

# Sharing Skills for Development

Engineers Without Borders UK

Annual Review

September 2005 - August 2006

Mixing concrete for a bridge anchor in rural Malawi supported by an EWB-UK bursary [Daniel Carrivick]



## Mission

To facilitate human development through engineering.

## Aims

- To educate and raise awareness of students and others about issues in human development;
- to promote research related to, and actively contribute towards, engineering solutions for human development;
- provide an ongoing supply of competent and knowledgeable professional development workers, and;
- to become a mark of excellence for those looking to become involved with development work.

## Approach

- Training and educating students and recent graduates in development theory and practice;
- using student volunteers and academics to undertake research;
- making use of professional volunteers to support our work;
- providing suitable students and recent graduates to partner organisations and developing communities to fulfil their engineering needs, and;
- raising funding from appropriate sources.

## Organisation and functions

A national 'core' team that:

- manages the operations of EWB-UK;
- encourages branches to meet the aims and to adopt the approach of EWB-UK;
- organises and co-ordinates overseas placements and research projects with partner organisations.

Branches and networks that are run by members and for members and which:

- raise awareness through talks, field trips, training courses and publicity;
- encourage and support members to co-ordinate research projects, bursaries and contribute to the other main activities of EWB-UK;
- encourage and assist members to volunteer for EWB-UK placements;
- fundraise for branch activities and for EWB-UK operations.

Partner organisations that work with EWB-UK and its branches and which:

- use, train and supervise EWB-UK volunteers on placement projects;
- suggest research topics which will meet needs of developing communities, and;
- work with EWB-UK for mutual support.

Donors and sponsors that assist financially or in-kind and which:

- embrace the aims and approach of EWB-UK and meet our ethical standards.

# Introduction

## Annual Review

Engineers Without Borders UK is a student-run charity whose focus is on technical contributions to international development. This report summarises our main activities for the academic year from September 2005 to August 2006.

The highlights are reported by our members, branch committee members and core co-ordinators in the following sections:

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## Join Us

EWB-UK has national and regional memberships based around universities or professionals. You can also become a voting charity member by paying a £10 fee.

**University members:** Join an EWB-UK branch by signing up at a freshers' fair or at branch events listed on the branch areas of the website. Alternatively, register with a branch by emailing its president at the addresses given on pages 4-7. National membership is available via our website. If you would like to start a branch at your university, please contact us at [branches@ewb-uk.org](mailto:branches@ewb-uk.org).

**Professional members:** Sign up on our website using the online registration form. If you would like more information about what it means to be a professional member, please contact us at [professional\\_network@ewb-uk.org](mailto:professional_network@ewb-uk.org).

If you would like to work with Engineers Without Borders UK as a partner organisation interested in our research and placements programmes, or if you would like to talk with us about financial or in-kind support for our work, then please contact us at [enquiries@ewb-uk.org](mailto:enquiries@ewb-uk.org) or visit our website.



## Chief Executives' Summary

### Stephen Jones and Kim Roach

The past year has been one of consolidation and steady progress for EWB-UK. We have grown in the four main areas of placements, training, research and bursaries and have continued strengthening the internal organisation of these areas to ensure that we maintain quality as we expand.

Along with this essential consolidation, there have been many exciting new activities and initiatives over the year. We set up our first year-long placement in Africa, a partnership for rural infrastructure in Nigeria with Nakruda in the Dadiya region which will continue next year. We have also started work on a long-term community project in South Africa in collaboration with Buro Happold Consulting Engineers in Bath and Esibayeni Development Projects in Jozini, KwaZulu Natal. This is our first joint venture with a sponsor and shows how UK business can work with us to contribute to international development.

In the UK we have launched our Professional Network, which has grown rapidly to become an active and extremely valuable part of the organisation. The enthusiasm of our branches has continued to generate further new initiatives around the country, such as a 'Water for the World' schools outreach programme, wind turbine construction and demonstration, market research for other charities and many other activities.

This year has been EWB-UK's first with the full Board of Trustees in place, and this has proved an important asset as we prepare for the future. We are very grateful for the support and commitment of the trustees to our mission, and their eagerness to engage with our members. The most important

initiative from the Board has been the Branches Working Group, a team composed of current and former Branch Presidents, the Branches Co-ordinator and a trustee with experience of organisational structuring. This Group undertook a consultation exercise with the whole of EWB-UK and presented its recommendations on how to better manage the relationship between the different parts of the organisation.

The improved structure will involve making greater use of committed volunteers at branches to manage the main activities of EWB-UK, and has received positive feedback from Branch Presidents. The next step in this process is the expansion of our AGM into EWB-UK's first National Training Conference, 'Sharing Skills for Development'. This will take place in October 2006 and will see over a hundred EWB-UK members meeting to take the organisation forward. The event will be a weekend for our members to learn more about development, gain further skills for effective volunteering, and discuss and plan in more detail the activities of EWB-UK for 2006-07.

A year ago two of the most pressing issues for EWB-UK were our outdated IT system and the lack of any full-time staff. The first of these has been resolved thanks to the fantastic efforts of our IT team who have worked exceptionally hard to implement a new system that links our public web presence and internal information sharing. The use of this asset will be crucial in maintaining good communication and management as EWB-UK grows. Training in the use of the IT facilities will form part of the conference and beyond.

However, the search for funding for our first paid employees is still ongoing. This is now the most critical factor preventing EWB-UK's further

significant growth as we reach the limit of what is possible solely with volunteers who are also studying for degrees or in full-time employment. Different avenues are still being explored to take this next crucial step.

But it is the enthusiasm of EWB-UK's young members across the country that continues to drive the organisation. As Paul Jowitt, Vice-President of the Institution of Civil Engineers, said in the 2006 Brunel International Lecture: "There is no doubt that engineering's youth has the energy and motivation to help deliver the world from the shadows of poverty, as amply demonstrated by the activities of Engineers Without Borders".

For both of us it has been a great privilege to be part of such an exciting and inspiring organisation over the past twelve months, and we are looking forward to continuing in our roles over the next year and ensuring a smooth handover to the next CEOs as we graduate in 2007. We would like to express our huge thanks to EWB-UK's partners, donors, our members and all the others who have contributed so much time, energy and enthusiasm to our goals. EWB-UK has already created huge opportunities for young engineers to contribute to international development. With further support from the engineering profession in future, the organisation can realise its enormous potential to fulfil our mission of facilitating development through engineering.

*Stephen Jones*

*Kim Roach*



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Shaili Pankaj



# Our Team

## EWB-UK Core Team

As EWB-UK looks ahead to 2006-07, most of the 2005-06 'core' team listed on the left will be continuing in their current roles, with other members of EWB-UK shadowing them to prepare for a handover towards the end of the academic year. Of the 2005-06 team who are graduating, Tom Harding-Newman is handing over to Raymond Tsui, who has worked with Tom this year on co-ordinating Research. As Curran Crawford and Anita Goyal also move on, the roles of Bursaries and Publicity Co-ordinators will be taken by Peter Wong So and Alistair Cook, from EWB-Imperial and EWB-Glasgow respectively. This will be part of the move to structuring more of EWB-UK's operations in teams involving members at all the branches. In addition to this, Andrew Hunt will be moving from President of EWB-Brighton to take over Dave Lee's role of Branch Co-ordination and Support.

## Our Trustees

The EWB-UK Board of Trustees has five appointed and five elected trustees. The trustees listed below were on the Board of Trustees for 2005-06. Peter Guthrie and Mark Miller have now completed their three-year terms and will stand down to be replaced by two more appointed trustees at the AGM in October 2006. John Arnold and Patricia Xavier will also stand down to allow two more trustees to be elected representing EWB-UK's student and graduate membership.



**Peter Guthrie OBE:** civil engineer; founder of RedR; professor of Engineering for Sustainable Development at Cambridge University; awarded the OBE in 1994; overall winner of the Beacon Prize 2005 for charitable giving; trustee of EWB-UK since 2003.



**Heather Cruickshank:** civil engineer; founding member of the Centre for Sustainable Development in Cambridge; PhD in 'Embedding Sustainable Development into Civil Engineering'; relief and development work in Indonesia, Afghanistan and Nepal.



**Dan Bridges:** LLB in Law & Politics; joined the British Army as officer in 1994; various postings since, then joined the HALO Trust; programme manager for HALO's response to tsunami disaster; currently Deputy Programme Manager in Cambodia.



**Mark Miller:** electrical and electronic engineering at University of Canterbury, New Zealand; currently completing a PhD at Cambridge University; involved in EWB-UK since 2002 and a trustee and director since 2003.



**Jo da Silva:** civil engineer; associate director of Arup; member of the Arup sustainability task-force; member of RedR-IHE; worked in Rwanda relief projects post-genocide; worked in Sri Lanka post-tsunami as Senior Shelter Coordinator for the UNHCR.



**John Arnold:** mechanical engineer; volunteered for EWB-UK in Kolkata on the removal of arsenic from drinking water and in Cambridge with Shelter Centre; graduated from Nottingham University in 2004; currently working for Alain Baxter consultants.



**Tom Newby:** structural engineer; founder member of EWB-UK; former funding director, CEO and Company Secretary; trustee since 2003, graduated from Cambridge University in 2005; currently working for Buro Happold Consulting Engineers.



**Ruwan Mendis:** aeronautical engineer; former CEO of EWB-UK, responsible for overseas projects; graduated from Cambridge University in 2005; worked in post-tsunami projects in Sri Lanka in 2005; currently working for Newton Industrial Consultants.



**Jignesh Parekh:** mechanical engineer; volunteered in Nepal with EWB-UK in 2004; EWB-Imperial President in 2005; led Branches Working Group to review the best way of structuring EWB-UK; current student at Imperial College.



**Patricia Xavier:** environmental engineer; founder and former President of EWB-Cardiff; volunteered with EWB-UK in Brazil in 2005; graduated from Cardiff University in 2005; working on increasing internal training in EWB-UK; currently studying for a PhD.



## Our Branches:

Each branch has a committee and a president responsible for the activities of Engineers Without Borders in their university. Last year the Branches Working Group undertook a consultation over the whole of EWB-UK to examine how the organisation could structure and support itself more effectively. The group's recommendations will lead to a readjustment so that each branch president and committee focuses on awareness and generating enthusiasm within the university. These will be assisted by regional branch support officers to encourage activities at and between branches.

Some members of each branch will also act as EWB-UK volunteers directly integrated into the different teams of the organisation to organise activities such as placements, research, bursaries and training and the crucial support functions of fundraising, publicity and IT. These volunteers will work with the respective core team members and will also be responsible for encouraging interest in their area within the branch to ensure involvement from other branch members and continuity in their role. The transition to more volunteers at branches actively contributing to nationwide activities will be monitored and supported by initiatives such as the National Training Conference and further internal training.

This year new branches set up at Bath, Brighton and Manchester. Branches in Swansea and Liverpool unfortunately closed due to difficulties in finding new committee members.

The following pages list the name and contact for each branch president. Most branches are university societies which change committees during the academic year, so in each case the president listed furthest to the left was in place at the start of 2005-06, and the current president(s) for 2006-07 is listed furthest to the right.

### EWB-Bath

bath@ewb-uk.org  
Sean Case



"In the short time since we started our members have organised numerous talks and discussions on development as well as a visit to the Centre for Alternative Technology. In addition we set up the new EWB-UK placement in South Africa, for which we worked closely with Buro Happold Consulting Engineers in Bath. We are currently planning our first training course and new fundraising events and looking forward to next year!"



Sarah Keith, Jo Ellis and Luke Harlow receive EWB-Birmingham's award for most outstanding new student group from the student's union [Jennifer Chlebek]

### EWB-Birmingham

birmingham@ewb-uk.org  
Sarah Keith & Jennifer Chlebek



"Since starting in early 2005, EWB-Birmingham has gone from strength to strength in our first full academic year. Highlights have included various fantastic speakers, links with other student groups, constructing a wind turbine at a local festival, and setting up a partnership with Islamic Relief in Birmingham. Our successes were recognised when we received the Best New Student Group award from the university's Guild of Students."



### EWB-Brighton

brighton@ewb-uk.org  
Andrew Hunt & Rosie Claydon

"We started our first events in January 2006 and have grown rapidly since! A mince pie sale, a paper aeroplane competition, a vegetarian food stall, presenting EWB-UK's placements scheme to a large audience and various highly successful talks. EWB-Brighton's outgoing president was also awarded an outstanding achievement award by the university's Students Union."

### EWB-Bristol

bristol@ewb-uk.org  
Jenny Neil & Rob Cottrell



"Our activities this year included presentations in local schools about engineering and development, fundraising band nights, publicity on the BBC website, running the EWB-UK bursary scheme, a solar-powered car workshop for schoolchildren, talks from RedR members and placement students, setting up a research partnership with Polytechnic of Havana, Cuba, to investigate Havana's water supply problems. This led to members of EWB-Bristol being one of the winning teams in the Mondialogo World Engineering Awards. We are already planning events for next year on themes such as energy awareness and more."



### EWB-Cambridge

cambridge@ewb-uk.org  
Jenny Moore, Muzoora Bishanga & Zareen Sethna

"Another busy year with talks on topics ranging from solar power in South Africa and post-tsunami work in Sri Lanka to corporate social responsibility in multinational companies, from EWB-UK's sponsor Anglo American. We also represented students in a debate for ICE's Appropriate Development Panel, discussing the place of human development in the engineering curricula of UK universities."





### EWB-Cardiff

cardiff@ewb-uk.org

Fernando Sucre & Charles Bennett

"EWB-Cardiff continued to grow this year with talks on tsunami reconstruction in Banda Aceh to engineering rehabilitation in Basra, and a training weekend at the Centre for Alternative Technology. And of course we had plenty of socials too!"



EWB-Cardiff and other branches took courses at the Centre for Alternative Technology in Wales [Aran Eales]

### EWB-Edinburgh

edinburgh@ewb-uk.org

Irem Serefoglu & Sacheen Patel



"This was our first full year and we became very active, with fortnightly talks and debates and various fundraising events including a big launch for EWB and a successful band night. We are in a great position to begin lots more new activities next year."



### EWB-Glamorgan

glamorgan@ewb-uk.org

Kathleen DeWitt

"We continued our range of talks this year, with topics including the World Development Movement and disaster relief. Next year we aim to expand our student base to include more undergraduates as well as the committed postgraduate team."

### EWB-Glasgow

glasgow@ewb-uk.org

David Toner & Kate Ward



"This year we provided project support for three new research activities, hosted talks from NGO workers on their experiences and organised band nights, a pub quiz and race night. Some of the money raised was used for the EWB-UK grants for Glasgow students on summer placements. We also supported placements with a pre-departure research team and held a Global Water Workshop."



EWB-Imperial held a massive sold-out band night to raise awareness and funds [Jignesh Parekh]

### EWB-Imperial

imperial@ewb-uk.org

Jignesh Parekh & Thalia Konaris



"A fantastic year led to us being awarded the Union's 'Society of The Year'. We ran an Appropriate Energy Course and a Global Health Workshop, a band night, talks, discussions, and trips to Beddington Zero Energy and the Centre for Alternative Technology. Our members completed market scoping for RedR-IHE, and construction and training with Habitat for Humanity. We raised awareness with wristbands and t-shirts, helped Engineers Against Poverty set up a conference, and made links with the Professional Network."



### EWB-Manchester

manchester@ewb-uk.org

Chris Brewis & Fiona Inman

"We got started in March 2006 and generated plenty of enthusiasm, with a committee forming and running a visit to the Centre for Alternative Technology, and chill-out/discussion sessions to get people involved even in exam term. Excited about really pushing things forward next year!"



EWB-Nottingham built and erected a wind turbine to demonstrate this appropriate technology [Aran Eales]



### EWB-Nottingham

nottingham@ewb-uk.org

Aran Eales & Gareth Parkes

"The highlight of our year has been building on what we have learnt in training and visits to construct a small wind turbine over six months to raise awareness of EWB and sustainable development. We are now planning biodiesel and micro-hydro projects for next year."





engineers without borders uk

# Our Team

## EWB-Oxford

[oxford@ewb-uk.org](mailto:oxford@ewb-uk.org)

David Deak & Ankur Naryan



"Our year started with successfully hosting the EWB-UK AGM and we then strengthened our links with the department and other student societies in Oxford. We were a founding society of the Oxford Development Forum, organised various talks and film nights with development-related themes, and initiated 'Water for the World', an outreach programme to local schools based on previous work by EWB-Canada. This will hopefully act as a pilot model for more branches to take up and develop in future."



## EWB-Sheffield

[sheffield@ewb-uk.org](mailto:sheffield@ewb-uk.org)

Julia Allison & Vicky Gerrard

"We became an official union society this year giving us a better base to expand, and hosted some great talks from organisations such as WaterAid on water and engineering issues in Tanzania. We also worked closely with different engineering departments at the university to encourage the take up of EWB-UK research projects, and the feedback from staff has been very positive."

## EWB-Southampton

[southampton@ewb-uk.org](mailto:southampton@ewb-uk.org)

Michael Kraft & Christoph Haas



"We organised a half-day workshop on appropriate construction techniques as well as a number of talks on development work in Darfur, Burkina Faso, and low-cost solar power generators in South Africa. We are now looking to expand and generate more interest in all the engineering departments."

## Our Professional Network:

### Priti Parikh - Professional Network Co-ordinator

The EWB-UK Professional Network is a forum for practising engineers and other professionals and researchers to support and augment the work of EWB-UK. It takes the form of a UK-wide network of professionals who interact with the EWB student branches at universities across the country. The network was formed in the summer of 2005 and has been steadily growing since, and currently over 150 people are registered. Those involved range from recent graduates with previous involvement in EWB-UK or an interest in development work, to experienced professionals of various backgrounds.

In the last year Professional Network members have attended and given talks, helped with various training courses and participated in branch events. Other members also became mentors for volunteers going on placements, reviewers for project proposals, and interviewers for selection panels. Their advice and experience has been hugely valuable to EWB-UK and its student members, especially when professionals and students have been able to meet, discuss and learn from each other.

EWB-Imperial has been particularly active in forming links with professionals in London and the plan for the future is to foster these interactions at branch level all across the UK. This encouragement of relationships at the branches will be the focus for next year, along with more events and a newsletter to keep all members up-to-date on what is going on. If you would like to join the Professional Network, please register as a member via our website.

*Katie Symons, Engineer, WhitbyBird:*

"After being involved with EWB-UK at university, I was keen to stay in touch with the organisation and the Professional Network has been a natural way of doing that. It's been great to keep connected with the latest news via email updates, attending the AGM and coming to talks throughout the year."

This year I took part in the interview process for placement applicants, attending a training course beforehand and gaining useful skills for myself. I also evaluated project proposals for placements, which was interesting and useful preparation for the interviews."

*Claire Wright, Transport Engineer, Arup:*

"I graduated nine years ago, including 2 years on a VSO placement improving the maintenance of highways in rural South Africa. This year I joined EWB-UK's Professional Network and have acted as an advisor to the volunteers working in Nigeria on a community road improvement project and river crossing scheme. I also used my contacts in South Africa to arrange an EWB-UK placement on technology education resources in rural African schools. This included writing the project proposal for EWB-UK, arranging the placement, and interviewing and briefing the students."

I've thoroughly enjoyed being able to continue my interest in development work and assist with EWB-UK's projects. I think the energy, enthusiasm and innovation students bring to development work is brilliant, and I hope I have helped a little in making contacts and giving support. I think it's important that the organisation is run by students, for students, but that doesn't preclude them wisely looking for a bit of advice occasionally!"



Through a wide number of training courses held this year many students have had the opportunity to explore the practical and theoretical aspects of engineering in development. Our training courses throughout the country at several branches have stimulated projects in this field and have given students the necessary technical knowledge to carry out successful assignments. By meeting and learning from professionals in development on our training courses, many are inspired to become more involved in this field of work, or explore similar projects and research of their own. The feedback from our courses is always extremely positive, and we are consistently aiming to improve and expand to meet the demand from our members.

### Clare Farm

As our most frequent and in-demand course, this year saw another three training courses at Clare Farm. Held in co-operation with the RedR Cambridge Group and the professionals who began the RedR training programme at Clare Farm, the success of each two-and-a-half day course was as notable as ever. The course was last year made compulsory for our EWB-UK volunteers partaking in projects both overseas and in the UK, allowing them to share and learn from one another in addition to the course content.

The course covers both practical and theoretical aspects including; construction solutions, water treatment and supply, shelter topics, surveying techniques, personal and public health issues and personal experience talks from professionals. This wide variety of activities has been a great introduction for those who are exploring development for the first time and has also provided valuable skills and thoughts to those already involved in EWB-UK.

Eighty two participants from all over the country have this year been able to experience this wonderful opportunity at Clare Farm alone and as demand still grows for all the courses we are looking at starting up more topic specific courses around the country.

### Other courses throughout the UK

Maintaining our existing courses as well as creating possibilities for new ones has been our main focus this year. The International Development course held for the first time by the Cambridge branch in May 2005, with other student organisations such as MedSIN, Architects San Frontières and Lawyers Without Borders, was recreated twice this year as an introduction to development from a multi-disciplinary outlook. The dedication from the teams involved in running this course has led to the aim of expanding the course beyond just an introduction to development. This idea has also inspired other branches to look at holding similar one day events and forums.

EWB-Imperial have this year again run their exciting and informative two day course on Alternative Technology with lots of hands on activities and talks. Imperial also held a one day Global Health Workshop in collaboration with MedSIN. EWB-Glasgow held a Global Water Crisis workshop and our branches at Bath, Cardiff, Imperial, Nottingham and Manchester all arranged courses at the Centre for Alternative Technology in Wales.



*EWB-UK members at the Clare Farm course in June learnt how to set up a sturdy wooden frame structure [Gino Henry]*

# Training



*Students from around the country met at EWB Imperial's Alternative Technology course which included activities such as building solar cookers [Jignesh Parekh]*

For several of our overseas placement students Objective Security ran its second course this year, providing indispensable information for those on placements to more remote areas.

### The coming year

Providing opportunities for students through training courses is of growing importance to EWB-UK, and the diversity of what we can offer is already taking form. With the new structure of the EWB-UK Training team of representatives from around the country, bi-annual meetings will allow us to share and inspire one another in formulating new topic specific courses. In collaboration with all branches and topics, a one week summer course for 2007 is anticipated and already planning for over five new courses is underway.

We owe a huge thank you to all those that have made our courses so successful this year and to the many people that have devoted a great deal of time, effort and energy to sharing their invaluable knowledge and experiences with EWB-UK.





# Awareness

## Publicity and events

These are examples of our publicity and some of the many events our branches have held over the past year in addition to the branch highlights already described:

### News and articles

- "Mott MacDonald engineer on project in Ecuador" - Mott MacDonald website, Oct 2005
- "Appropriate technology for the developing world" - 209 Cambridge Radio, Feb 2006
- "Wind of change for university" (EWB-Nottingham turbine) - BBC Online, May 2006
- "Students plug Cuba's water leaks" (EWB-Bristol members) - BBC Online, June 2006
- "Power to the people" - Professional Engineering magazine, July 2006

### Events and awareness

- Film nights on global and development issues - EWB-Oxford
- Past placements presentations and launch events for new placements - UK-wide
- Careers in development panel discussion - EWB-Imperial
- Stalls at careers fairs - UK-wide
- Talks to schools on engineering and development - EWB-Bristol
- 'From FairTrade to WaterAid' working in development talk - EWB-Cambridge

## Education

EWB-UK's education agenda can be summarised as 'creating a new generation of engineers that understand and can respond to global issues'. We are trying to introduce international development issues and concepts into the national undergraduate engineering curriculum, particularly through the teaching of appropriate technology. Our research projects, talks and training courses are proving to be successful and popular in their own right. By expanding and promoting these, and by integrating them into the routine of engineering education, we hope to open up the possibility of introducing lecture courses in future.

This year EWB-UK set up a working group to examine our ideas regarding education and develop our strategy in this area. The team was composed of Andrew Lamb, former CEO, Heather Cruickshank, trustee and researcher on sustainable development education, Olivier Mills, former member of EWB-Canada with work on education, and Ronan Kavanagh, EWB-Cambridge member working on curriculum ideas. This group was able to make progress on teaching materials, advocacy and on EWB-UK's strategy. This has been a success of partnerships and collaboration - a way forward which builds EWB-UK's credibility with donors and higher education institutions.

The translation of the Ingeniería sin Fronteras Spain Masters course 'Technologies for Human Co-operation and Development' has been completed. This has been a huge effort and our thanks go to translators Stephan Haranwick and Nkiru Onyechi. The material is now being proofed and edited.

The joint event with the RedR Cambridge Group and the Institution of Civil Engineers' Appropriate Development Panel went ahead in March. Entitled 'Is Engineering Education Appropriate?', the debate brought people from around the country. The audience called for more to be done to consider

development issues in engineering, but not at the cost of 'spoon-feeding': the responsibility of engineers to engage with these issues themselves should remain.



## Is Engineering Education Appropriate?

*Are Developing Countries Important Enough To Consider In Undergraduate Courses?*

*The topic discussed by a varied panel and audience in this joint event in March [Andrew Lamb]*

In collaboration with other Development Education Association members, EWB-UK has been co-authoring a publication on 'The Student as an Active Global Citizen'. Targeted towards aid agencies, donors and higher education institutions who want to engage with students, the publication will set out a framework for project partnerships and benchmarks for their evaluation. The publication is currently undergoing consultation and will be published by the end of the calendar year, when it will be taken to relevant conferences and high-level panels.

Finally, through the Humanitarian Centre in Cambridge, work is continuing on the accreditation of training courses such as the RedR Cambridge Group/EWB-UK Clare Farm course and the Humanitarian Centre's International Development Course by the University of Cambridge's Institute of Continuing Education. EWB-UK's contributions to these courses will be recognised as part of a wider certificate, and should provide a model for similar schemes at other branches.

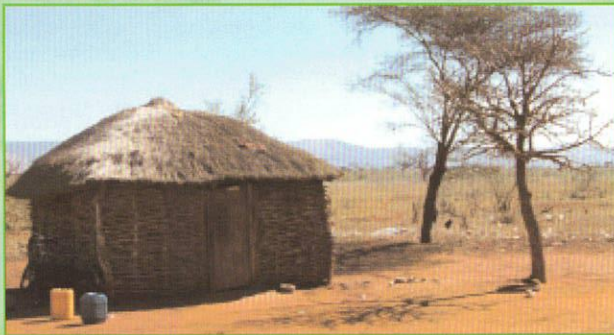


## South Africa: Low-cost housing and sports academy facilities

Gareth Lewis and Tim White - Bath University

"We are working with the Jozini Municipality, a small rural town in Northern KwaZulu-Natal, and Esibayeni Development Projects, on affordable housing and sports academy projects.

The low-cost housing proposed is a fabric-reinforced concrete panel system, rather than the current low quality concrete block or mud huts used. By using pre-fabricated housing improved build quality can be achieved. Regular contact has been maintained with a senior government engineer, who has responsibility for all infrastructure projects in the area, and existing South African producers of the panels, who have provided us with advice and samples. We have also had advice and support from Buro Happold back in the UK.



Existing mud hut and thatch housing [Tim White]

For the sports academy, which is being renovated to provide both a facility for the locals and the potential for income from hosting international visiting teams, we are currently working with Esibayeni on plans for the development and improvement of the site.

With Jozini Municipality we are also assisting with the technical oversight of infrastructure projects funded by the government. Our functions will include liaising between the Municipality and consultants and contractors, and overseeing technical aspects of their work."

### Stephen Jones - Projects

In 2005/06 EWB-UK's placements scheme focused on strengthening the procedures used for the investigation, assessment and selection of projects and volunteers. Together with a controlled expansion of placement numbers (an increase to 38 from the 33 placements that began in summer 2005), this allowed us to further improve the quality of our contribution to partners while offering an increasing variety of opportunities to students and recent graduates from across the UK.

This year the EWB-UK placements team involved over 20 students from our branches who acted as Project Managers to liaise with potential partners, submit proposals, assess candidate applications and lead interviews. The EWB-UK placements co-ordinators ran internal training weekends covering the investigation of project ideas and the recruitment of volunteers, and supported the Project Managers throughout the year. Feedback from those involved was that this was very rewarding experience and a useful introduction to development issues.

Over 25 members of the Professional Network also assisted the scheme. Using their knowledge in reviewing the project proposals received, including review sessions at branches to share their experience with student members, allowed us to choose the best 14 projects from the 23 submitted. Sitting on interview panels and mentoring volunteers both before departure and while in the field were significant further assets.

This year EWB-UK again worked with a wide variety of organisations in the UK and overseas. Our ongoing relationship with Nakruda in Nigeria continues as the second pair of graduate civil engineers departs for 12 months of community-based infrastructure development. Long-term partnerships in the UK have benefited Shelter Centre, recently awarded programme funding from DFID to develop transitional shelter with assistance from our summer volunteers, and Aidworld, who now have a former EWB-UK placement volunteer on their paid staff of IT-for-development specialists. We are also expanding our range of 6-12 month placements as a volunteer begins work on rural renewable energy systems with SIBAT in the Philippines.

In addition to the review documentation that EWB-UK collects from all returned volunteers, this year we collected feedback from our partner organisations and organised a debrief session in the UK for past volunteers. This allowed the students to share their experiences of the projects with each other, and provide valuable face-to-face feedback on the preparation they had received from EWB-UK. Next year we will also be adding an expert final project selection panel to the process. In addition as we reach the fifth year of our placements scheme, we will be beginning a comprehensive review of the programme so far so that we can further increase the benefits to both our volunteers and partners in future.

# Placements

### 6-12 month placements:

- Rural infrastructure development - Nakruda, Nigeria
- Community renewable energy - SIBAT, Philippines
- Low-cost houses and sport facilities - Esibayeni, South Africa

### 10-12 week placements:

- Wood-stove and adobe outreach - FAMUSOD, Ecuador
- LED flashlight manufacturing - Funedesin, Ecuador
- Water resource management - CSE, India
- Eco-sanitation and shelter research - BLESS, India
- Technology education resources - SLC, South Africa
- Online appropriate technology resources - Sunseed, Spain
- Domestic pico-hydro - Practical Action, Sri Lanka
- Micro-hydro installation processes - HEDO, Sri Lanka
- Appropriate information technology - Aidworld, UK
- Water and sanitation research - Islamic Relief, UK
- Emergency shelter design - Shelter Centre, UK





## Sri Lanka: Domestic pico-hydro

**Alistair Wiles - Bristol University**  
**Matt Zedler - Cambridge University /**  
**Massachusetts Institute of Technology**

This is the second year EWB-UK has partnered with Practical Action (previously known as ITDG, the Intermediate Technology Development Group) in Sri Lanka. Practical Action's aim in this project is to assess the potential for improving the existing informal pico-hydro schemes in rural off-grid areas to increase their efficiency and safety.

"After a week acclimatising and preparing at the Practical Action offices in Colombo, we spent two weeks conducting on-site surveys of existing pico-hydro systems in the remote rural village of Illumbekanda. This included testing the flow and head, as well as interviews with the owners of the different systems.

Back in Colombo we presented our initial findings to Practical Action and planned how to set up a turbine and generator made by the local manufacturers to test the performance more precisely. We went to the town of Kalawana where the turbines were being manufactured and spent two days observing the manufacturing process to give us a better idea of any improvements possible and the limitations of the available facilities. Over the next two weeks we then set up the bed which we would use for testing. After various setbacks an initial testing rig was created, but the first results from this indicated that a more reliable set up is still needed.

Once the testing process has been refined and completed, we will continue our investigations and then make recommendations to Practical Action on suitable designs for a possible commercial pico-hydro system that the organisation can develop and implement in the region."

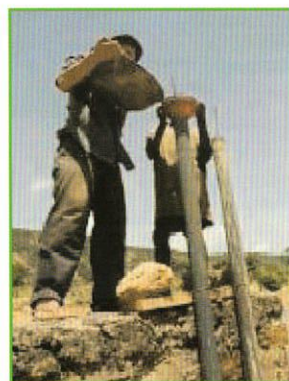
## Nigeria: Community Infrastructure

**Joe Mulligan and Anna Tompsett -**  
**Imperial College, London, and Buro Happold**

"We arrived in the villages of Dadiya, Gombe State, in July 2005. An earth road links Dadiya with the paved interstate road 10km north. To get to the road involves crossing the seasonal Dadiya river. The ultimate goal of the community road improvement initiative is to provide a route for increased year-round access to the area. The Dadiya community has a history of communal works and internal fundraising for them, but if successful this initiative will be by far the biggest project yet.

We were working with Nakruda, a young organisation run purely by volunteers. The committee had recently received training from a local capacity-building NGO, and in addition to our technical assistance we have worked with them to share our experience in proposal writing, computing and planning. As technical support, we began by studying existing and proposed routes. This included a survey, a road inventory recording the changing condition of the road, and assessing how to improve drainage and soil conservation. Rain records, stream depth measurements, interviews and questionnaires were also used to provide information on design considerations and the impact that the road access has on people's lives.

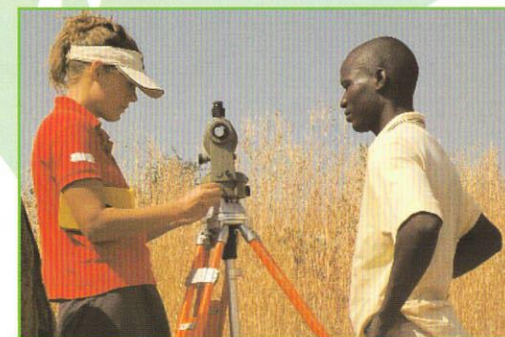
The initial planning for construction was completed with the Nakruda committee. Additional technical support for the design process came from members of the EWB-UK Professional Network at Arup in Leeds and London. After the initial design stage, work began on casting the culvert pipes for the vented ford crossing. We then organised communal labour days through the district heads to excavate 70 cubic metres from the rock banks. The excavation as well as some test piling was finished just before the rains began in June.



*Volunteers pouring a test pile [Anna Tompsett]*

We returned to the UK in July 2006, to help the two new EWB-UK volunteers, graduates with two years of experience working for Buro Happold, prepare to continue the work in Dadiya from October. Meanwhile Nakruda have been busy casting culvert pipes. We also received news that a funding application that we made to the UNDP has been approved and that Nakruda has received the first part of £12,000 to complete the crossing and approach roads. Along with support from the Funding Network (a grant-making organisation in the UK) for the internal road system and potential World Bank access road financing, Dadiya now has a real chance of building a sustainable and coherent access system.

For us the year has been an unforgettable experience. We are grateful to all those who helped in making the experience possible, and most of all to the people of Dadiya for their welcome, hospitality, friendship and all the lessons learned. We are now starting a Masters course in Engineering for Sustainable Development and hope to build on the experiences of this year through further study and work."



*Anna Tompsett and Bitrus Adamu of Nakruda set up the theodolite [Joe Mulligan]*



EWB-UK's research scheme links the research needs of development organisations to opportunities for student projects in the UK, usually for third or fourth year undergraduates but also for postgraduates as well. This year has seen a rapid expansion of our university base with a growth from seven universities to thirteen taking an active part this year.

The links with our partners were also further broadened with the addition of five new organisations: engIndia, RedR-IHE, Appropriate Technology Services, Solargen, and Development Technology Workshop. This widening of the scheme has led to a growth in the number of students taking on projects. Last year saw fifteen students undertaking projects from a list of thirty-eight projects. In 2006-07 it is expected that eighteen students will take on projects from a list of thirty-six projects. The increased uptake points to a better targeting of topics and areas of interest, and better initial topic selection.

The year also saw the creation of a new scheme to help with the funding of projects organized through the research scheme. An independent expert working in development assessed the applications to ensure money was not spent unnecessarily. A further area of progress this year has been the process of cementing a more formal framework along which the research scheme should operate. As this is a relatively new field for EWB-UK, we have worked to increase knowledge amongst the branches as to how the research scheme operates and to clarify the workings of the scheme. Discussions resulted in the production of a guidance document available to all Branch Research Officers and Branch Presidents.

### Collaborations with other organisations

One of goals this year was to establish "collaborations between universities in the UK and universities in developing countries ... to enable a mutual exchange of information". Some progress has been made in this area, with the setting up of a link with the University of Moratuwa outside

Colombo, Sri Lanka, as well as continuing links with the Centre for Energy Studies at Tribhuvan University, Nepal, and the University of Suriname.

The Research Team also took the opportunity to contribute to a Department for International Development (DFID) sponsored "sand-pit" in which the criteria that should be met by receivers of a new fund for research on "Bridging the Global Digital Divide" were discussed. All our suggestions, especially the view that fund receivers should partner with relevant NGOs, were taken up.

### Strategies for 2006-07

In 2006-07, the team will officially consist of Research Officers based in different branches, together with the Research Coordinator. This enables EWB Research to develop a more effective structure to address the various challenges and opportunities it is facing. These include establishing a framework to facilitate constant interaction between EWB-UK's research and placement schemes and introducing ways to better communicate research outcomes to 'client' NGOs.

In addition, as part of the consortium of a DFID-funded project led by Engineers Against Poverty, we will attempt to formalise the current research scheme in some universities with Memoranda of Agreement with certain pilot universities to offer a set number of 'development engineering' related final-year projects. The more devolved research team, which should allow for greater branch participation as well as increased branch resources, is in a good position to address this.

For all our research activities we are extremely grateful to our partner organisations and universities and their staff. We owe special thanks to those research staff in the UK who have helped at all stages of the scheme, assessing initial project proposals for suitability and then supervising various projects themselves.

# Research

## Nepalese Hill Stretcher - Practical Action, Nepal

### Alice Usherwood, Sussex University

Focusing on the appropriate design of a first-aid stretcher for the hillsides of Nepal, the project presented various challenges:

- To allow local production of the stretcher using materials readily available in the hill regions of Nepal;
- To avoid complicated instructions so that even illiterate people can use the stretcher;
- To minimise production cost so that the stretcher is economically viable, and;
- To adopt an appropriate design which accommodates the rocky, uneven surfaces in the hill regions.

In addition other key specifications included the weight and carrying capacity. The final concept featured a foldable one-piece design, a secure backboard, stuffable blankets and first-aid advice. The design will be taken to Nepal in the near future, and it is hoped that field testing, further development and implementation with the partner Practical Action will be carried out to channel the outcome of the research into real benefits for the people in Nepal.



The final hill stretcher design [Alice Usherwood]





# Bursaries

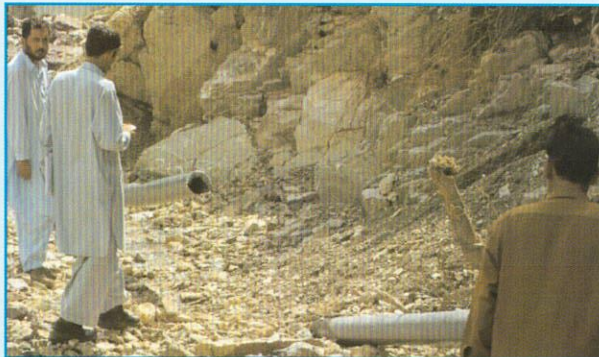
## Reducing the vulnerability of water supply schemes to earthquakes - Oxfam, Pakistan

### Ian Ball, Cambridge University

The project focuses on the design of water supply scheme hardware in earthquake-vulnerable Pakistan, with a view to producing a set of guidelines to be published in two forms: as part of the Oxfam technical briefs series, and in a more generic form accessible to the wider NGO community, both at a national and international level.

I have worked in close partnership with two local and two international NGOs, and have consulted numerous other governmental and non-governmental organisations. 23 water supply schemes in different levels of damage have been visited and examined in a various rural areas. In total data has been gathered on 51 schemes. Bacteriological testing was undertaken in 15 villages, and interviews with on-site field engineers have been conducted.

The fieldwork this summer will be followed up in my university 4th year project, including further work in Pakistan in December.



Water pipes sheared due to earthquake [Ian Ball]

### Curran Crawford - Bursaries Co-ordinator

The EWB-UK bursary scheme was launched in 2005 to provide a catalyst for project ideas from members. The second year of the scheme saw support given to 17 development engineering projects, from over fifty applications. The standard of applications was extremely high with many of the submissions which were awarded funds forming part of postgraduate theses on various development engineering Masters courses. Examples of projects included:

- **Brazil & UK;** Improved management of groundwater resources
- **India;** Assessment of IT knowledge centres
- **Peru;** Water and sanitation analysis of rural community schemes in the Amazon
- **Zambia;** Implementing the management and maintenance of medical devices
- **South Africa & UK;** Impact of sanitation improvements on low income settlements
- **Bangladesh;** Household water treatment in emergencies
- **Zimbabwe;** Targetting vulnerable groups in water schemes
- **Sierra Leone & UK;** Development of a percussion drill for wells
- **El Salvador & UK;** Groundwater resources modelling
- **Malawi;** Community bridge construction
- **Uganda;** Rural community water supply

The scheme is open to applications for assistance for both overseas projects and research projects based in the UK, and two funding rounds were used to encourage support for both types of idea. Most grants given were in the region of £300 - £500. This year four branches hosted the scheme: Bristol, Cambridge, Imperial College and Sheffield. Each host branch was also responsible for advertising and generating interest in other branches in their area.

Applications were submitted electronically via the new EWB-UK website to allow ease of processing and distributing applications between the host branches to avoid conflict of interest and create an equal spread of applications. The branches then formed selection panels usually made up of both student members and professionals near the branch.

Next year the scheme will be run by regional Bursary Officers who will organise pre-screening of applications by students and detailed assessment by panels including Professional Network members.



Setting concrete for the base of a tower for a footbridge in rural Malawi [Daniel Carrivick]



In May 2005 the EWB-UK core team discussed and prepared a plan for the activities in each area of EWB-UK for 2005-06. The targets, budgets and timetables agreed were monitored throughout the year, leading to a further review and planning process in May 2006. This allowed the progress made against the various objectives to be assessed, feedback to be taken in from the branches and members, and further planning to be made for the next year. A summary of the targets, progress and next steps is shown on the right.

The majority of our areas of activity ran as planned, however securing funding for employees has proved the most difficult step. Our lack of paid staff to fully support our volunteers across the country is the most significant limit on our further expansion at the moment, and the search for funds for our first employees is still ongoing.

In the meantime we are seeking to strengthen the organisation in other ways, particularly by increasing the ability of our volunteers from around the UK to learn, work and plan together. The next step in this process will be the first EWB-UK National Training Conference in October 2006, 'Sharing Skills for Development'. This weekend will provide an opportunity for members from all branches to meet, discuss and refine EWB-UK's plans and their implementation in further detail.

Expanding EWB-UK's internal training for volunteers will be a crucial part of this process. Last year we ran training for volunteers in liaising with partners to set up projects, fundraising from grants and sponsors, and assessing and interviewing placement candidates. We plan for the training conference to provide a strong base for an ongoing process of enhancing the skills of our volunteers as they work with EWB-UK. This is an area where the Professional Network and our links with industry are a particular asset. We are looking forward to seeing the impact of these initiatives on the work of EWB-UK and allowing us to make more effective progress in our mission of facilitating development through engineering.

# Our Strategy

	Summary of 2005-06 Targets	Progress and Next Steps
<b>Projects:</b>	More focus on water and sanitation and projects in sub-Saharan Africa	Increased work in Africa but selecting projects on impact instead of type
<b>Placements:</b>	Increasing range of technical ability, and online applications	Successful online system, potential to increase range of opportunities
<b>Training:</b>	Rolling out of training at more branches, support for new workshops	Some new courses but now staff needed to offer further support
<b>Bursaries:</b>	Same level of funding with branches bidding to host the scheme	Successful, now developing regional co-ordination
<b>Research:</b>	Strengthening of partnerships with universities, publish work done	Increased our university links and developing system for dissemination
<b>Education:</b>	Launch of lecture courses, strategic links with other organisations	Lecture material translated and various links made to explore further
<b>Website:</b>	Relaunch with content management system for wider participation	Successful relaunch, now implementing training for all members
<b>Branches:</b>	Improvements to communications, support for branch committees	Revised structure to be used but staff needed to offer better support
<b>Fundraising:</b>	£90,000 target with £30,000 in new fundraising plus funding for staff	Target not reached, so increasing focus on grants for next year
<b>Recruitment:</b>	Paid staff and improvements to membership structure	Still looking for staff funding, online membership now available
<b>Trustees:</b>	New enlarged board established and formalising of governing documents	New board in place, will continue to represent students and professionals
<b>Internal:</b>	Recruitment of new members onto the Core team for role shadowing	Core team beginning to include members from across the UK
<b>Professional Network:</b>	Formal launch and expansion of the network and tie into projects	Strong link with projects, seeking more branch-level involvement
<b>Publicity:</b>	Increasing number of press releases and relaunch of an online news area	Online news and features, now planning a newsletter and other materials





# Financial Statement

## Year ending 31st August 2006 Year ending 31st August 2005

### **Incoming Resources**

Individual donations	1,252	1,079
Corporate sponsorship	36,000	42,700
Non-corporate donations	4,247	3,105
Grants	3,800	12,022
Interest	140	166
Monies administered on behalf of others	6,229	15,095
<b>Total incoming resources</b>	<b>51,667</b>	<b>74,167</b>

### **Resources Expended**

Placement costs from previous year	2,559	5,224
Project costs	274	1,300
Placement costs	31,391	32,926
Bursaries	5,830	2,700
Training	3,750	1,456
Research	1,233	2,146
Education	991	900
Branches	316	298
Branch start-up grants	400	800
Professional Network	18	
Publicity	1,694	
IT expenses	91	
Governance	277	251
Fundraising	228	63
AGM expenses	454	
Charitable expenses		147
Core costs		480
Monies administered on behalf of others	6,229	15,095
<b>Total resources expended</b>	<b>55,735</b>	<b>63,785</b>

Funds at the beginning of the year	15,105	4,723
Net incoming resources	-4,067	10,382
<b>Funds at the end of the year</b>	<b>11,037</b>	<b>15,105</b>

## **Balance Sheet**

At 31st August 2006:

<b>Cash at Bank</b>	<b>17,130</b>
<b>Fixed Assets</b>	<b>0</b>
<b>Debtors</b>	<b>2,980</b>
<b>Creditors</b>	<b>9,074</b>
<b>Net Assets</b>	<b>11,037</b>
<b>Total Funds</b>	<b>11,037</b>

## **Notes**

This statement does not include any financial data from our branches who publish separate accounts.

'Monies administered on behalf of others' refers to transactions undertaken by EWB-UK on behalf of our partner organisations and volunteers related to specific projects as well as on behalf of projects whose purpose are in line with EWB-UK's objects.



## Engineers Without Borders UK would like to thank:

**Gino Henry**

**Kim & Beth Waterhouse and the Waterhouse family**

Alan Ervine; Alex Nash; Alison Walsham; Alistair Paul; Allan McRobie; Andrew Daubney; Antonella Vitale; Augusti Perez; Bobby Lambert; Camilla Herd; Carlos Fernandez-Aballi; Caroline Adams; Cathy Salkield; Chris Moller; Claire Curtis-Thomas; Claire Wright; Colin Barnes; Dan Reader; Dave Hood; Dick Fenner; Emily Browne; Gordon Browne; Ian Neal; Ian McChesney; Jane Wilson-Howarth; Janet Gibson; Johnathon Essex; Jonathan Chew; Joseph Ashmore; Julia Mitchell; Julian Blake; Justin Bishop; Kasia Prentice; Katie Symons; Ken Smith; Lizzie Babister; Louisa Daubney; Matthew Dando; Matthew Slater; Mike Clifford; Neal Juster; Neil Brighton; Nick Palousis; Nick Wilson; Nkiru Onyechi; Pat Conaty; Paul Cosgrove; Paul Jowitt; Paul Roach; Penny Wilson; Peter Cameron; Peter Campbell; Peter Milloy; Peter West; Petter Matthews; Quinton Stowell; Richard Carter; Richard Lorenz; Robin Campbell; Roland Sewell; Ron Dennis; Rupert Evans; Ruth Dennett; Sarah Hindle; Sarah House; Scott MacGregor; Stephan Hawranick; Sue Unwin; Teresa Serra; Tom Corsellis; Tony Marjoram; Vida Docherty;

**and:** Appropriate Technology Services; Architectures Sans Frontières; Bates, Wells & Braithwaite; Bristol University Careers Service; Cambridge Alumni Magazine; 209 Cambridge Radio; Cambridge University Engineering Department & Library; Centre for Alternative Technology; Centre for Sustainable Development (Cambridge); Christian Aid; City and Guilds College Union; Civil Engineering Journal; CRT Nepal; Developing Technologies; DTW Cambodia; Emmanuel College, Cambridge; ENGHana; ENGIndia; Engineers Against Poverty; Engineers for Overseas Development; Escape Artists; Ethical Corporation; Habitat for Humanity; Heath Mount School; ISF-Ecuador; ISF-Spain; Practical Action; Practical Action Nepal; Lawyers without Borders; LMJ Records; London School of Hygiene & Tropical Medicine; MedSIN; New Civil Engineer; Oxfam GB; PAHO; Pembroke College, Cambridge; Potters for Peace; Professional Engineering; RedR-IHE; Resource Development International; Royal Academy of Engineers; SAFAD; Select Solar; Solar Energy International; Solargen; The Caribbean Institute; Tonbridge School; Tools for Self Reliance; UNESCO; VSO; WaterAid.



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**Email: [enquiries@ewb-uk.org](mailto:enquiries@ewb-uk.org)**

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