



Partnerships for Development

Engineers Without Borders UK

Annual Review

September 2006 - August 2007

Installation of a wind turbine for pumping water in the Philippines, part of an EWB-UK placement with local partner SIBAT [Drew Corbyn]

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 executive team that:

- manages the operations of EWB-UK;
- encourages branch societies to meet the aims and adopt the approach of EWB-UK;
- organises and co-ordinates overseas placements and research projects with partner organisations, national training courses and fundraising.

Branch societies and networks that are run by 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 branch societies 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 (EWB-UK) is a student-led charity whose focus is on technical contributions to international development. This report summarises our main activities for the academic year from September 2006 to August 2007.

The highlights are reported on the following pages:

1 - Introduction: Mission and Chief Executives' Summary

3 - Our Team: EWB-UK National Executive, Trustees, Branches and Professional Network

5 - Our Year

7 - Training

8 - Education and Outreach

9 - Placements

11 - Research

12 - Bursaries

13 - Our Strategy

14 - Our Thanks

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 society by signing up at a freshers' fair or at branch events listed on the branch areas of the website. Alternatively, register with a branch society by emailing its president at the addresses given on page 4. National membership is available via our website. If you would like to start a branch at your university, please contact us at **branch_support@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**.

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** or visit our website.

Chief Executives' Summary

Stephen Jones and Kim Roach

This year has been incredibly exciting for EWB-UK, and the organisation has taken great steps forward in its mission of facilitating human development through engineering. We have consolidated our successful existing programmes, explored opportunities in exciting new areas and developed a longer-term strategy for the future of the charity.

This progress has been thanks to the huge motivation and energy of our volunteers from around the country in working towards our shared aims. This year we have focused on better harnessing the amazing enthusiasm of the students and young professionals who drive EWB-UK.

We started the year in October 2006 with our first National Training Conference, 'Sharing Skills for Development'. Over 120 volunteers packed out a field centre in Shrewsbury to learn more about international development and the role of engineering, develop their own skills for volunteering, and meet some of the other young people from around the UK who share their passion. Inspired by what they had seen, heard and done at the conference, our members returned to their universities and companies enthused to continue actively contributing to EWB-UK's work throughout the year.

At the same time as running a range of exciting activities in 2006-07, many of these volunteers participated in EWB-UK's first extended exercise in developing a longer-term strategy for the organisation. The Board of Trustees firstly initiated task forces to address the immediate priorities facing EWB-UK as a rapidly-expanding and volunteer-run charity. These task forces presented their research and recommendations in the areas of

fundraising; human resources; legal and risk management; systems and information management; and public relations. The recommendations will now be incorporated into the yearly planning of our activities.

Next, the Board worked with volunteers from the National Executive, university societies and Professional Network to form task forces to research and recommend the strategy of EWB-UK in each of its programme areas for the next five years. The initial findings of the strategy task forces have been presented and discussed by the trustees and the outgoing and incoming National Executives. These recommendations will then be disseminated for further feedback from the rest of the organisation leading up to and including the next National Conference in October 2007.

Further important steps towards expanding our activities in future were taken this year. Over the next three years we will be able to devote more resources to our training and research initiatives in the UK as the result of a grant from the Department for International Development's Development Awareness Fund. This will involve the assistance of two paid members of staff, our first employees, to help expand the schemes that have been trialled successfully by student volunteers.

We are also collaborating with RedR UK to improve the opportunities available on our placements scheme. This will be a joint effort involving a part-time staff member seconded from RedR. Further funding from a nationwide appeal launched by EWB-UK members at the New Civil Engineer Magazine's Graduate of the Year Awards will enable us to increase our organisational capacity in other ways, through new initiatives such as training for all committee presidents at our university branches.

Other exciting developments this year included continuing collaborations with our year-long placement partners in Nigeria and the Philippines, greater inter-branch collaboration on new training courses, increasing outreach initiatives with schools and youth groups, and progression in our discussions with universities on including international development issues in engineering curricula. All these initiatives have been complemented by a greater involvement and discussion of the role of the Professional Network, and a widening of the pool of volunteers contributing to the national activities of EWB-UK.

It has been an incredible opportunity for us to be involved with EWB-UK at such an exciting time and with such inspiring people around us over the past two years. We would like to say a huge thank you to everyone in EWB-UK and all the organisations that support us and work with us in so many ways. It has been an enormous privilege to be part of the organisation, and it is hugely exciting to see EWB-UK, our members and our partner organisations develop and progress.

As we hand over our roles, we are delighted to welcome a fantastic new National Executive, headed by new CEOs Thalia Konaris and Zareen Sethna. We are confident that EWB-UK will go from strength to strength next year and in the years to come as we work towards our mission of facilitating human development through engineering.

Stephen Jones
Kim Roach

	Chief Executive Officer	<i>ceos@ewb-uk.org</i>	
	Stephen Jones	Thalia Konaris	
	Chief Executive Officer	<i>ceos@ewb-uk.org</i>	
	Kimberley Roach	Zareen Sethna	
	Placements Co-ordinator	<i>placements@ewb-uk.org</i>	
	Stephen Jones	Christopher Cleaver	
	Bursaries Co-ordinator	<i>bursaries@ewb-uk.org</i>	
	Peter Wong So	Yoke Pean Thye	
	Research Co-ordinator	<i>research@ewb-uk.org</i>	
	Raymond Tsui	Hayley Sharp	
	Training Co-ordinator	<i>training@ewb-uk.org</i>	
	Louise Bloom	Sachi Findlater	
	Education Co-ordinator	<i>education@ewb-uk.org</i>	
	Andrew Lamb	Andrew Lamb	
	Funding Co-ordinator	<i>funding@ewb-uk.org</i>	
	Kimberley Roach	Nigel Vaz	
	Branch Support Co-ordinator	<i>branch_support@ewb-uk.org</i>	
	Andrew Hunt	Andrew Hunt	
	Professional Network	<i>professional_network@ewb-uk.org</i>	
	Priti Parikh	Robert Malies	
	Publicity Co-ordinator	<i>publicity@ewb-uk.org</i>	
	Alistair Cook	Alistair Cook	
	Treasurer	<i>treasurer@ewb-uk.org</i>	
	Shaili Pankaj	Ben Taylor	

Our Team

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 2006-07.



Jignesh Parekh: mechanical engineer; volunteered in Nepal with EWB-UK in 2004; EWB-Imperial President and leader of Branches Working Group in 2005; Chair of Board of Trustees 2006-07.



Dr Heather Cruickshank: civil engineer; founding member of Cambridge's Centre for Sustainable Development; PhD in sustainable development in civil engineering; many development projects overseas.



Jo da Silva: civil engineer; director of Arup; member of Arup sustainability task-force; worked on Rwanda relief projects post-genocide; Senior Shelter Co-ordinator for UNHCR in Sri Lanka post-tsunami.



Ian McChesney: chemical engineer; volunteer in Ethiopia 1974-6; worked in UK, Sudan and Indonesia; now Technical Director of Ventures Division, CAMCO plc, started as Energy for Sustainable Development in 1989.



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



Caroline Windsor: chartered accountant; executive at PricewaterhouseCoopers; works mainly on charity and local authority clients; advising EWB-UK on financial management procedures.



Aran Eales: mechanical engineer; volunteered with EWB-UK in Sri Lanka in 2005; President of EWB-Nottingham in 2006; now working as a wind turbine engineer for a small-scale workers co-operative.



Sacha Grodzinski: mechanical engineer; volunteered with EWB-UK in Nepal in 2005; helped set up EWB-Nottingham; now working for FKI plc in UK and China.



Adri Kerciku: structural engineer; volunteered during the Kosovo refugee crisis; worked in Albania on youth capacity-building projects; founding member of EWB-Oxford; now working for Arup.



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



Our Branches:

Andrew Hunt - Branch Support Co-ordinator

Our university-based branches make up the student community of EWB-UK. These registered university societies are affiliated to the charity EWB-UK and run by student committees who organise activities at their universities and encourage volunteers to help deliver the different national programmes.

This year there has been a focus on improving the support available to branches. This has included regional branch support officers to encourage branch activities and regional collaboration, as well as the first training weekend for presidents to assist them in volunteer management and maintaining the enthusiasm of their students.

The presidents are listed for the year 2006-07. Changeovers of committee are determined by the society rules at each university.

EWB-Bath

bath@ewb-uk.org

Sean Case & Natasha Watson



EWB-Birmingham

birmingham@ewb-uk.org

Jennifer Chlebek



EWB-Brighton

brighton@ewb-uk.org

Rosie Claydon



EWB-Bristol

bristol@ewb-uk.org

Rob Cottrell & Timothy Longley



EWB-Cambridge

cambridge@ewb-uk.org

Muzoora Bishanga & Zareen Sethna



EWB-Cardiff

cardiff@ewb-uk.org

Charles Bennett & Ryan Dunne



EWB-Edinburgh

edinburgh@ewb-uk.org

Irem Serefoglu



EWB-Glasgow

glasgow@ewb-uk.org

Kate Ward



EWB-Oxford

oxford@ewb-uk.org

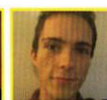
Ankur Naryan & Ting Chen



EWB-Nottingham

nottingham@ewb-uk.org

Gareth Parkes & Katie Goode



EWB-Southampton

southampton@ewb-uk.org

Christoph Haas



EWB-Durham

durham@ewb-uk.org

Tom Willcock



EWB-Glamorgan

glamorgan@ewb-uk.org

Kathleen DeWitt



EWB-Imperial

imperial@ewb-uk.org

Thalia Konaris



EWB-Manchester

manchester@ewb-uk.org

Fiona Inman



EWB-Sheffield

sheffield@ewb-uk.org

Vicky Gerrard & Dan Butler



Our Professional Network:

Priti Parikh and Robert Malies - Professional Network Co-ordinators

The EWB-UK Professional Network (PN) is a community of practising engineers, researchers and other professionals who benefit from and support the work of EWB-UK. It takes the form of a UK-wide network that: interacts with EWB-UK students and supports its programmes; establishes links between EWB-UK and companies, engineering institutions and NGOs; and acts as a forum within which knowledge and opportunities can be shared.

Developments in the way that the Professional Network is organised and thought about have led to a wave of enthusiasm and involvement across the country in the last year. The number registered though the website has risen from 150 to 370 and there have been numerous events and initiatives specifically organised by and for the PN.

The formation of the 'PN Branch Officer' (PN Co-ordinator) position for each branch led to the formation of smaller communities and more collaboration between students and professionals. PN Committees formed in some regions, where initiatives and activities specific to those in the area were developed. These included social meetings, events or talks and also collaboration with local offices or branches of companies, institutions or NGOs. These relationships with external bodies vary from advertising through each other's email lists to organising joint events.

Professionals have been involved in reviewing proposals and applications for the placements and bursaries schemes, running and sponsoring training courses, and helping at branch events or outreach initiatives. A number went on EWB-UK placements and many attended training courses and conferences.

Our Year

The year 2006-07 was another extremely busy and exciting time for EWB-UK. These pages give some examples of our many activities around the country throughout the year.

September and October

As our placement volunteers returned from their summer projects, the different university societies launched recruitment drives at Freshers Fairs and registration days as term began.



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

The first ever EWB-UK National Conference, 'Sharing Skills for Development', was held at the Preston Montford Field Studies Centre in Shrewsbury. Over 120 engineering students and graduates gathered to learn more about the role of engineering in development and plan how they could contribute by volunteering with EWB-UK.

Keynote speakers highlighted the importance of engineering to international development. Conference workshops were on topics as diverse as urban infrastructure development and organisational management, supported by engineers from Arup, Buro Happold, Renewable Energy Systems and WaterAid.

Various universities began work on team-based development engineering projects: EWB-Cardiff started a group project on micro-hydro turbines and EWB-Nottingham began biodiesel research for developing countries.

November and December

Exciting social and fundraising events were held for enthusiastic members around the country, to raise awareness and get more people involved in EWB-UK.

EWB-Bath and EWB-Bristol set up a joint fundraising event for WaterAid to mark World Toilet Day - a 'water and bathroom' themed pub crawl. A sold-out band night was held by EWB-Cambridge, and EWB-Oxford hosted two fundraising evenings of science and engineering comedy.



EWB-Durham and other branches ran 'Water for the World' outreach sessions in local schools [Katie Cresswell-Maynard]

Our varied events programme continued as Chair of the Board of Trustees and former EWB-Imperial President Jignesh Parekh gave a workshop on EWB-UK, Microfinance and Social Mobilisation at EWB-Glasgow and EWB-Imperial.

Other talks were held by EWB-Bristol, EWB-Cambridge and EWB-Cardiff on topics such as improving water networks in Havana, volunteering on an EWB-UK infrastructure placement in rural Nigeria, and water and sanitation in developing countries in conjunction with WaterAid.

Our members organised field trips to learn about different aspects of development and sustainability. EWB-Glasgow visited the Earthship in Fife to learn about low-impact living and the use of renewable energy, low-cost domestic sewage treatment and construction with recycled materials. EWB-Cardiff organised a training weekend at the Centre for Alternative Technology in Wales including talks and workshops on uses of alternative technology and its application in developing countries.

The EWB-UK placements team collected all project proposals for the 2007 summer placements, and members of the Professional Network performed an initial assessment of the possible placements.

EWB-Nottingham, EWB-Durham and other branches began 'Water for the World' outreach sessions for school children with practical activities and role play.

EWB-Glasgow held a Christmas Ceilidh to mark the end of the year in style and promote EWB-UK to both engineers and non-engineers!



EWB-Cambridge held a successful band night to raise funds and promote EWB-UK [Zareen Sethna]

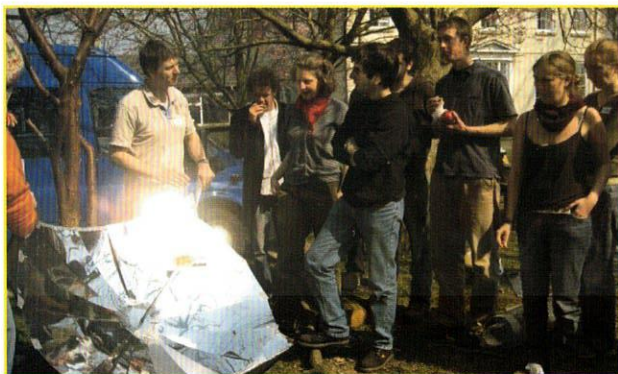
January and February

Student members of the placements team and members of the Professional Network selected the project ideas suitable for the summer placements. Applications for the placements were then opened online with placements launch events including presentations from past placement volunteers.

EWB-Oxford organised the first International Development Course at the university as a one-day introduction to development. EWB-Brighton showcased a wind turbine built for Green Week.

An Intermediate Technologies workshop was held by EWB-Imperial. EWB-Durham set up a practical workshop on water and sanitation for developing countries. The first training course on shelter was held by EWB-Cambridge.

The first Presidents' Training Event was held in London as a follow-up to the National Conference for further training and discussion. EWB-Cambridge hosted an evening about careers in development from former EWB-UK volunteers now working for international NGOs Practical Action and Merlin.



Participants in the Tri-Disciplinary Course test their newly-constructed solar cooker [Cíaran Malik]

March and April



EWB-Sheffield promoting their stove design project for use in Lesotho [Paul Cosgrove]

Various branches collaborated to hold the first team-based Tri-Disciplinary Course on energy, shelter and water in Shrewsbury, including a wide range of hands-on activities.

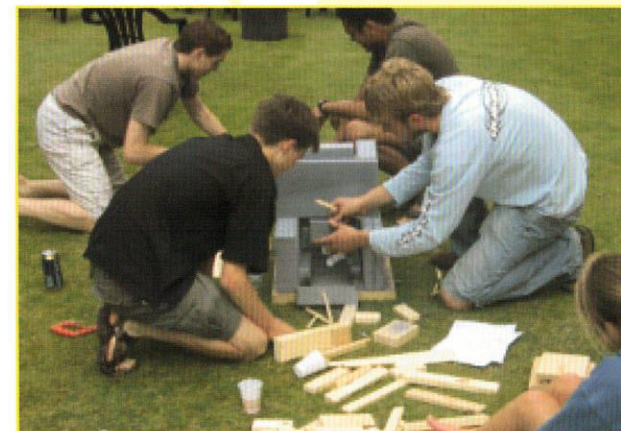
Student and professional members at EWB-Sheffield joined together on a stove design project for applications in Lesotho. EWB-Imperial hosted another successful Alternative Energy weekend course.

The first World Wide Water joint training event was held by EWB-Cardiff, EWB-Bath and EWB-Bristol with help from Halcrow and Buro Happold. EWB-Glasgow ran a conference 'Skills for Developing a Complete Engineer', addressing a wide range of technology and development issues.

The Professional Network organised its first 'How can I get involved?' event in London, with over 70 people attending. EWB-Nottingham raised its profile through a sold-out student band, and EWB-Cambridge held a packed fundraising evening of samba and capoeira.

May and June

After the university examination season was over, two pre-departure training courses were held at Clare Farm with the RedR Cambridge Group for all our summer placement volunteers as an introduction to development and disaster relief. Some branches ended the university year by holding parties with a difference - such as EWB-Cambridge's barbeque which included the construction of low-tech stoves.



EWB-Cambridge held a barbeque and low-cost stove construction challenge [Stephen Jones]

July and August

The outgoing and incoming National Executives joined the Board of Trustees for an away-day of strategy discussions and planning.

Students and professionals joined with Arup and WaterAid to run a water engineering workshop for young people at the World Scout Jamboree. The summer placements and bursaries began and preparations began for the next exciting year of EWB-UK.

Louise Bloom - Training Co-ordinator

This year has seen another exciting and successful year for training throughout the UK. Our courses have provided a valuable introduction to engineering for development and built a greater awareness of the international development sector. They have also focused on more specific topics for wider learning. EWB-UK offers participants the opportunity to learn from professionals in the development field and provides hands-on experience with alternative technologies and methods. By increasing the awareness and skills of EWB-UK members, many have gone on to volunteer for our placement and research programmes. This year alone EWB-UK has been involved in training nearly 600 participants from a range of universities and organisations.

Continuing successes

EWB-UK in partnership with the RedR Cambridge Group held three more oversubscribed courses at Clare Farm near Cambridge, training 74 participants including all those going on our placements. Originally the first EWB-UK training course, we are delighted that it is still evolving and acting as an invaluable experience to our members. The inspirational sessions cover a range of topics including construction, water supply, sanitation, surveying, personal health and this year a workshop on security overseas.

Launched in 2005, EWB-Imperial again hosted their two-day course on alternative energy. This course enables participants to gain a greater insight into appropriate energy technologies through interactive sessions and practical activities.

Expansion of events UK-wide

The first successful International Development Course (IDC) was run in Cambridge in 2005 with over 100 participants and has continued every year with an outstanding range of professional speakers. The one-day workshop covering many aspects of development was run twice this year due to popular demand. The course is run in collaboration with organisations such as MedSIN, Architecture San Frontières, Lawyers Without Borders and Cambridge

University International Development, under the umbrella of the Humanitarian Centre. EWB-Oxford and MedSIN society also successfully hosted their first IDC in February. The organising committees for the IDC are growing rapidly and are hoping to help others set up further courses across the UK.

New training initiatives

This Easter saw the first inter-branch organised course from the EWB-UK training team. The Tri-Disciplinary Course ran for four days and included sessions in Water and Sanitation, Shelter and Energy for development engineering. The course, held at the Preston Montford Field Studies Centre in Shrewsbury, consisted of a variety of practical activities, workshops, lectures and discussions.

Other new courses included a weekend course on shelter hosted by the EWB-Cambridge Training team and a water and sanitation course held by the South-West region. New one-day workshops and conferences have also been established, including water and sanitation in Durham and a conference in Scotland.



EWB-Cambridge's Shelter course included activities on making basic concrete reinforcement [Claran Malik]

Training



Participants investigating water lifting methods at the South-West Water training weekend [Tom Newby]

Next year and beyond

The coming year is set to be an even more active and successful year with our first full time employee dedicated to developing our training programme. We aim to meet the high demand for introductory courses, as well as new courses that will explore the development field and appropriate technologies in more depth. Training plays a vital role in the learning process of future engineers for development, and we have committed continue to provide exciting and beneficial courses to our members around the country.

A huge amount of time and effort is dedicated to achieving so many high quality training courses. We owe a great deal of thanks to the individuals and organisations who volunteer their energy, enthusiasm and skills in coordinating the courses and who offer time to run our workshops and practical sessions. A special note of recognition should this year go to the teams from Arup and from the RedR Cambridge Group - thank you all very much.



Education

Andrew Lamb - Education Co-ordinator

Building a case for change in the undergraduate engineering curriculum has been the central thrust of EWB-UK's education work in the last twelve months. Several university engineering departments are currently reviewing their engineering curricula and teaching methodology, and most are focusing on how they can better equip today's students to address the global challenges we are facing. Issues of global sustainability, poverty reduction and global inequality have all been raised.

Key to the debate is the role of the engineer in the 21st century. To address this, EWB-UK has continued to promote curriculum change at the grassroots and at the 'top' with higher education and engineering bodies. Success stories from the grassroots have been central to EWB-UK's case.

Our key achievements this year included:

- Summer placements at Imperial College with the Envision 2010 project, researching and making recommendations for a multi-disciplinary project for all engineering undergraduates focusing on international development.
- Presentation to the Development Education Association's annual conference on the 'Students as Active Global Citizens' project. Representation of EWB-UK's work at the Graduates as Global Citizens conference in Bournemouth and at the Global Sustainability conference at Imperial College.
- Input into a HEFCE and Universities UK study on the opportunities for the higher education community to support disaster relief efforts.
- Input into the Institute of Education and Engineers Against Poverty survey and study entitled 'Global and Sustainability Issues and Perspectives and Engineering Education'.

- Dialogues begun with the Engineering Subject Centre, Practical Action's education programme and EWB-Australia's education programme.

- Begun the process of converting the 'Technologies for Human Development and Cooperation' course for distance learning.

- Investment in the EWB-UK Library's growth thanks to support sought by EWB-Cambridge.

Outreach

Begun in 2005-06 by EWB-Oxford, the past year has seen EWB-UK's outreach activities for school children expand rapidly. The main activity - entitled 'Water for the World' - is based on educational materials designed by EWB-Canada, and has been run successfully at schools across the country by branches including EWB-Cambridge, EWB-Durham, EWB-Nottingham and EWB-Oxford. The workshop is tailored for children to increase their awareness of the importance of clean water, water filter technology and global issues of water access through a combination of presentation, role play and practical activity.

Other school outreach initiatives have included an educational workshop for school pupils designed by EWB-Bristol on harnessing solar power. The session included the construction and testing of small solar-powered racing cars.

EWB-UK's biggest outreach activity for young people to date was a collaboration with Arup for the 21st World Scout Jamboree in Chelmsford: an event attended by 40,000 teenage scouts from 158 countries. The workshop was part of the Jamboree's Global Development Village and was entitled 'Providing Water and Sanitation Infrastructure for Slum Communities', aiming to raise awareness of the importance of engineering in international development. The workshop was run 15 times and attended by 170 participants.



Student and professional members of EWB-UK run a bamboo water system construction activity at the World Scout Jamboree [Robert Malies]

The strategic review of EWB-UK undertaken this year highlighted the importance of strengthening and expanding our outreach activities. It was decided that for the first time from 2007-08 outreach should become a programme area of its own instead of being part of the education programme, which concentrates more on university curriculum-change. Outreach can therefore focus on providing members with support and information on outreach packages which they can implement in their regions.

A more detailed plan regarding the development of outreach will be put together during the first part of the 2007-08 year. If you are interested in getting involved in this new and exciting area of EWB-UK by helping to define its direction or through the running of outreach workshops, please contact us!

Tanzania: Rainwater harvesting, stove and brick kiln research

Richard Booth - Oxford University
Jonathan McCormack - Bath University
Emilia Melville - Cambridge University

The Mwanza Rural Housing Programme works in northern Tanzania on projects such as agriculture development and housing improvements. Their work has gained wide recognition, including an Ashden Award for sustainable energy in 2006.

"We worked with MRHP on three aspects of their programmes: improving the efficiency of brick kilns, harvesting rainwater for brick construction, and testing energy efficient cooking stoves.

MRHP already encourages the use of rice husks instead of wood as a fuel for kilns in the area. We discussed and tested new kiln arrangements and found new designs that reduced the amount of rice husks needed by 30%. MRHP will now disseminate the information, lowering costs for brick-makers and reducing pressure on biomass resources.



Learning how to make ceramic stoves [Emilia Melville]

A rainwater harvesting system at the main MRHP brick-making site was also designed and constructed. This system should satisfy the needs of the brick-makers for many years to come.

Finally, we tested the current stoves promoted by MRHP to investigate their efficiency and made some design improvements. MRHP will continue to make quality stoves and transfer skills in making low-cost, fuel-saving cooking technology."

Stephen Jones - Placements Co-ordinator

EWB-UK's placements scheme continued to provide a wide range of opportunities for UK students and young graduates to gain experience in development engineering and to share their skills with organisations around the world. We worked with 14 different partners to offer placements for 33 young people. We have continued and developed successful partnerships for our longer placements (those lasting six months or more). New collaborations were initiated for our summer placements, with a focus on working with established development organisations already recognised for the excellence of their work.

This approach led to successful first ventures with organisations such as the Appropriate Rural Technology Institute in India and the Mwanza Rural Housing Programme in Tanzania, both previous recipients of the high-profile Ashden Awards for sustainable energy initiatives. The opportunities for our volunteers to learn from and contribute to these innovative types of projects are invaluable.

The benefits of our ongoing support for other partner organisations are demonstrated by examples such as Shelter Centre and Nakruda. Shelter Centre is an organisation which provides services for the humanitarian shelter sector, and was recently able to expand its work from Cambridge to Geneva, with volunteers from EWB-UK working in both locations. Our continuing rural infrastructure placement with the local partner Nakruda in Nigeria experienced a setback due to local flooding. However, the strength of our ongoing partnership with Nakruda and the community was demonstrated by the commitment of all parties to work together to find a solution.

This year saw an important addition to the placement selection process to improve the quality of the partnerships that EWB-UK volunteers take part in. A final project selection panel was established, composed of members of the Professional Network, trustees, past placement volunteers, and members of the placements team from the National Executive. This panel was able to use the recommendations from the Professional Network volunteers who performed the initial screening of proposals to compare the different project ideas and make a considered assessment of which projects were most suitable for EWB-UK volunteers.

EWB-UK's returning placement volunteers also began to use their experiences to contribute more to the different areas of our work and to share their learning with other members of the organisation. Examples of this ranged from talks at local branch events to showcase presentations at the National Training Conference. Additionally, new sessions were run in EWB-UK training courses by former placement volunteers using the knowledge gained during their placements. These were on topics including renewable energy for development, efficient stove building techniques and shelter design for emergency situations.

Placements

6-12 month placements:

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

10-12 week placements:

- Traditional textile manufacturing - Prolung Khmer, Cambodia
- Water system design - PRODECI, Ecuador
- Low-cost household sanitation - REDES, El Salvador
- Biofuels research - ARTI, India
- Water resource management - CSE, India
- Slum infrastructure improvements - Shelter Associates, India
- Online appropriate technology resources - Sunseed, Spain
- Domestic pico-hydro - Practical Action, Sri Lanka
- Rainwater harvesting, stove & kiln research - MRHP, Tanzania
- Appropriate information technology - Aptivate, UK
- Emergency shelter design - Shelter Centre, UK/Switzerland



El Salvador: Low-cost sanitation

Sally Guscott - Bristol University
Ruth Manning - Cardiff University

EWB-UK volunteers worked for the first time this year with REDES (the Salvadoran Foundation for Reconstruction and Development). A large part of the NGO's work is the construction of housing and sanitation for people who live in poor conditions and/or are at risk of natural disasters.

"Our project involves supervising the construction of greywater disposal systems and pit latrines for households in the rural community of Santa Marta. The greywater systems prevent surface water forming which attracts mosquitoes and increases the likelihood of illnesses such as dengue fever.

Families most in need of improved systems were chosen by discussion with the local development organisation in the community. Workshops were held with the REDES social promoters for those selected, explaining their role in the project, maintenance of the systems and basic hygiene.

We worked with the REDES foreman to determine the appropriate locations for the systems. Logistics were then organised and materials ordered. Local builders were sourced to provide the skilled labour. The families agreed to provide the unskilled labour to promote ownership of the finished systems.

An important aspect of the project is to provide a series of weekly workshops in association with the community health promoters. These are on the subject of greywater disposal and rubbish disposal. There is currently no infrastructure in place in the community for the adequate disposal of household waste. Rather than trying to provide an immediate solution, we aim to make the people aware of the facts associated with the problem so that the community can respond by organising itself to provide an affordable and workable solution."

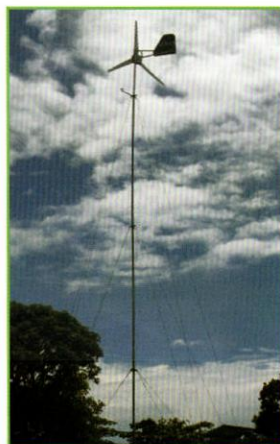
Philippines: Community wind energy

Drew Corbyn - Nottingham University

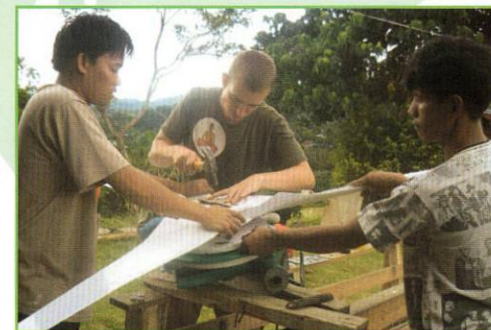
"I have just completed a twelve month placement in the Philippines with a local NGO called SIBAT. As a mechanical engineering graduate, I worked on their renewable energy programme. Knowledge gained from my university course and previous activities with EWB-UK was extremely helpful: as part of setting up EWB-Nottingham, I ran a project to manufacture a prototype small wind turbine similar to the one used by SIBAT. A course in Wind Energy Converters while on exchange in Australia also gave me a good introduction to wind energy engineering.

The aim of my placement with SIBAT was to develop small wind turbines as a viable community-based renewable energy system technology. By demonstrating that small-scale wind energy is appropriate in the Philippines, SIBAT's programme can grow to support the development efforts of many more communities.

During my placement we installed a wind/solar powered potable water system in Buli, a remote island community. The community draws water from a 35m deep well using a rope pulley, but 4-5 journeys per day per household are needed to collect water. This limits the availability for cooking, cleaning and washing - likely to increase the incidents of disease and infections. A detailed feasibility study determined the area had sufficient wind resource and that the community was suitable to sustain a wind energy system. Through community meetings and discussions, a potable water pumping system was chosen as the most appropriate application. The project was completed using SIBAT's expertise and community voluntary labour.



The completed 1kW wind turbine [Drew Corbyn]



Drew Corbyn training community volunteers in wind turbine maintenance [Drew Corbyn]

Another major step in the development of the technology is establishing local manufacturing capabilities for production of the turbine. Relations were established with a machine shop and fibreglass fabricators so systems can be built with minimal input from SIBAT. Local manufacturing gives SIBAT the capacity to repair and develop the machine, avoids expensive importing and benefits the local economy.

Development of a robust feasibility tool for the technical assessment of a potential site has also been a key part of my placement. The energy output of a wind turbine is determined by the average wind speed, so it is vital to have a tool for analysis of a proposed site's wind resource and achieving a sustainable design.

I thoroughly enjoyed my placement and gained a vast amount of experience, improving my technical skills, knowledge of development organisations, and working with various stakeholders. I learnt a great deal about development theory and practice and intend to return to the Philippines as a volunteer for another twelve months with SIBAT to continue work on developing the wind energy programme. I feel that the placement has given me an excellent base for a future career in development and renewable energy."

After two years of trialling our research scheme, this year the focus was on developing a longer-term strategy for EWB-UK's research activities while continuing to monitor and refine the ongoing process of linking development organisations with students and universities.

The concept of the scheme has always been to provide information on technical research topics of value to NGOs around the world, while at the same time enabling students and universities in the UK to develop and learn from these research opportunities. This linkage has huge potential both to inspire students in development and support NGOs in the field through high-quality research and academic networks.

The main opportunities for development research so far have been final-year undergraduate projects. This year nine more academic projects related to development were undertaken in universities across the country through EWB-UK's scheme.

However, the major activity of the research programme this year was planning a sustainable strategy for the next five years. This involved meetings and correspondence with NGOs, academics and other partner organisations to discuss how technical development research could benefit them, and how EWB-UK could help realise these benefits.

The following aspects were agreed and will be developed over the coming years:

Undertaking research projects

The EWB-UK research project proposal list will be updated and published each academic year. The aim of the list is for students to take on a research project in their third or fourth year related to development, giving them inspiration, experience and education in the field of appropriate technology and poverty reduction. To expand from the current focus on final-year projects, some proposals may be more suitable for coursework, a literature review or a joint research project undertaken by a group of EWB-UK members at a university.

Using research projects in the field

Some projects will be suggested by a development NGO or other partner organisation. The results of these projects can be implemented directly, either through EWB-UK's existing placement scheme or by the research student going to work directly with the partner organisation to develop their project further.

Other projects may be more suitable for general applications, for example an appropriate technology that can be the basis for a business plan, to set up small-scale enterprises.

Publishing research outcomes

Another key task is to collate all the research that has been done through EWB-UK in the past, as well as ongoing research, and publish it for other organisations to use. As well as displaying it on our website, hard copy publications are planned, and an annual research conference highlighting the work that has been done that year and inspiring other students and academics to become involved.

To support this development and expansion of the research scheme from the activities so far, a staff member will be engaged as part of the research team. This employee will be part-funded through a grant from the Department for International Development's Development Awareness Fund to enable the research scheme to raise awareness and deepen understanding of development issues among students across the country.

As the research scheme develops, we would like to thank all those who have continued to help and support the initiative, in particular Dr Mike Clifford of Nottingham University and Dr Ron Dennis of Imperial College. If you are interested in being involved with the scheme, by undertaking a project yourself, contributing research ideas, or sharing existing development research, please get in touch with us.

Research

Design of Appropriate Technology Biodiesel Processing Plant

Undergraduate Group Design Project at Nottingham University

Four final-year mechanical engineering students at Nottingham University, supervised by Dr David Hann, undertook a project to develop a design for a simple processing plant that converts vegetable oil into biodiesel for use in generators and various modes of transport.

In addition to creating a functional processing plant, part of the project was to create a website outlining the process and design so charities and NGOs can obtain the information to build their own processing plant.

A continuation of the project is planned to create a business model where an organization can run courses teaching other NGOs in developing countries about the technology.



Test results on mud-brick housing reinforced against earthquakes using bamboo were fed back to EWB-UK's placement partner in El Salvador [Stephen Jones]



Bursaries

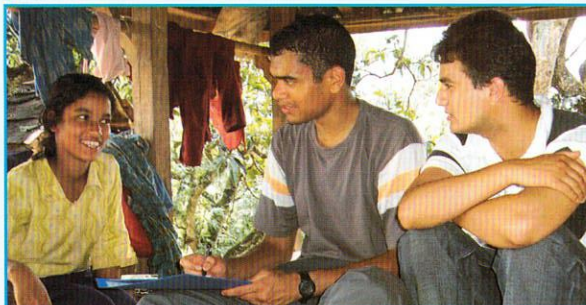
Developing improved cook stove programmes - RECED, Nepal

Nigel Vaz, Cambridge University

"I spent 10 weeks volunteering at a small NGO in Nepal called Renewable Energy for Clean Environment and Development (RECED). My work focused on improved cooking stoves (ICS), a simple yet highly effective replacement for the traditional stove that dramatically cuts indoor air pollution, the fourth largest cause of death in developing countries.

Through community surveys and impact study work in the village of Lekhani, I discovered that less than 5% of the lowest income group have been reached by previous ICS programmes. I designed a new type of programme which will provide ICS, within the next year, to all 335 households in Lekhani which do not yet have one. The programme includes financial assistance based on economic need, extensive education and comprehensive quality control.

I will continue my work as a fourth year research project and will present the results to NGOs and government with the aim of changing policies, so that future ICS programmes will reach those left behind by the current approach."



Interviewing householders [Nigel Vaz]

Peter Wong So - Bursaries Co-ordinator

The EWB-UK bursaries scheme was set up in 2005 to enable high quality development engineering projects with the involvement of young volunteers. Past projects have seen the first steps of budding development engineers or the continued work of our members as they gain experience year on year. The last two years have shown an almost equal distribution of UK and overseas projects, and of curriculum-related research projects and other member-initiated ideas. Thirteen projects were awarded funding this year from a wide range of applications. Examples of initiatives supported included:

- **Egypt;** Appropriate technologies for waste management
- **India;** Impact of disasters on vulnerable women in unsafe housing
- **El Salvador;** Construction of earthquake-resistant housing in rural areas
- **Bhutan;** Assessing the environmental and social impacts of rural infrastructure
- **Pakistan;** Conference on sustainability through wind turbines and solar thermal
- **Ecuador;** Evaluation and social impact assessment of a community water system
- **Ghana & UK;** Optimisation of ceramic water filters for household purification

Two branches (Imperial College and Bristol) hosted review sessions. The bursary team developed more stringent application review criteria, which have won praise from experienced professionals in the development sector. An analysis of the scheme's

past and current operations was undertaken, leading to ideas for expansion possibilities for the future; this was fed into the placement and bursary strategy group.

The scheme was run in two rounds. Applications made through the EWB-UK website were received centrally and distributed equally and fairly to the host branches to avoid conflict of interest and create an equal spread of applications. At branch level, review panels consisted of development professionals and student members. The Professional Network involvement has provided a number of professionals keen on getting further involved with EWB-UK.

The challenges ahead lie in further developing and strengthening the current structure. Development into a more UK-wide scheme is an area to be accomplished - extensive usage of the website, mirroring the screening process of placements trainees, will be needed. Next year, the scheme shall maintain the same high standards and procedures whilst developing more interaction with other departments of EWB-UK and raising its profile inside and outside the organisation.



Observing the traditional process of making mud-bricks in northern India [Jacqueline Gniady]

**Jignesh Parekh -
Chair of the Board of Trustees**

After celebrating the fifth anniversary of Engineers Without Borders UK, we recognised that a strong understanding of our identity and long-term direction was needed to enable future growth and success for the organisation.

To develop this direction, the Board of Trustees initiated a group of task forces, consisting of members of EWB-UK from around the country, to help deliver a five year strategic plan. These task forces undertook a comprehensive review of our past performance, consultation with stakeholders and exploration of the future international development environment. This has enabled us to establish a vision of 'a world where access to technology or infrastructure is not a barrier to poverty alleviation', and define long term aims that we believe will help to deliver this goal.

EWB-UK will strengthen its ability in the future to promote the role of engineering in international development by fostering student and young professional communities and by launching a school outreach programme. We will continue to provide young people with the right skills and opportunities to create a pool of highly capable individuals that are committed to supporting the international development sector now and in the future.

EWB-UK's overseas programmes will promote capacity building of other organisations by supporting knowledge exchange and developments in science and technology education, and by actively engaging local students, academics and researchers.

We will continue to facilitate technical assistance to governmental, non-governmental and community-based organisations and will actively promote engineering rigour, quality and access to local expertise. We have recognised the important role that social enterprise plays and will begin supporting small business incubation and private sector participation.

Our programmes will be shaped to deliver awareness, learning and action; through our

activities we will form communities of practice in the areas of energy, water and sanitation, transport, habitat, manufacturing and ICT.

We have developed an approach of holistic engineering, active partnerships and participatory change. Our scope will be focused on poverty alleviation and young people between the ages of 16 and 26. Through surveys of our members we have identified our core values of learning, volunteering, transparency and professionalism.



Our strategic review recognised the need to create a new outreach programme area and to raise awareness among a greater range of young people [Patricia Steven]

Based on beneficiary feedback and expert opinions we are building programme strategies with clear targets, milestones and performance indicators that will achieve our long term aims. Our focus on the definition of programme purpose and measurable activities will enable improved impact assessment and an ability to develop stronger strategic partnerships.

Our human resource, marketing and financial requirements are defined from these programme strategies. We are planning an efficient and

Our Strategy

carefully managed infrastructure growth in order to provide adequate support to the organisation. The systems strategy will allow more effective forecasting and financial management. EWB-UK is now able to start gearing up in advance for the challenges of our future years.

Finally, with in-kind expert support we have worked to identify and set in place specific plans to control our highest risk areas of fundraising, human resources, legal requirements, knowledge management and media communication.

Hundreds of people have participated in the reviews and have shared their opinions. They have delivered a simple, inspiring, ambitious and achievable strategic plan. We have struck a balance between volunteer drive, expert advice and a professional approach. Our plans are robust but still reflect our dynamic spirit. The strategic plan promises another very exciting five years for EWB-UK.

Our Vision

**A world where access to technology
or infrastructure is not a barrier
to poverty alleviation**

Our Mission

**To facilitate human development
through engineering**

Our Values

**Learning
Volunteering
Transparency
Professionalism**

To facilitate human development through engineering



Our Thanks

Our Placement Partners:



Our Sponsors and Donors:



Our Partners and Affiliates:



Engineers Without Borders UK would like to thank:

Gino Henry

Kim & Beth Waterhouse and the Waterhouse family

Alan Irvine; Alice Piggott; Alison Walsham; Allan McRobie; Anna Grieve; Andrew Daubney; Antonella Vitale; Anthony Oliver; Augusti Perez; Barbara Towers; Beth Steiner; Cathy Salkield; Chris Foster; Chris Moller; Chris Shiel; Claire Curtis-Thomas; Claire Wright; Colin Barnes; Dan Reader; Dave Hood; Dick Fenner; Dominic Joyeux; Doug Bourn; Emily Browne; Gaelle Blake; Gordon Browne; Gordon Masterton; Heather Cruickshank; Ian Ball; Ian Neal; Ian McChesney; Ian Steed; Jan Davis; Jane Wilson-Howarth; Jeff Broome; Jonathan Chew; Joseph Ashmore; Julian Blake; Katie Symons; Kubilay Hicyilmaz; Lesley Paterson; Lidia Oshlyansky; Linda Hatano; Mark Buttle; Mark Koller; Marleen Deerenberg; Martin McCann; Michael Dickson; Mike Clifford; Mo Ali; Pat Conaty; Patricia Xavier; Paul Cosgrove; Paul Jowitt; Paul Roach; Penny Wilson; Peter Guthrie; Peter Milloy; Quentin Leiper; Quinton Stowell; Richard Bridle; Richard Carter; Robin Campbell; Rod MacDonald; Roland Sewell; Ron Dennis; Ruth Dennett; Ruth Graham; Sarah Hindle; Simon Steiner; Steven Hunt; Sue Unwin; Tariq Khokar; Tom Corsellis; Tom Newby; Tony Marjoram; Vaughn Melano; Wendy Tabuteau; Zeena Farook;

and:

Appropriate Technology Services; Architecture for Humanity; Architectures Sans Frontières; Bates, Wells & Braithwaite; 209 Cambridge Radio; Cambridge University Engineering Department; Centre for Alternative Technology; Centre for Sustainable Development (Cambridge); Christian Aid; City and Guilds College Union; Clare College, Cambridge; CRT Nepal; Developing Technologies; DTW Cambodia; Emmanuel College, Cambridge; Engineers Against Poverty; Engineers for Overseas Development; Escape Artists; EWB-Australia; EWB-Canada; Goal; Halcrow; Habitat for Humanity; Hays Recruitment; Highways Magazine; ISF-Spain; Kings College, Cambridge; Practical Action; Practical Action Nepal; Lawyers without Borders; London School of Hygiene & Tropical Medicine; MedSIN; New Civil Engineer; Oxfam GB; Pembroke College, Cambridge; Potters for Peace; Preston Montford Field Studies Centre; Qube Nightclub; RedR UK; Royal Academy of Engineering; SAFAD; Select Solar; Solar Energy International; Solargen; The Funding Network; Tools for Self Reliance; UNESCO; VSO; WaterAid; Woodhouse Scout Camp.



Engineers Without Borders UK, c/o The Humanitarian Centre, Fenner's, Gresham Road, Cambridge, CB1 2ES, UK

Website: www.ewb-uk.org

Email: enquiries@ewb-uk.org

Fax: +44 (0)870 123 1905

Engineers Without Borders UK is registered in England and Wales and is limited by guarantee. Registered Company No.: 4856607. Registered Charity No. 1101849.