



engineers without borders uk

Removing Barriers Engineering Opportunity



Engineers Without Borders UK

Annual Report

September 2004 - August 2005

A fog collector being built in San Mateo Ixtatán in Guatemala supported by an EWB-UK bursary [Christopher Pritchard]

Mission

To facilitate human development through engineering.

Aims

- To raise awareness and to promote learning of human development issues and of appropriate technical practice within the UK;
- to foster research into technical problems faced by developing communities;
- to support the projects of partner development organisations by providing them with technically competent volunteers on work placements; and
- to encourage and assist young people in the UK towards careers in international development and engineering.

Approach

- Student-orientated volunteering and work experience;
- partnerships with development organisations;
- collaborative relationships with developing communities;
- working within the UK university system and engineering profession; and
- sponsorship from appropriate donors.

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 with partner organisations.

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

- offer talks and seminars, field trips, training courses and publicity materials;
- co-ordinate research projects, branch projects and bursaries;
- 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:

- provide appropriate training, speakers for events and other support;
- have needs for work that can be done by technically competent volunteers;
- share the imperative for international sustainable human development.

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

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

Introduction

Annual Report

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 2004 to August 2005.

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

- 1 - Introduction: Mission and Chief Executives' Summary**
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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 branch websites. Alternatively, register with a branch by emailing its president at the addresses given on page 4. National membership is available by signing up on our website. If you would like to start a branch of EWB-UK at your university, please contact us at branches@ewb-uk.org.

Professional members: Sign up on our website using the form on the Professional Network pages. 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

Ruvan Mendis

In the past twelve months, EWB-UK has benefited from a doubling in budget, five new branches opening up across the country, the successful launch of two major programmes (research and bursaries) and an expansion of its overseas placements scheme into six new countries.

During visits to our branch universities throughout the year, I have been utterly amazed by the sheer time and energy that EWB-UK members across the country are pouring in to raising awareness of development issues.

The incredible enthusiasm of students towards the cause of poverty reduction continues to be the driving force behind the organisation, and this will continue to be tapped into by involving branches more and more in the running of EWB-UK.

This year, much investment has been made into ensuring the continuity of the organisation through internal training and delegation, and I have full confidence that next year's executive committee will be able to maintain and strengthen the impact of EWB-UK's work.

My heartfelt thanks to all our project partners around the world and to those who have lent their support to making this year a fun and fulfilling experience. I greatly look forward to the future of EWB-UK and I feel very lucky indeed to have had the opportunity to fill the co-CEO's role during what has been a hugely exciting year.

Ruvan Mendis

Andrew Lamb

Consolidation, carefully managed growth and an increasing range of activities have marked the fourth year of EWB-UK. Our profile as a development organisation has risen within the engineering profession, in universities and in the countries where we are providing more and more support to partner organisations and communities. We are strengthening our role in the four key areas of sustainable development: in practice, through more and better development projects; in research, through closer partnerships with development organisations; in education, with more activities such as training, talks, field trips and publicity; and in policy, albeit not a current area of focus for us, with contributions to the Engineers without Frontiers commission and to the Make Poverty History campaign.


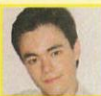





















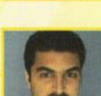
2005 has seen unprecedented public interest in international development issues, but the role of the Engineer has not yet been fully articulated. Peter Guthrie, giving the Ted Happold lecture, stated, "Engineers are key - but only if they know what they are doing". EWB-UK has taken up this challenge, and recognises that an exciting balance can be achieved between learning by lecture and learning by doing. We have found that young engineers have as much to learn from working in developing countries as they have to contribute: a knowledge and experience exchange for the benefit of both developing and developed communities. This has to be the way forward in a global society.

A new generation of engineers need a holistic approach to open opportunities for better ways to contribute. EWB-UK welcomes non-engineers whose contributions are sought and valued for more effective delivery of technical development work. Development engineers need to be able to move outside the borders of the profession; they need to be able to remove the barriers faced by developing communities and to recognise when their interventions might create new barriers. A deeper questioning of our role in the development process can mitigate these barriers. All of this is what Engineers Without Borders UK is striving to achieve in its mission; not to *do* development but to facilitate it.

EWB-UK has been involved in activities beyond the scope of this report, such as the professional network, the library, the forthcoming careers resource and the new branch projects scheme. Also, we have not included reports in full from our branches, many of which have very exciting stories to tell. Finally, there are internal issues that we seek to overcome: the lack of any paid staff and a stretched IT infrastructure are the most pressing needs that have to be faced in the coming year.

I would like to conclude by thanking our donors for their keen enthusiasm and for the resources they have so generously given. I would like also to thank our members who continue to inspire by generating small innovations and big ideas to build a more just future.

Andrew Lamb

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	Bursaries Co-ordinator	<i>bursaries@ewb-uk.org</i>	
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	Website	<i>webmaster@ewb-uk.org</i>	
Dan Yeo			Tariq Khokhar

Our Team

Our Trustees:

The EWB-UK Board of Trustees has five elected and five appointed trustees. The five appointed trustees are as follows:



Peter Guthrie OBE: civil and geotechnical engineer; worked in Nigeria, Iran, Lesotho, Sudan, Philippines, Ethiopia and Botswana and on several major UK infrastructure projects; waste and environment policy advisor in Russia, Mauritius, Seychelles, Romania and Portugal; founder of RedR; established training and environment divisions at consultants Scott Wilson; 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 ITDG and chair of subsidiary ITC; trustee of EWB-UK since 2003.



Heather Cruikshank: civil engineer; founding member of the Centre for Sustainable Development at Cambridge University; completed a PhD in 2004 entitled 'Embedding the Concepts of Sustainable Development into Practical Civil Engineering'; relief work in Banda Aceh, Indonesia in 2005; worked in Afghanistan in 2003; worked in Nepal, Albania and South Africa; given seminars at the EWB-UK training course at Clare Farm.



Dan Bridges: LLB in Law & Politics; joined the British Army as officer in the Royal Regiment of Artillery in 1994; service in Northern Ireland commanding the Brigade Air Tasking Cell; taught the Common Military Syllabus course at Army Training Regiment Pirbright; final posting as Divisional Forward Observation Officer in Bosnia Herzegovina; worked as manager for a multi-national retail company and consultancy to the healthcare and leisure industries; 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; placements co-ordinator 2002-2004; delivered training on placements recruitment process; formalised EWB-UK bursaries scheme; reforming of EWB-UK Board of Trustees, governing documents and membership structure.



Jo Da Silva: civil engineer; associate director of Arup; member of the ARUP sustainability task-force committed to responsible building to benefit as many people as possible; member of RedR; following the genocide in Rwanda, spent three months building refugee camps, food distribution centres, hospitals and basic sanitation systems; worked in Sri Lanka on the tsunami rebuilding effort as the Senior Shelter Coordinator for the UNHCR.



Our Branches:

EWB-UK welcomed five new branches this year in Birmingham, Edinburgh, Glamorgan, Glasgow (at both Glasgow and Strathclyde universities) and Swansea, bringing the total to fourteen. Branches in Leeds and Warwick closed due to difficulties in finding new committee members. With our branches, the new professional network and the national membership listings combined, EWB-UK now boasts nearly 2,000 members.

Each branch has a committee and a president who are responsible for all the membership activities of Engineers Without Borders. They are supported in their respective roles by co-ordinators on the UK Core team. A shadowing scheme is being encouraged, with new recruits supporting existing committee officers, to allow better continuity of each branch in the long term. New branches have received great enthusiasm from academic staff at their universities, which will play an important part in their future success.

The listing below gives the name and contact for each branch president, the date the branch was established and its membership on 1st Sept 2005. Funds raised here are not included in the UK budget.

EWB-Birmingham

birmingham@ewb-uk.org



Sarah Keith
Est. June 2005; 16 members.

EWB-Bristol

bristol@ewb-uk.org



Dafydd Elis
Est. November 2003; 80 members.



Jenny Neil

EWB-Cambridge

cambridge@ewb-uk.org



Charlie Hogg & Tom Harding-Newman Jenny Moore & Muzoora Bishanga
Est. October 2001; 800 members.

EWB-Cardiff

cardiff@ewb-uk.org



Mark Stanko Fernando Sucre
Est. September 2004; 35 members.

EWB-Edinburgh

edinburgh@ewb-uk.org



Irem Serefoglu
Est. February 2005; 25 members.

EWB-Glamorgan

glamorgan@ewb-uk.org



Kathleen Dewitt
Est. April 2005; 15 members.

EWB-Glasgow

glasgow@ewb-uk.org



Kirsteen Begg David Toner
Est. January 2005; 82 members.

EWB-Imperial

imperial@ewb-uk.org



Alex McCredie Jignesh Parekh
Est. January 2003; 40 members.

EWB-Liverpool

liverpool@ewb-uk.org



Thu-Maryam Nguyen
Est. October 2002; 15 members.

EWB-Nottingham

nottingham@ewb-uk.org



Kevin Fowler
Est. March 2003; 30 members.

EWB-Oxford

oxford@ewb-uk.org



David Deak
Est. June 2004; 80 members.

EWB-Sheffield

sheffield@ewb-uk.org



Stephanie Wetherall Julia Allison
Est. October 2003; 60 members.

EWB-Southampton

southampton@ewb-uk.org



Michael Kraft
Est. October 2003; 100 members.

EWB-Swansea

swansea@ewb-uk.org



Karanpreet Bajwa Yousef Al-Zuhair
Est. March 2005; 30 members.

Our training courses expose a greater number of students to some of the realities of development work than our placements can. The training often inspires our members to participate in overseas projects or to conduct research in the UK. Listening to and learning from the experiences of those who have worked in the field ensures that EWB-UK projects, and any future work carried out by participants, are both more effective and sensitive to some of the less obvious impacts of development projects.

Clare Farm:

In response to the overwhelming popularity of the Clare Farm training course, RedR Cambridge Group and EWB-UK worked together to hold three sessions this year. The two-and-a-half-day course was made compulsory for those going on overseas placements. The participants benefit from the experience of three disaster relief engineers who were instrumental in setting up the RedR training programme. A mixture of practical and theoretical sessions cover construction methods, water supply, sanitation, surveying, public and personal health issues and offer personal insights into disaster relief situations. We believe that the Clare Farm course offers an excellent introduction for those interested in development work and is an essential element in inspiring new volunteers to get involved with EWB-UK. A wide variety of people travelled across the country to attend these three courses, including people from similar organisations such as SAFAD and MedSIN.

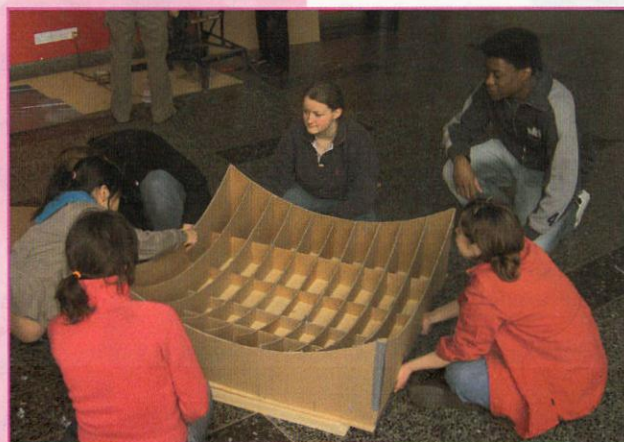
International Development Course:

A multi-disciplinary course was created when our Cambridge branch collaborated with Architecture San Frontières, Lawyers Without Borders and MedSIN. The course began a long-term programme for all students who are interested in development work to consider the wider issues surrounding it. A one-day workshop was held in May with the support of the Humanitarian Centre - a network for development and relief organisations in Cambridge. The workshop was led by highly experienced professionals from different fields and

concluded with an open debate. The one-hundred available places were over-subscribed within three days of the course being announced - even before the posters were put up! The workshop will be held again in December and it is hoped it will be integrated with pre-departure training for future EWB-UK placement volunteers.



Gino Henry of RedR Cambridge Group teaches members from across the UK how to use the Del Agua water testing kit at a Clare Farm course in March [Robert Malies]



EWB-Imperial holds a training course in London in March on 'Energy for the Developing World' where Quinton Stowell taught how to build solar cookers [Daniel Reader]

Training

Training is growing:

EWB-UK has been working with its branches and some outside agencies to develop a range of training courses covering different aspects of international sustainable development.

Our Imperial branch ran a two-day course focusing on alternative energy. It consisted of talks and practical activities led by volunteers with field experience of development work. People attended from several other EWB-UK branches, and a strong example was set for future branch training courses.

Bristol and Cardiff branches held successful courses at the Centre for Alternative Technologies (CAT), with Bristol attending an established CAT course and Cardiff designing their own programme.

Objective Security ran a one-day course in May for ten EWB-UK placement volunteers travelling to remote locations. Elements of this training may be incorporated into a future four-or-five day residential course as pre-departure training develops to cater for longer overseas placements.

The future:

The expansion of training forms a central part of our strategy for the coming year. Considerable focus will be put on branch training courses so that we can develop a diverse programme of sustainable development courses available across the country. Several branches, Sheffield in particular, have been active in seeking training opportunities and these will soon bear fruit. In addition to this we will further develop in-house training on recruitment, funding and projects.

The future of the Engineers Without Borders UK training programme is as exciting as it is important. We owe a massive debt of thanks to all the professionals who give up their time voluntarily to share their learning and experience with us.



Awareness

Publicity

EWB-UK has been featured in many articles and news stories in the last year. The partial listing below gives a sense of the range of our publicity:

Our press releases

- "Development before Disaster" - Civil Engineering journal of ICE - Nov '04
- "Where in the World?" - The Independent supplement, Engineering your Future - Nov '04
- "AngloCoal student sees the light in Nepal" - AngloWorld (worldwide) - Dec '04
- "Overseas Volunteering" - Bulb, UK youth issues magazine - Jan '05
- "Cheaper filters to remove arsenic" - Appropriate Technology Journal - Jun '04
- "Student placement that makes a difference" - The Chemical Engineer - Feb '05

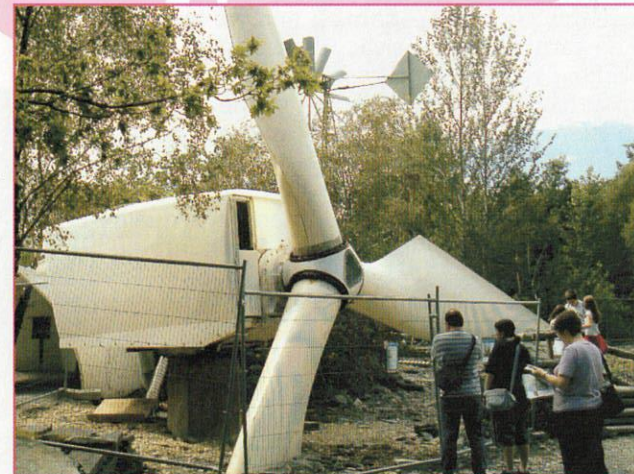
News about us

- "Important support for community development" - El Mercurio (Ecuador) - Sept '04
- "UK Engineers install Solar Systems in rural school" - Kathmandu Post (Nepal) - Aug '04
- "Students ask ICE to force unis to run low tech module on UK civil engineering courses" - New Civil Engineer - Dec '04
- EWB Bristol members in Cuba report - BBC Radio Bristol - Sept '05
- "Extra-curricular Engineering" - Cambridge Engineering Department 2005 Prospectus

Events

Our branches have hosted many events in the last year to bring their members together: talks and lectures, site visits, fundraisers and social events.

- Pump Day at Silsoe College, Cranfield University - Cambridge & Imperial
- Wateraid talk - Sheffield
- BedZED field trip - Imperial
- Post-conflict rehabilitation in Basrah talk - Southampton
- Summer barbeque and 'Tsunami Ball' - Bristol
- EWB-UK placements launch events - UK-wide
- Sponsored leg-waxing, fete games and music fundraiser - Cardiff
- Valentines sweets selling fundraiser - Oxford
- Tsunami disaster eye-witness talk - Cambridge & Nottingham
- Gapminder world statistics talk - Cambridge & Imperial
- Celiedh fundraisers - Glasgow & Sheffield
- Tools for Self Reliance talk - Southampton
- Tidal energy research talk - Swansea
- Innovative irrigation talk - Cambridge
- CAT field trip - Birmingham, Bristol, Cardiff
- Gujarat earthquake disaster relief talk - Cambridge & Bristol



The newly established EWB-Birmingham branch made an early visit to the Centre for Alternative Technology in Wales in August [Sarah Keith]



Left: Members of EWB Cambridge and Imperial were hosted by Richard Carter of Cranfield University in March for a 'Pump Day' and were shown drilling techniques [Robert Malies]

Above: Tom Clasen of London School of Hygiene highlighted his recent research into prevention of water-borne diseases at a talk in Cambridge in February [Robert Malies]

Brazil: Hydrological Monitoring

Patricia Xavier - Cardiff University
Emily King - University of Liverpool

"Our project was in partnership with an NGO research centre, **Iracambi**, and we were based on their farm in the Atlantic Rainforest in Brazil. By working with the local community, Iracambi finds ways to make the protection of the rainforest more economically attractive than its destruction.

We set up a hydrological monitoring scheme to demonstrate how land use affects the quality of natural water. The information feeds into and encourages the government-led scheme 'Payment for Environmental Services' (PES). This scheme rewards landowners economically for protecting rainforest around natural water sources.

We have set up a monitoring system for the local river network. This includes conducting surveys across the river network and recording data in Geographic Information Systems (GIS). We have designed and built weirs on some of the river sections to more accurately monitor the flow of water. This information is then compared with the GIS data, showing the land use of the area.



Small weirs were constructed to monitor water flow [Emily King]

We have designed and implemented a structure and methodology for a two-year monitoring project to now take place.

In our time here we have worked in the local community, helping them to understand what we are doing and why. This has taken the form of an environmental education scheme in the local school. We have also written and submitted financial proposals to different organisations to ensure that the project continues.

We are so excited by this project that we hope to return at Christmas to investigate the feasibility of the monitoring scheme through the rainy season."

Ruvan Mendis - Projects

EWB-UK's placements scheme again grew significantly in summer 2005: 34 students from 17 different UK universities began work on 10 projects in 10 countries around the globe. We have now completed our first 12-month placement, and have started another in Nigeria - which is also our first project in Africa.

The standard of applications received this year was exceptionally high, and their quality and wide geographical spread is a sign of the success of our branches in raising awareness of development engineering across the UK.



This world map shows EWB-UK's placements for 2005 [Ruvan Mendis]

Our choice of project partners this year reflects our strategy of consolidation and growth - a balanced mixture of continuing collaborations with proven partners and fresh relationships with established organisations.

EWB-UK volunteers are making effective contributions to institutions across the development and relief sectors, from small community-based organisations such as **Nakruda** in Nigeria, to international bodies such as the **Pan-American Health Organisation** (PAHO) in Suriname. The past year has seen a move towards more long-term placements, aimed at increasing the social impact of our overseas work, and providing higher-commitment opportunities for recent graduates to become involved in development.

Our links with overseas educational and research institutions have been strengthened by new partnerships with the **Centre for Energy Studies** in Nepal and the **University of Ibarra** in Ecuador.

Throughout the growth of the placements scheme over the last four years, the process of evaluating project proposals from partner organisations has been greatly refined. Until now, the volume of proposals has been such that it has been possible to review projects at the EWB-UK Core level with input from development professionals. However, in anticipation of an increase in project proposals in the future, EWB-UK will be implementing a panel review system in the coming year. This will involve past placement students, experienced development professionals, and committee members and academics from our branches.

Further expansion of the placements scheme will not be the focus of activity in 2006. The coming year will be used to consolidate and implement new management structures to safeguard the quality and sustainability of our projects, for the benefit of the organisations and communities we support. This will better enable EWB-UK to provide exciting opportunities for young people, who need to gain experience of technical development work that will contribute significantly to their future careers. We are already working with several potential project partners for next summer and many of our current partners are keen to continue working with us, having seen the quality of the contributions that Engineers Without Borders UK placement volunteers can bring.



Nepal: Eco-stoves

Joseph Bull - Imperial College
Sasha Grodzinski - University of Nottingham
Ankur Narayan - University of Oxford

EWB-UK's placements in Nepal have grown from partnerships, made by our 2004 volunteers, with the **Centre for Energy Studies** at Tribhuvan University and the **Women in Action Council**.

The goal of this year's project has been to improve the performance of stoves being installed in rural areas and to combine them with a kitchen smoke extraction system. Respiratory infections and diseases, which are often brought on by smoke inhalation from burning firewood, are the biggest killer in the developing world - causing over four million deaths every year [Alertnet].

"Our project branched into a series investigations. We are attempting to improve the efficiency, and hence reduce firewood consumption, of an existing design of eco-stove by combining it with a biomass stove designed locally in Nepal. This uses biomass as insulation instead of wood ash.

We are investigating practical methods of removing the smoke given off by the stove using combinations of bamboo hoods, DC exhaust fans and metal chimneys. Carbon monoxide detectors are used to quantify the reduction of toxic gases.

The tests are being carried out at the Centre for Energy Studies at Tribhuvan University. When they are completed, the system will be trialled in a village in the Kathmandu valley.

The Rural Development Agency of Nepal has shown interest in the smoke extraction system, and the continuation of our work through future EWB-UK placements and research work in the UK is being discussed with several local NGOs."

Honduras: Infrastructure

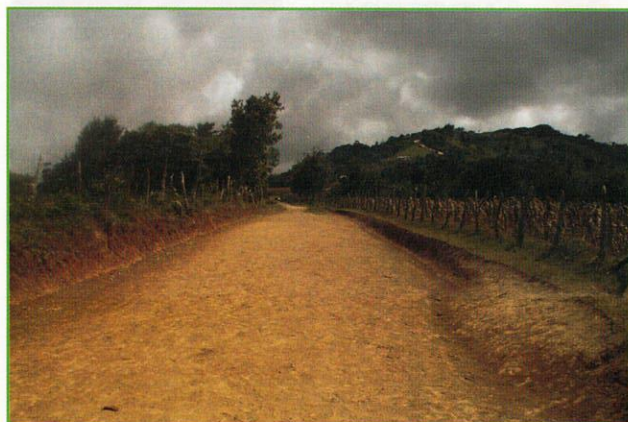
Austen Bradbury - Southampton University

CARE has been in Honduras for just over 50 years. Its office in La Esperanza, western Honduras, is the base of the Food Security Programme (PODER). The programme integrates three major projects on health, agriculture and employment opportunities. It first began in 1996 and is presently completing its second 5-year phase.

"I am helping with the coordination of the infrastructure component of the PODER. This component involves the construction and improvement of rural roads, the construction of improved housing and protection of the environment by reforesting water sources. It uses the labour of participants from the communities, who receive a daily ration of food. The project is active in over 150 communities in 18 municipalities, with one CARE employee living and working in each municipality.

I first arrived in Honduras in July 2003 to do the practical work for my university course, Engineering for Development. At this time there was one engineer employed by CARE as co-ordinator of the whole infrastructure component, responsible for activities in every community. CARE saw the need to find some support in this area and contacted EWB-UK. The placement began in July 2004.

My work for has included supervising project activities, accumulating and analysing information, planning activities, revising and updating manuals and organising meetings and training sessions. I am currently investigating the forming of micro-businesses to maintain the rural roads once the project is over, possibly by using draft animals with specialised equipment.



Dirt road made by hand, Yarula, La Paz [Austen Bradbury]

Construction of a Culvert, Erandique, Lempira [Austen Bradbury]



I have learnt a great deal: not just technical knowledge such as how to build a rural road or a house, but also inter-personal and organisational skills such as leadership, decision-making, and managing teams of employees and volunteers. Of course, the cultural experience has also been indispensable and my level of Spanish has been constantly improving.

I am in a position to introduce big, positive changes to the project and to make a considerable impact on the poor people in the communities, especially at this critical stage when the final third phase is beginning. I have had many opportunities with this placement and feel that I am on a very valuable learning curve. I plan to continue working in development in the future."

Engineers Without Borders UK works to provide research support to development organisations and to offer meaningful research opportunities for UK undergraduates and universities. The research projects are targeted towards third and fourth year students as dissertations or year-long projects, across all disciplines. EWB-UK achieves this by creating partnerships at the university level.

Partnerships are ever more important in engineering faculties to challenge academia with the problems faced by the wider world. In October 2004, EWB-UK launched its Research Initiative in order to bring together universities and students with organisations that face current engineering problems. Problems may be solved through a combination of field and laboratory work, using partnerships brokered by EWB-UK volunteers - often whilst on our placements. These partnerships produce viable solutions for the organisations involved and offer the student a depth of understanding and knowledge of development issues as a routine part of their degree course.

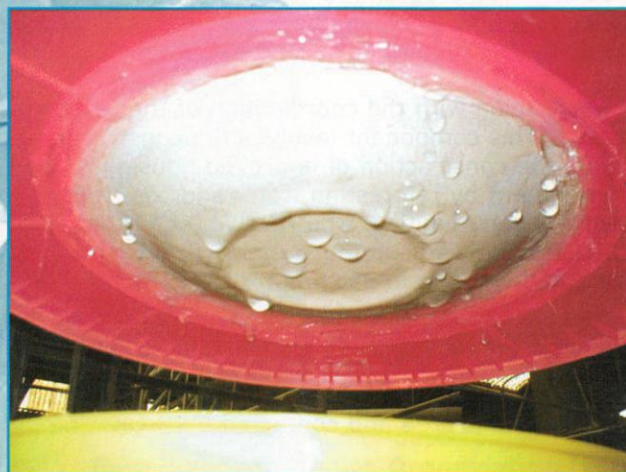
Setting up a project:

EWB-UK volunteers work with development organisations to prepare a minimum two-page project proposal. Brief summaries are posted on our website to give potential researchers an indication of the work involved - a 'shopping list' of meaningful research ideas. The summaries are sent to university departments across the UK so that academics may choose projects that they are interested in supervising. Projects can then be combined with similar work already in progress. Also, a student may independently apply for the research project, and will receive support to find an appropriate supervisor and to fund the project.

From placements to research:

EWB-UK has been involved in four research projects at the universities of Cambridge and Nottingham, with a project in Nottingham on a palm nut crushing device achieving national acclaim in The Daily Telegraph. One of the projects was looking at wood-fuelled kiln, and began as an

EWB-UK placement in Ecuador. The results of this research have now been taken back into the field on a placement this summer. Two projects looking at the manufacture of household water filtration systems have now been implemented and are planned to continue in a Masters course next year.



A member's design for a new ceramic water filter being tested in Ecuador in a ceramics factory [Susan Long]



A label for the side of a water filter bucket was designed during the research to inform proper use [Susan Long]

Research

Prepared for 2006:

This year we have prepared strong partnerships with seven universities through our branches, and with sixteen organisations ranging from small country-based organisations such as Centre for Rural Technology - Nepal (CRT Nepal) to global charities such as Potters for Peace. This is a great opportunity for cross-organisational work to take place alongside academia. A list of forty projects has been established, of which fifteen have been confirmed as accepted research projects so far. Several projects have been combined with EWB-UK overseas placements.

- **NGO Partners:** PAHO, ITDG Nepal, CRT Nepal, ENGHana, ENGIIndia, ISF Spain, Developing Technologies, Oxfam GB, Potters for Peace, DTW Cambodia, Resource Development International, Himalayan Light Foundation, The Caribbean Institute, Fundesin, London School of Tropical Medicine and Hygiene, Escape Artists
- **University Partners:** Bristol, Cambridge, Imperial College, Nottingham, Edinburgh, Glasgow, Strathclyde

The future:

By October 2006, EWB-UK Research aims to have a partnership with every university where we have a branch. Working closely with academia will ensure the continuation of high-quality projects, as students graduate and move on. Shorter projects are being considered for integration into first and second year courses. Further, it is intended that EWB-UK will provide financial backing for every active research project. Using our growing network, collaborations between universities in the UK and universities in developing countries will be established to enable a mutual exchange of information that is beneficial to students worldwide.

Bursaries

Suirname Medical Incinerators - PAHO

The urgent need for more extensive work on medical waste management in rural areas is evident both in disaster relief situations and in longer-term development. Lack of research on optimising the design of the barrel incinerators, which are the most economical option as the barrels are often available at no cost, is a barrier to health improvements in many areas. The availability of the barrels and the need for incinerators makes it certain that further research in the UK will prove invaluable to rural communities suffering from the effects of poor sanitation from medical waste.

The project in Suriname this summer, in association with PAHO and Medical Missions, investigated appropriate technology solutions for medical waste incineration - the first project of its kind for EWB-UK. The project is going to be carried forward next year by a student in the UK so that more information can be gathered and a more generic solution is found.



Left: A medical incinerator under test in Suriname in summer 2005 [Anita Goyal]. Right: Medical waste is hazardous and difficult to dispose of [PAHO]

Curran Crawford - Bursaries Co-ordinator

The EWB-UK bursary scheme was newly launched this year to catalyse and support member-initiated development engineering projects. The scope included both overseas projects and UK-based research projects. The scheme was co-ordinated by EWB-UK but administered by five pilot branches: Bristol, Cambridge, Cardiff, Imperial College and Southampton. The scheme provides structured and transparent project funding outside the EWB-UK placement scheme. The bursaries both encourage and better harness the efforts of EWB-UK branches and their members.

The standard of applications was remarkably high. The applications were structured as project tenders and included curriculum vitae of the member(s) involved. With £800 available to each pilot branch, nine projects were selected:

- **Guatemala;** Kilns, water collection and filtration, and waste management
- **Bolivia & UK;** Improved household water storage solutions in low-income countries
- **Eritrea & UK;** Cookstove optimisation
- **Vietnam;** Data analysis & software support for soil erosion management
- **Uganda;** Hospital hydropower upgrade
- **Kosovo;** Assessment of management training centre for Islamic Relief
- **Tanzania;** Survey of water management practices at village level
- **Spain;** Research placement with Sunseed Desert Technology

The bursary scheme will continue at five branches next year, with branches bidding to host the scheme. Improvements have been made to the application process and a second round is being introduced, to allow support both for research projects during the academic year and for summer vacation projects.

The diversity and technical content of the chosen projects testifies to a successful pilot year of the bursary scheme, and this was echoed by comments made by development professionals on the selection panels. The envisaged goals are being met: EWB-UK is not acting simply as a funding body but further enabling our members to engage in technical development work by providing feedback, support and a platform for future work and wider awareness.



Caroline Byrd helps a some pupils to build a fog collector with Ixtatán Foundation, Guatemala [Christopher Pritchard]

EWB-UK's projects have **engineered opportunity** in the lives and career paths of its members as well as **removed barriers** faced by partners and communities. These flow diagrams highlight the activities of six members from 2004 or earlier:

Our Members

Steven Hunt - 2004 placement Glasgow University



Masters degree in **Product Design Engineering** at Glasgow University and Glasgow School of Art. Three years as a consultant product development engineer for TTP in Melbourn, Hertfordshire.

Four-month **EWB-UK** placement on Alang Slum Networking project with Himanshu Parikh & Nick Ray at Architecture department, Cambridge University, with six weeks at the Centre for Environmental Planning & Technology, Ahmedabad.

Volunteer with **ShelterCentre** working on second generation emergency shelter design and transitional shelter guidelines. Attended shelter conferences in Geneva & Brussels. Developed a small-scale wind turbine with **XCO2** in London.

One-year MPhil in Engineering for Sustainable Development with dissertation on managing intermittency of renewable energy generation. Joined **EWB-UK** Core committee and established EWB-UK Professional Network.

Job with **Practical Action** (ITDG) consultancy ITC in Rugby, Warwickshire, as a consultant on rural energy and international project management.

Robin Campbell - 2004 placement Cardiff University



Masters degree in **Civil Engineering** at Cardiff University. Volunteering for RAG, a homeless shelter and trustee of Student Volunteering Cardiff. Spent one year working for a Sri Lankan NGO.

Ten-week **EWB-UK** placement with ORSED in Pondicherry, southern India, preparing feasibility report into urban rainwater harvesting.

Used dissertation to study and model the reducing levels and increase salinisation of Pondicherry's groundwater. Started **EWB Cardiff** with an enthusiastic committee - organised trips, talks, fundraising and socials in the first year.

Recently started as a graduate engineer at **Arup's** water department in Cardiff. Joined Arup Poverty Action and Arup RedR groups. Accepted by charity **GOAL** onto their register in the future. Attended a RedR-IHE training course entitled 'So you think you want to be a relief worker?'

Working towards becoming a **chartered water engineer**, perhaps ultimately as domestic support or on short-term placements with a disaster relief organisation.

Alice Piggott - 2004 placement Cambridge University



During **gap year** spent two months working on a rainforest conservation project in the Belizean jungle. Undergraduate masters degree in **Chemical Engineering** at Cambridge University.

EWB-UK ShelterCentre placement for three months designing second generation hoop tent and researching refugee camp planning.

EWB-UK Core publicity officer for 2004 to 2005

Volunteering in **Mumbai** for six months with a local NGO called **VIDYA**, including non-formal education for women and disadvantaged children, and income generation and marketing schemes.

Student placement that makes a difference

Alice Piggott talks to John Naylor about opportunities for engineering students to work on projects that help those in developing nations

The work of engineers plays a central role in enhancing quality of life all over the world. A new project now offers engineering students an opportunity to use their skills to help raise the living standard for those in developing countries. Engineers Without Borders (EWB) is a not-for-profit organisation with satellite offices across the world. It was founded on the belief that engineering plays an important role in development and can be used to help people to escape from the cycle of poverty. It is essentially an organisation for students but also welcomes professional engineers who work in partnership with NGOs and sponsors in the developing world. The UK operation is based in Cambridge with branches at ten other universities across England and Wales and the prospect of more to come.

12 weeks during the summer break and are suited to students looking for a different type of industrial work experience or a foot in the door to a career in development work. Although Alice was based in the UK, the majority of projects are based overseas in countries such as Honduras, Ecuador, Nepal and India. "A large part of the scheme is that you get to live and work abroad," says Alice. "It is very much a personal experience in

knowledge of structures, mechanics, and material properties... it was also fascinating to think that I can be part of the process in educating local engineers." Placement projects run for up to 12 weeks during the summer break and are suited to students looking for a different type of industrial work experience or a foot in the door to a career in development work. Although Alice was based in the UK, the majority of projects are based overseas in countries such as Honduras, Ecuador, Nepal and India. "A large part of the scheme is that you get to live and work abroad," says Alice. "It is very much a personal experience in



As Publicity Officer, Alice Piggott worked on press releases such as this in TCE in February 2005 [TCE]



**Sarah Hindle - 2002 EWB-UK Director
Cambridge University**



Two years of General Engineering at Cambridge. Chose to specialise in **Civil Engineering**.

Director of **EWB-UK** in its first two years and helped establish its vision, framework and first Core team. Involved in everything from fundraising to interviewing for EWB-UK's first placements. Final year project investigated iron in ground water in rural **Uganda**, involving a short trip there to carry out some tests.

Worked for one year in a **nightshelter** for homeless people in Bedford.

As a water engineer at **Arup**, got involved in an internal network connecting people within Arup who are interested in international development, using a discussion forum and holding regular talks. On the regional **ICE** Graduates and Students committee, finding opportunities to raise awareness about development issues.

Seeking **chartered engineer** status and for most effective way to work with **developing communities**. Planning to spend some time overseas to better understand the real issues.

**Jignesh Parekh - 2004 placement
Imperial College, London**

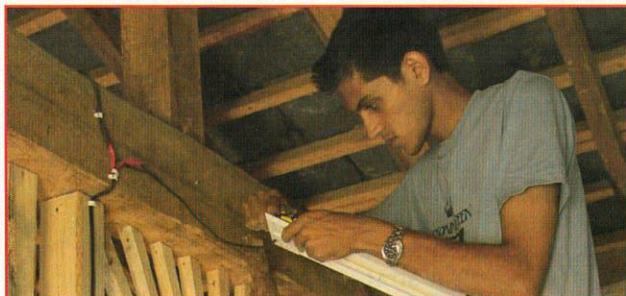


Lived in UAE, volunteer for the **Dubai Centre for Special Needs** and **Earthwatch**. One year studying **Mechanical Engineering** at Imperial.

EWB-UK placement with the Himalayan Light Foundation in Lekhani Village, Nepal, to install solar power systems. Developed a stove project which went on to secure \$50,000 from **UNDP**.

Events officer at EWB Imperial committee and Nepal project manager. Presented on 'rural energy' at an **IMechE** sustainable energy day.

Researched future of coal and carbon capture in India for Imperial's Energy Technology group. Bio-fuel power projects for **Energy for Sustainable Development** in Wiltshire. EWB Imperial president.



Jignesh Parekh installing a solar powered light on his placement in Nepal in summer 2004 [Jo Rushworth]

**John Arnold - 2003 & 2004 placements
Nottingham University**



Raleigh International project in Chile with travel in South and Central America, South East Asia and Europe. **Masters degree** in Mechanical Engineering at Nottingham University, with specialisation in appropriate technology projects.

Three-month **EWB-UK** placement in West Bengal, working with an engineering college to redesign a water filter funded by UNICEF and local government.

Completed final year of study whilst acting as the contact for the EWB-UK West Bengal placement in 2004. Acting as chairman for the university fundraising society and help set up a new charity called the **One Percent Scheme**.

Four-month **EWB-UK** placement with ShelterCentre, researching refugee camp planning and presenting the work at the ShelterMeeting conference in Geneva.

Working for an **urban design consultancy** in London. Future interests in project management, water engineering and in relating the UK urban design experience into a development/relief context.

The end of the academic year brings about many changes for student organisations, and EWB-UK is no exception. As a student-run charity, we are again supporting a significant change in our management at our branches and in our national Core team.

Through the effective shadowing of all Core roles during the past twelve months, the negative impacts of these changes have been minimised and the new team is taking over with a firm grounding in EWB-UK's aims and approach and all the necessary experience of our organisation.

Both Chief Executives, Ruvan Mendis (Projects) and Andrew Lamb (Administration and Funding), are standing down so that EWB-UK continues to be run by students. Their roles will be ably filled by Stephen Jones and Kim Roach respectively. We have integrated the roles of projects co-ordinator and of funding co-ordinator into their roles and are delegating more of their 'hands-on' activities to volunteers at branch universities to encourage others to learn about the way EWB-UK operates.

With such a large committee turnover and to ensure the quality of our work, EWB-UK's plan for the coming year focuses on the consolidation of our programmes rather than further expansion. We feel that such consolidation will be a useful and productive step for the longer-term growth of the organisation and the effectiveness of our work.

EWB-UK will commit a greater proportion of its effort and resources to training and research activities. This will reinforce the activity of our branches and facilitate a longer-term commitment to international development by more and more of our members. Our placements and bursary schemes will maintain their current status and size and we will offer more year-long placements.

Our Annual General Meeting in October 2005 will see the inauguration of a new, enlarged Board of Trustees. Our trustees will be people from industry, academia, undergraduates and post-graduates who have experience of EWB-UK, international development work or who can offer specific skills.

Significant Limits

Engineers Without Borders UK has worked hard to lay the strong foundations needed to continue as a successful and relevant international development group. We have now reached two significant limits on our ability to grow and to achieve our mission: a lack of any paid staff and a stretched computer infrastructure.

In the next year, we will seek partnerships and funding to allow us to employ our first paid staff that will support the Core team. This process has already begun in a small way and it will be one of the major tasks for the enlarged Board of Trustees to carry it forward to fruition.

A plan is in place for a reinvigorated IT infrastructure with work already in progress. Proper investment in this infrastructure is crucial for EWB-UK to better support its branches and to streamline many of its operations.

Both of these provisions will require significant increases in core funding. This funding will be in addition to the extra funds sought for the investment in training and research activities at our branches.

Planned Targets for 2005 & 2006

In May 2005, the EWB-UK Core team prepared and presented an operational plan for the coming year and outlined a strategy for the longer-term. Specific targets for each activity area and budgets and timetables were agreed.

The value of this planning exercise was such that it will be formalised into the annual programme of work of the EWB-UK Core team, and will make use of feedback from our branches and members. The overall long-term strategy of Engineers Without Borders UK will be determined and agreed by the new Board of Trustees within their first two years.

Our Strategy

Summary of Specific Targets

- **Projects:** more focus on water and sanitation and projects in sub-Saharan Africa
- **Placements:** increasing range of technical ability for volunteers, and online applications
- **Training:** rolling out of training at more branches, support for new workshops
- **Bursaries:** same level of funding with branches bidding to host the scheme
- **Research:** strengthening of partnerships with universities and academics, publish work done
- **Education:** launch of lecture courses, strategic links with other organisations
- **Website:** relaunch by January with content management system for wider participation
- **Branches:** improvements to communications, support for continuity of branch committees
- **Fundraising:** £90,000 target with £30,000 in new fundraising plus funding for staff salary
- **Recruitment:** paid staff to assist Core team and improvements to membership structure
- **Trustees:** new enlarged board established and formalising of governing documents
- **Internal:** recruitment of new members onto the Core team for new role shadowing
- **Professional Network:** formal launch and expansion of the network and tie into projects
- **Publicity:** increasing number of press releases and relaunch of an online news area

Financial Statement

Statement of Financial Activities

Year ending 31st August 2005 Year ending 31st August 2004

Incoming Resources

Individual donations	1,078.84	461.05
Corporate sponsorship	42,700.00	17,500.00
Non-corporate donations	3,601.00	
Grants	12,022.00	5,000.00
Interest	166.04	35.47
Monies administered on behalf of others	15,095.12	1,600.00
Total incoming resources	74,633.00	24,596.52

Resources Expended

Placement costs from previous year	5,223.61	
Project costs	1,300.00	4,390.46
Placement costs	31,031.82	17,506.20
Bursaries	2,700.00	300.00
Training	1,456.30	153.40
Research	2,146.11	
Education	900.00	
Branch events	297.56	⁽¹⁾ 468.74
Branch start-up grants	800.00	600.00
Governance	251.21	
Fundraising	63.32	124.48
Charitable expenses	146.53	815.00
Core costs	479.88	⁽²⁾ 580.17
Monies administered on behalf of others	9,499.92	4,180.00
Total resources expended	56,296.26	29,118.45

Funds at the beginning of the year	7,112.59	6,664.52
Net incoming resources	18,366.74	(1,941.93)
Funds at the end of the year	25,479.33	⁽³⁾ 4,722.59

Balance Sheet

At 31st August 2005:

Cash	25,479.33
Fixed Assets	191.56
Debtors	1,891.67
Creditors	12,458.21
Net Assets	(10,374.98)
Total Funds	15,104.35

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.

(1) = Conferences & Meetings costs from 2004

(2) = Amalgamated costs of Miscellaneous Expenses and of Non-charitable Placement Expenses from 2004

(3) = Net assets from 2004 rather than cash funds

Engineers Without Borders UK would like to thank:

Gino Henry

Kim & Beth Waterhouse and the Waterhouse family

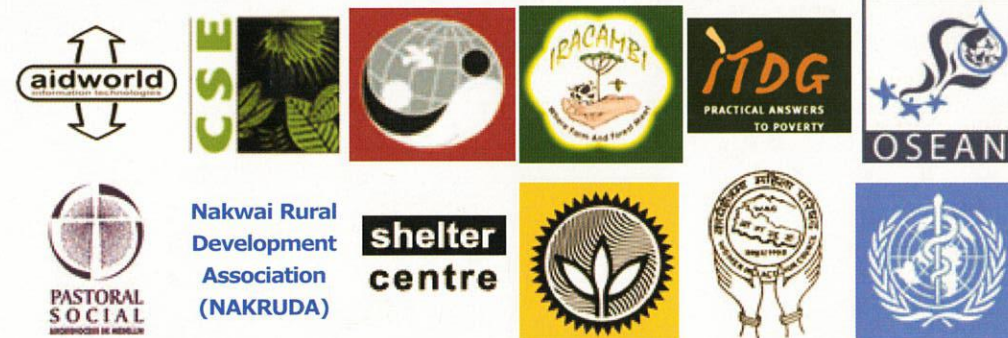
Peter Guthrie

Alan Ervine; Alan McGown; Alison Walsham; Alistair Paul; Allan McRobie; Anna Rosling Rönnlund; Antonella Vitale; Augusti Perez; Bobby Lambert; Brian Stimpson; Caroline Adams; Cathy Salkield; Chris Moller; Dick Fenner; Emily Browne; Emily Hare; Emily Yeung; Frederick Mulder; Gordon Browne; Gordon Hutchinson; Graham Ault; Heather Cruikshank; Helen Ward; Henry Travers; Hilary McOwat; Himanshu Parikh; Ian Neal; Ian Kelman; Jaime Royo Olid; James McDonald; Jane Darlington; Jane Wilson-Howarth; Janet Gibson; Jim Boyle; Jim Platts; John McAslan; Johnathon Essex; Jon Dunkley; Joseph Ashmore; Julian Blake; Kate Beckmann; Katie Davidson; Ken Smith; Linda Cordeaux; Lizzie Babister; Louisa Daubney; Matthew Dando; Matthew Slater; Menka Parekh; Meredith Short; Neal Juster; Neil Brighton; Nick Palousis; Nick Wilson; Nkiru Onyechi; Pat Conaty; Paul Jowitt; Paul Roach; Penny Wilson; Peter Cameron; Peter Milloy; Peter West; Petter Matthews; Quinton Stowell; Richard Carter; Richard Lorenz; Richard Sargeant; Robert Malies; Roger Cornish; Ron Dennis; Ruby Kitching; Ruth Dennett; Sarah Hindle; Scott MacGregor; Stephan Hawranick; Sue Unwin; Tim Marshall; Tom Corsellis; Tom Gray; Tom Jackson; Tony Marjoram; Tony Wyles; Vida Docherty;

and: Architectures Sans Frontières; Bates, Wells & Braithwaite; Building & Social Housing Foundation; Bulb Magazine; Cambridge Alumni Magazine; Cambridge University Engineering Department & Library; CAMFED; Centre for Alternative Technology; Centre for Sustainable Development (Cambridge); Civil Engineering Journal; CLF; CRT Nepal; Developing Technologies; DG&G Travel Information; DTW Cambodia; ENGHana; ENGIndia; Engineers Against Poverty; Engineers for Overseas Development; Escape Artists; Ethical Corporation; Fundesin; Gapminder; Gonville & Caius College, Cambridge; Himalayan Light Foundation; ISF-Ecuador; ISF-Spain; ITDG/Practical Action; ITDG Nepal; Lawyers without Borders; London School of Hygiene & Tropical Medicine; MedSIN; New Civil Engineer; Oxfam GB; PAHO; Pembroke College, Cambridge; Pledgebank; Potters for Peace; RedR-IHE; Resource Development International; Royal Academy of Engineers; SAFAD; Solar Energy International; The Caribbean Institute; The Chemical Engineer; Tools for Self Reliance; UNESCO; VSO; WaterAid.

Our Thanks

Our Placement Partners:



Our Sponsors:



Our Affiliates:



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