



ENGINEERS WITHOUT BORDERS NATIONAL CONFERENCE REVIEW

PREPARED BY: EWB-GUELPH

Waterloo, January 2003

Energizing. Inspirational. Grounding. Thought-provoking. Amazing. These are just a few of the words Guelph's 24 delegates used to describe the EWB National Conference 2003. We joined 250 other delegates for 3 days in Waterloo, all of whom are striving for the same goal: to have impact in development, any way they can. We attended speakers, panel discussions and workshops, met great people from across the country, and enjoyed every minute of it. This newsletter is a summary of the conference, put together by all the Guelph delegates, to share with you, EWB members, what we experienced. A few things to look for in upcoming months: National EWB Day on March 7, and Operation 21 – an initiative to raise \$5000 to send a Guelph member on an internship. Read on and be inspired!

Some thoughts from our delegates...

"Upon heading to the conference I thought that I had a general understanding of what international development was and what the role of the engineer is in development. Shortly after arriving however, I realized that I never knew the answers to these questions. The main thing I learned at the conference would be that one must adhere to the idea that engineers are simply the catalyst to fulfill the needs of a people. We must also constantly remember the benefits of small-scale approaches in every aspect. The conference definitely broadened my outlook on development."

Clinton Reynolds

"After the conference, I feel much less daunted by the crazy complex interconnectedness of international development work, and much more optimistic about my possible roles in it. I feel very lucky to have been able to meet so many remarkable people in such a short period of time. It seems that EWB is at a very important and exciting time in its evolution; it is time to really define who we are, what we want to do, and the best way to do it. After talking with George, Parker, the executive and the other outstanding people at the conference, I have no doubt that with a clear definition, EWB is going to make truly meaningful impact."

Vaj Walochev

"I see the EWB National Conference 2003 as having had three major effects on myself and the other 250+ delegates. Firstly, it allowed for the passion in every delegate to be multiplied and focused into our collective vehicle of change that is EWB-Canada. The conference facilitated the interaction between those who are actively involved in international development, and those who are not. There are many successes that we can accomplish with our education. You might get an amazing job out of university, you may get that promotion, your bonus will enable you to buy that car, but improving the life of someone without opportunities is an accomplishment that **will not** depreciate in value and will **always** be rewarding. I think those of us who are inexperienced felt that message. Finally, the panelists and guest speakers encouraged and praised our vision, but most importantly they told us what was required to turn our passion and knowledge into truly lasting improvements for the developing world! I will endeavor to be forever inspired and changed."

Jason Pearman

"As an EWB rookie, I headed off to Waterloo armed only with my definitions of sustainable development and appropriate technology, and a desire to learn more. It is a tribute to everyone involved in the conference that someone with so little international development knowledge could have such an amazing experience. Captivating speakers, flawless organization and a spirit among participants that couldn't be beat, made for a weekend that will stay with me until next year. I not only learned so much about the work of this organization, and the integration of social and technological issues, but I also left Waterloo with a clear message that we can make a difference in the developing world."

Alyssa Lindsay

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PANEL DISCUSSION I

Engineering & Peace

While development projects have the potential to bring peace to a community, they can also be the source of conflict. To be successful, change must occur at the macro and micro levels. When development projects bring stability to a community it gives the promise of a good life which gives people hope and allows the resistance of rebel ideas.

Larissa Fast - *Peace and Conflict Studies Professor at University of Waterloo*

- Conflict is unavoidable but can have both positive and negative implications
- Development is about change which causes conflict
- Assistance to one community can shift power balance disrupting the peace

Kirk Thomas - *Executive director, RedR Canada*

- Communities go through a natural cycle
- Stable → upset → conflict (war, etc.) → relief → rehabilitation
- Engineers can be most effective in the rehabilitation stage

Elizabeth King - *Volunteer with Mines Action Canada*

- With landmines left after war has peace really returned to a community?
- Access to homes, jobs, schools and fields for food is still inhibited
- Surveys help determine priorities of where to clear first

Frank Jewsbury - *Mines Action Canada*

- Small projects are more effective than large scale projects that take years to be actualized
- Large scale projects often cause more conflict ❖

Engineering & Gender

Sophia Wong - *Aga Khan Rural Support Program (AKRSP)*

- The priorities of men and women are very different with respect to development
- Men more concerned with monetary issues while women more concerned with health and sanitation
- Collaboration is necessary between both sexes to ensure that the development plan is the best possible solution for everyone.

Debra Simpson - *Mennonite Central Community (MCC)*

- Any social planning must incorporate an awareness of gender as interventions will affect men and women very differently.
- Gender analysis is needed for each situation: Who does what? Who controls what? Who has more power?
- We should not be implicated in the undermining of local culture – we cannot impose our assumptions and/or opinions, and must consider things in a rural context.

Queens' Project on International Development (QPID)

- Need to be sensitive to male-female relationships, even those that seem open.
- Bear in mind that there may be certain restrictions imposed on male and female behavior that will not necessarily be visible to an outsider.
- Abuse can be a big issue in rural communities – often verbal abuse and controlling relationships, rather than physical abuse. ❖

Engineering & Health

While there are many locally trained doctors and nurses in the developing world, a lack of delivery and availability keeps life saving services from those who need it. For example, the standard quantity of small pox vaccine can inoculate six infants. However, it must be refrigerated immediately after use. The probability of six births in one community is small, so the nurse walks miles to the next village, but when she gets there the vaccine has expired. This case is the same for numerous vaccines, and other essential medicine. Even with willing and capable people administering the drugs and supplies, their use is not efficient resulting in death and hardship for millions. Can engineering advances help local doctors improve quality of life? What is the role of engineers in helping developing communities gain access? A portable refrigeration unit would ensure that 5 more babies would never contract small pox. Sounds like an area where biological engineers could make a profound difference! ❖

Technical Capacity Building

Stuart Salter - *CIDA*

- Results Based Management
- need for an intellectual framework set up in the more developed world to put knowhow to use in developing countries

Toby Brodkorb - *CH₂M Hill*

- Need support from locals
- Train people to sustain the project
- Sometimes local people aren't interested in development they just want the \$\$

Stewart Myles - *CCMAT*

- Current mine detection isn't very good
- R&D costs money so want to minimise it
- Rigorous testing is done here on the mine detection system
- Take existing products and modify them for mine detection
- CCMAT has developed test and evaluation methods that work and are now used by other people and organisations so that test results can be compared and evaluated

Dave Whilms - *MCC in Bangladesh*

- crucial to have local support from the beginning
- offer something that can't be offered locally
- Don't undermine local knowledge

❖

"Development is by far the hardest problem I've had to get my head around."

-Parker Mitchell

PANEL DISCUSSION II

Engineering & Environment: Water Supply

David Brooks - *Friends of the Earth*

- Four important questions to answer when looking at developing water projects:
- 1) Why build it this way?
 - 2) Why build it here?
 - 3) Why build it now?
 - 4) Why build it to that scale?

George Yap - *WaterCan*

- Evolution of water as an international challenge, from large scale to appropriate and sustainable.
- Maximum benefit comes from a water system with:
- Hygiene promotion
 - Supply
 - Sanitation

Bruce Mitchell - *Department of Geography, U Waterloo*

- Think about the larger system
- Be aware of factors affecting the water system
- Have tangible markers to show how you are making a difference
- A community approach
- Make systems sustainable after you leave
- Community should define their desirable future and current needs ❖

Engineering & Economics

John Watson - *President and CEO of CARE Canada*

Amitav Rath - *Policy Research International*

Gerald Morrison - *Mennonite Economic Development Associates*

- Economics are important to ensure projects are maintained after the initial installation
- Inventive solutions must be found in the areas of distribution
- Engineers are valuable in development because of their methodical approach to problems
- Micro-credit projects allow for local ownership and economic independence
- Example:* In Zambia, community stores were given lines of credit through CARE to purchase and sell fertilizer to farmers who otherwise would have to buy from large distributors in urban areas
- Technical developments: Improved home meters, cheaper than previous equipment, allow for better monitoring of power ❖

"The only time I experience culture shock is when I come back to Canada and hear people complain."

- *Flora MacDonald*

Engineering & Information Technology

Stuart Salter - *CIDA*

- gave his insight of ICTs from his experiences in the public and private sector

Veronica Chau - *Waterloo grad in Economics and International Trade*

- gave a business viewpoint on development issues

Tess O'Col - *ICTs specialist*

- spoke about her overseas experiences with the NetCore.

Questions:

- 1) How do ICTs fit into a community's overall development strategy?
 - build an intellectual framework for reaching development goals
 - help make things more effective and efficient must know what ICTs will do for you in local context
- 2) Can ICT projects in developing communities be self-sustaining? What are the key elements influencing long-term sustainability?
 - Environmental and social considerations as well as an economic model need to be factored in for a sustainable project
 - ICTs are viewed as tools, not solutions in development ❖

Development Scenario

The goal of the development scenario was to develop a better understanding of some of the issues in development. It was run by an energetic group of conference volunteers.

Groups of delegates were first debriefed on the complex problems plaguing the country of Natyra, and then were further divided into groups representing NGOs and technology companies. Gender, education and health concerns were addressed by local and international NGO's, while pharmaceutical and water treatment companies represented the technology sector. Each group was then given a mandate corresponding to their respective position. After a brief brainstorming period, delegates were allowed to collaborate and collectively develop solutions and finally bid on the \$150 million made available by a generous group of donors.

The outcome of each session was different although the general premise was the same. The possibility of developing solutions that would please all parties was difficult, if not impossible. Debates became heated when group mandates clashed and almost all groups had to compromise in order to meet most of their primary concerns. The final decision was left to the donor's spokesperson (the conference volunteer) whose own agenda swayed the outcome, to the disbelief of many of the delegates. The end result was a lesson on the harsh reality of development and the difficulties in meeting the needs of all those involved. All in all, everyone had a good time and came out of the sessions a little more aware of the issues facing development. ❖

Issues in Development

John Watson - *President and CEO of CARE Canada*

CARE's commitment to humanitarian assistance is demonstrated by their commitment to emergency humanitarian services and rehabilitation through a number of long term development programs including: basic social services, civil society strengthening and emergency and commodity supply. CARE works with communities in need to improve living conditions. In the aftermath of disaster or social conflict, CARE works with communities to re-establish stability.

Robert Derouin - *Director-General, Non-Governmental Organizations Division, CIDA*

CIDA is responsible for administering 80% of Canadian aid to developing countries. It is the organization's goal to alleviate poverty through sustainable development and by helping people help themselves. Areas of concern include provision of basic human needs, gender equality, infrastructure development, protection of human rights, peace-building, democracy, private sector development and the environment.

David Brooks - *Natural Resource Economist*
"Thinking Globally, Acting Locally: The Case of Water"

- Need to Examine Water Issues in three ways:
 - 1) Top – Down: Benefit cost analysis
 - 2) Bottom – Up: take into account the opinions and views of different people in the community
 - 3) Sideways: examine more intrinsic values of water
- Solutions look better and are more successful when input is derived from the actual field, rather than designing a solution from far away and trying to implement it

Kelly Thambimuthu - *Senior Scientist, Natural Resource Canada*
"Climate Change, Energy and Poverty"

While developed countries have made a commitment in the Kyoto Agreement to reduce green house gas emissions, developing countries produce a lot of CO₂ and cannot afford to reduce their emissions. Unfortunately the more developed these countries become the more energy is required from fossil fuels and the more CO₂ they produce. A more environmentally sound solution would be to help developing countries raise their GDPs so that they can afford to reduce their emissions by being able to afford the use of more environmentally friendly technology. ❖

Poverty Dinner

Dinner on Thursday night was a big shock to some hungry delegates. We arrived and were directed to one of three areas based on a symbol on our nametag, which was randomly assigned. The first group (about 15% of the attendees) got the comfy couches around the perimeter. The second group (about 1/3 of the attendees) sat at tables with tablecloths. The third group sat on the floor, arranged around brown paper "tablecloths". Men and women in black suits surrounded the group on the floor. Then dinner began. Each area was further subdivided based on the symbols. The "couch groups" were given salad, bread, butter, juice, rice, beans, and chicken. Some were allowed unlimited amounts. The "table groups" were served varying amounts of rice, beans, chicken, and salad. The "floor groups" and were given rice, rice and beans, or rice, beans and chicken. After everyone had been fed, the couch group was invited to help themselves to dessert. What did this represent? Those sitting on the couches represented the First World, the one we live in, and consumed accordingly. The tables represented those with enough, but not much left over. The floor was the rest of the world – the developing world - who often go hungry. The suits were the immigration officers, in case the hungry masses tried to move up in the world. The message to participants was to pay attention and think about their choices in consuming. Here in Canada, we often don't think about the waste we create or the overuse of resources like paper and electricity until presented with a scenario like the above. ❖

"We cannot deliver development."

-Naresh Singh

Participatory Rural Appraisal

How to talk to and communicate with local people in order to get info needed

- Key techniques: discussion/interviews (informal), mapping of area done by both locals and development worker, ranking of exercises and priorities, trend analysis
- Must know what is taboo before hand so as not to offend, results will be swayed by things people don't want to talk about
- Development of PRA: Info sharing to consultation to collaboration to empowerment, moving more towards empowerment and now do participatory learning assessments
- Key principles: participation (everyone affected), flexibility, teamwork, efficient, systematic
- PRA strengths (vs. a survey): low cost, short duration, increased participation, less sampling size but with cross-checking (selective sample), on-site analysis ❖

Appropriate Technology Workshops

Since engineering is largely dedicated to technology, it is of particular importance to elucidate the role of technology as applied to international development. Western ideals cannot automatically be assumed, as much of the technology utilized in the first world would not be sustainable in a developing country. This notion of sustainability was an undercurrent of the entire conference. The choice of appropriate technology therefore ensures that a process can be carried on indefinitely because local workers are able to maintain the process themselves. The conference workshops suggested several ways to reach this goal of appropriate technology: Constructed Wetlands, Biosand Filtration, Research Space, Ecological Sanitation, and Photovoltaic Systems. Wetlands and biosand filtration are methods by which water can be purified. Research space is an on-line database to promote communication between people working on development. Ecological sanitation refers to the application of an ecosystem in the waste treatment process by recognizing the nutrient value of human excreta. Lastly, photovoltaics can be used as an alternative for power generation. From the workshops, it was clear that technology can empower people, but if it is not placed in the proper context, its power cannot be harnessed. ❖

Project Fair

Small-scale Water Catchment System for Subsaharian Regions

École Polytechnique

→ A small-scale water catching system for small villages which need water outside of the rainy season. The villagers need this water as there is typically only one rainy season, followed by very dry conditions.

Constructed Wetlands for Wastewater Treatment

University of Waterloo

→ Working on applying constructed wetlands for purifying wastewater. They are applying a wetland for wastewater treatment locally at a campground as a test, and will hopefully be able to implement this technology in communities overseas in the near future.

Development of a Medical Waste Disposal System for Implementation in a Developing Area

Dalhousie University

→ Designed a small-scale medical waste disposal system for medical facilities in developing communities. The disposal system considers health, safety, the environment, cost and the sustainability of the project. EWB-Dal has also expressed a willingness to develop ties with EWB-Guelph, and cooperate on joint projects and develop peer review groups for chapter projects

RedR Canada

→ Registered Engineers for Disaster Relief is an international organization working to help those suffering hardship as a result of a disaster. Members provide technical, logistical and management support to frontline humanitarian relief agencies.

Landmine Removal

University of British Columbia

→ The UBC Demining Team is designing a landmine prodding device that is aimed at reducing landmine isolation time by 50%. Their basic concept is to improve on the common prodder design by incorporating multiple prongs so that a larger area can be targeted during each prodding cycle.

Passive Solar Greenhouse for Use in the Bolivian Andes

University of Waterloo

→ In Oruro, in the Bolivian Andes, the common diet allows for only the sporadic use of vegetables. This is a result of the limited growing season, high elevation and low precipitation of the area. The UofW Design Team has undertaken the goal of designing a passive solar greenhouse that will utilise local materials and extend the growing season in the area ❖

Speakers

Robert Derouin - *Director General, Non-Governmental Organizations Division of the Canadian Partnership Branch of CIDA*
Robert provided excellent resources and advice for people interested in finding work and internships in ID. But more importantly, he shared personal stories that highlighted the non-glamorous and often unmentioned aspects of development work. He drove home the fact that ID work is very important and rewarding work which can be both joyful and painful.

Stuart Salter - *CIDA Engineering and Technology/Technical Capacity Building*

Stuart gave an excellent overview of the top issues that CIDA is addressing in developing countries. He also spoke of the engineer's role in CIDA.

Flora MacDonald - *Former Secretary of State for External Affairs*

Flora gave a very inspirational and memorable presentation about her work with the people of Afghanistan. When Russia left Afghanistan there was hope but everyone forgot about it and focused elsewhere in the world. It degenerated significantly and led to people like bin Laden having a place to "grow". Security is a big issue for the people living there. Political advocacy is always needed; we were reminded to speak up at every opportunity.

Claire Dansereau - *Executive Director, CUSO*

Some of the valuable points raised by Claire: learn more than you teach, bring messages home from overseas work, and do development work in Canada. "The world is run by the people who show up" so we should always show up and make our voice heard. There is development work to be done in Canada: transition in forest economy, structural shift, make sure people get and keep jobs, economic development for rural communities. ❖

Vision Workshops

→ "Thinking Globally, Acting Locally" let participants brainstorm specific actions they can take in their own communities that help solve the problems faced in developing countries.

→ "Westerners in Development" discussed the objective of our presence in developing countries. The three main issues concerned our requirement, our contribution and our usefulness in these situations. Engineers must maintain focus on the needs of the community.

→ "Fair trade" delved into the difference between fair and free trade. Fair trade incorporates the expense of the farmer's livelihood when paying for their products. Their pay can be increased since the middleman is cut out of the trading, such as with fair trade coffee.

→ "EWB Vision" gave students the chance to discuss what EWB represents as well as what they see in the future for the organization. Discussion about an EWB mission statement was lively and thought provoking. The opportunity to share our ideas and goals was an appropriate way to end the conference. ❖

"Technology has the ability to touch us all, and all we do."

—David Hughes

Websites

Cameo Landmine Clearance – www.cameo.org

Canadian Center for Mine Action Technologies – www.ccmata.gc.ca

Canadian Council for International Co-operation – <http://www.ccic.ca/>

Canadian Department of Foreign Affairs and International Trade – <http://www.dfait-maeci.gc.ca/menu-en.asp>

Canadian Engineers for the Reconstruction of Afghanistan – www.thecera.ca

Canadian International Development Agency – www.acdi-cida.gc.ca

CARE Canada – http://care.ca/care_e.shtm

HM Government Department for International Development – <http://www.dfid.gov.uk>

Institute of Development Studies – <http://www.ids.ac.uk/ids/index.html>

Institute of Development Studies (Livelihoods Connect) – www.livelihoods.org

International Development Research Center (Water: Local-Level Management) – www.idrc.ca/water

Public Service Commission of Canada – www.psc-cfp.gc.ca

Sanitation Connection – www.sanicon.net

UN Volunteers – www.unv.org

Youth Challenge International – <http://www.yci.org/index2.htm>

Books

Participation: The New Tyranny, Edited by Bill Cooke, Uma Kothari

Infections and Inequalities, Paul Armer

Where on Earth are we Going?, Maurice Strong

Mastering the Machine: Poverty, Aid and Technology, Ian Smillie

Final Speakers

Naresh C. Singh – *Director of General Governance and Social Development Directorate Policy Branch, CIDA*

Naresh C. Singh gave us all a good understanding of international development with a timeline. How we evolved from thinking in terms of ID as economic growth per capita, to social-economic, to human development, to basic needs approach, to sustainable development and finally to the current thought of sustainable human development. Mr. Singh asked us to realize that the ZERO approach is sometimes the best option since sometimes implementing a project may hinder rather than benefit. We must mentally escape the thought that “we” are developed and that “they” are not developed, thus we will deliver it to them. He strongly made the point of involving the people directly related to any projects by talking to them and finding out what they have, not what they want. This then leads to their self-empowerment. We must build the capacity for people to make their own decisions; the means to get power; but don’t just give power to the powerless, it has never worked.

James Orbinski – *Past-President, Médecins Sans Frontières*

Mr. Orbinski’s address was very inspirational and empowering. He stressed that for EWB to truly succeed we must become totally independent by not relying on other NGOs. However, he realizes this is difficult and will be EWBs hardest test to come. If we can overcome this we will truly be known on a global basis. ❖

“ You can change the world with your voice.”

- Dr. James Orbinski

FACTS

- 2.2 million people die every year from water/sanitation diseases
- 28 million sub-Saharan Africans are currently infected with HIV/AIDS; 2.3 million died while 3.4 million became infected in 2001.
- 40-48% of Botswana’s population is HIV positive or has AIDS. Many will die within the next 10 years with teachers and doctors dying faster than new people can be trained.
- If assistance amounts to 2-3% of a country’s GDP, studies show that growth in the country is 2-3% and is sustained by its own means.
- Rebuilding Afghanistan
 - 700,000 troops still serve under various warlords
 - 4,500 peace keeping troops in Afghanistan
 - 2 million men have died fighting over the past 20 years, and now the population is 70% female
 - 8-10 million landmines still have to be cleared
- In 2002, EWB has sent 32 volunteers overseas who have spent 20,000 volunteer hours, which is the equivalent of 10 working years
- By 2005, EWB wants to have impact on the lives of 1 million people

“If not you, who?
If not now, when?”

- Parker Mitchell quoting another