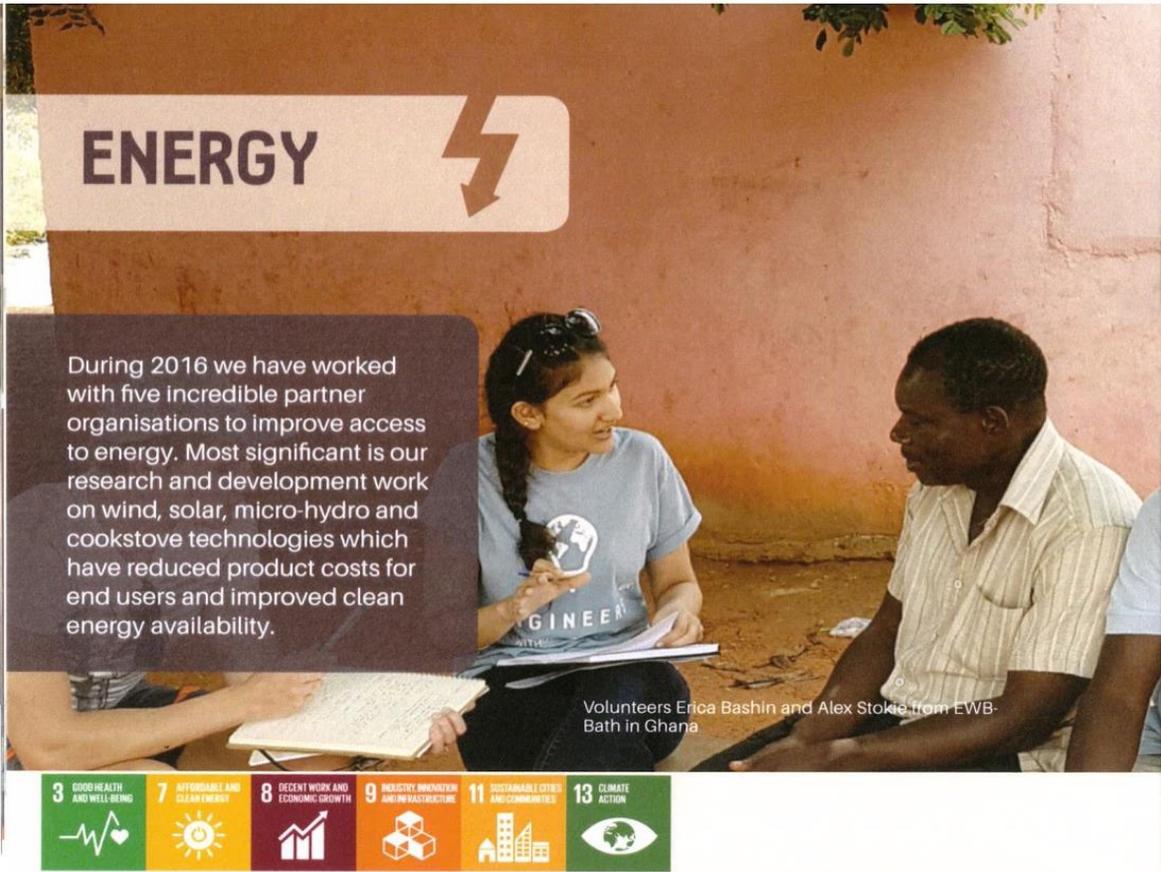
Fellowship Day 3rd March 2018



Presenting at the ICE 'Engineering Lates'



Sharing pictures of our staff and former Fellowship volunteers presenting at the ICE 'Engineering Lates'



ENERGY



During 2016 we have worked with five incredible partner organisations to improve access to energy. Most significant is our research and development work on wind, solar, micro-hydro and cookstove technologies which have reduced product costs for end users and improved clean energy availability.

Volunteers Erica Bashin and Alex Stokic from EWB-Bath in Ghana



AFFORDABLE OFF-GRID MICRO-HYDRO SYSTEMS

PARTNER: TONIBUNG, Malaysian Borneo and SIBAT, The Philippines

In the Philippines with SIBAT and in Malaysian Borneo with TONIBUNG our engineers have reduced the cost of micro-hydro systems by around \$2,000 each through the prototyping, design and development of an electronic load controller to regulate energy flow through the turbines. Ongoing for three years, the controller project

has involved both student and professional volunteer engineers from Engineers Without Borders UK.

The controller can now be fabricated by local technicians in-house at a lower cost and will be installed directly into micro-hydro systems.

A scan from our 'Collaborative Partnerships' document which discusses our work with 2016 Fellowship partner TONIBUNG in Malaysian Borneo and SIBAT in the Philippines.



Scan from our 'Collaborative Partnerships' document which discusses the importance of our global engineering Fellowships

 **Engineers Without Borders UK** ✓
Published by Ewb Staff [?] · 7 July · 🌐

Brilliant photo sent to us from our volunteers with Prakti in India. In this photo we have our two volunteers from 2016/2017 along with our new Senior Fellows and Junior Fellows for the next 3-12 months!



Screenshot from our Facebook and Twitter page sharing photos of our Junior and Senior Fellows with Prakti in India

 **EWB-UK** @ewbuk · Jul 7

Brilliant photo from our volunteers with Prakti in India. In this photo we have our 16/17 volunteers and 17/18 volunteers together! #charity



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Engineers Without Borders UK  Published by Ewb Staff [?] · 1 August · 

We love seeing photos from our volunteers on placement! Here are two of our senior fellows, Audrey Bowie and Ben Cowley, alongside our junior fellows, Zhuraya and Yamin, who have just arrived and are settling in! All four are on placement in The Philippines with our partner SIBAT and I am sure we will have more photos to share with you along their journey.



Screenshot from our Facebook and Twitter pages showing our Junior and Senior Fellows in the Philippines

EWB-UK  @ewbuk · Aug 2 

We love to see volunteer photos. Here are senior fellows Audrey and Ben with junior fellows Zhuraya and Yamin in the Philippines! #volunteer



  2  6 



Screenshot from our Facebook and Twitter pages showing our Junior and Senior Fellows in Kenya



 **Engineers Without Borders UK** January 13 · 🌐

Want to apply for a Junior Fellowship but not sure whether you're ready? Read our Junior Fellows Zhuraya and Yamin's impressions of their time in the Philippines developing a test rig to find out more: <http://bit.ly/2CT5vNt>



Our Junior Fellows reflect on their time in the Philippines | Engineers Without Borders UK

Our Junior Fellows reflect on their time in the Philippines News4th January 2018In July 2017 Engineers Without Borders UK sent two Junior Fellows to the...
EWB-UK.ORG

Sharing the reflections from our Junior Fellows upon return from the Philippines

 **Engineers Without Borders UK** December 6, 2017 · 🌐

Our Lightbulb Talks 3.0 is underway and we are so happy to meet everyone and talk more about our capacity building internationally! With former volunteers, junior and senior fellows, it's a great time for people considering volunteering next year to find out more!



Posting about our Lightbulb Talks on Facebook



Sharing Senior Fellow Audrey Bowie’s blog on her work and impact and time with SIBAT on Twitter



Sharing Senior Fellow Milly Hennayake’s blog on her work and impact with KDI on Twitter

ENGINEERS WITHOUT BORDERS UK ARE EXCITED TO ANNOUNCE OUR INTERNATIONAL PHOTO COMPETITION 2018!

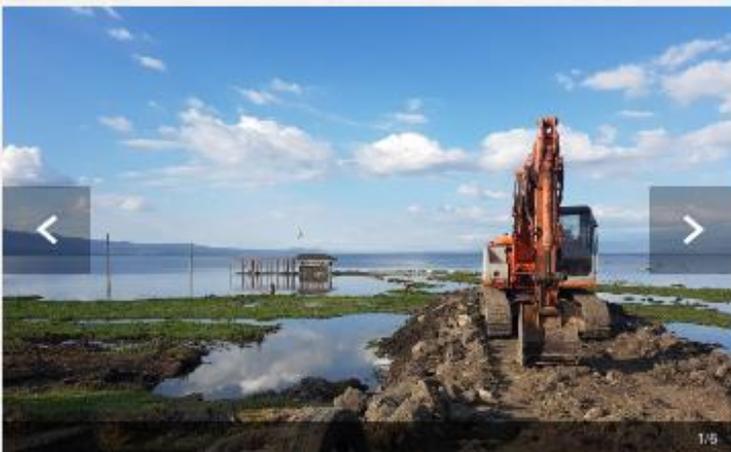
We set our engineers the task of photographing their surroundings to give ourselves and our community an insight into their lives on placement. Our volunteers have been in Ghana, Mexico, Peru, India, Rwanda, Kenya, Malaysian Borneo and the Philippines, bringing engineering capacity to our international partners and working on a variety of innovative development projects. We think we got back some amazing photos that really represent the work our engineers are doing with our [partners](#).

Our team had the hard task of shortlisting the entries but we managed to whittle them down (eventually). We couldn't choose the winners so we want to give you, our [Members](#), the opportunity to vote on your favourite photos from our volunteers in the [members area](#)! The photographs have been split into the following categories:



- BEST PARTNER PHOTO
- BEST ENGINEERING IN CONTEXT PHOTO
- BEST LANDSCAPE PHOTO
- BEST PEOPLE AND COMMUNITIES PHOTO

The voting will take place over the coming months through our [Members Forum](#) so login and get voting! We hope that you enjoy, like we have, seeing what our international projects are doing in bringing engineering capacity to our global partners. If you want to vote but aren't yet a member then how about [signing up here](#) to have access to our full range of members benefits!



Finally thank you to our engineers who entered the competition, we really struggled shortlisting the photos so we're sorry not all of them made the cut but thank you for taking the time to take the pictures and share them with the team at Engineers Without Borders UK. We still have several [International Volunteering Opportunities](#) open for applications until the 18th March so apply now and it could be your photo showcased in 2019!

Blog post from the website about the International Photo Competition



Engineers Without Borders UK

March 14 at 10:01am · 🌐

We've launched the voting for the International Photo Competition we set our Engineers working all across the globe! Read all about it and view some of the entries here: <https://lght.ly/bgp637o> #International #Engineering #Photography #PhotoCompetition #Vote



VOTE IN OUR INTERNATIONAL PHOTO COMPETITION!

Screenshots from our Facebook and Twitter pages sharing our International Photo Competition



EWB-UK ✓ @ewbuk · Mar 14

We've launched the voting for the International Photo Competition we set our Engineers working all across the globe! Read all about it and view some of the entries here: lght.ly/lk28d46 #International #Engineering #Photography #PhotoCompetition #Vote



VOTE IN OUR INTERNATIONAL PHOTO COMPETITION!