GreenIT@Calit2
May 2008 Workshop
Learning from Colleagues
Research and Identifying
Potential Collaborations
**GreenScanner.net**  
Bill Tomlinson (wmt@uci.edu)

### Innovation
- Online database of community-generated environmental impact reviews
- Indexed via UPC codes
- Accessible via desktops and mobile phones

### Green Impact
- Database of 900,000 consumer products
- Helps people engage in environmentally preferable purchasing
- Provides incentive for companies to respond to environmental issues

### Milestones
- April 2006 - Prototype released
- April 2007 - Approx. 31,000 hits to date
- April 2008 - Implement version 1.0, focusing on more precise life cycle assessment (LCA).
- Summer 2008 - Deploy version 1.0. Apply for EPA grant.
- Fall 2008 - Expand database and mobile capabilities. Contact supermarkets and CA legislature.
- 2009 - Expand user base. Seek large-scale corporate and governmental support.

### Cost (Pilot)
- GSR - prototype development/testing ($10k)
- GSR - research in life cycle assessment (LCA) ($10k)
- Travel to interact with corp./gov. ($5k)
- Total: $25k

### Cost (Ultimate)
- Summer support for 2 faculty ($20k)
- GSR - usability/social SW ($60k)
- GSR - LCA ($60k)
- Web development ($10k)
- Advertising campaign ($10k)
- Total: $160k
Green Materials / Electronics
Oladele Ogunseitan (Oladele.Ogunseitan@uci.edu) Jean-Daniel Saphores; Andrew Shapiro; Julie Schoenung

Innovation

• New way of comparative risk assessment and trade-offs in toxic material use.

• Invention of “green” Printed Wiring Boards (PWBs).

Green Impact

• Legislation to prevent disposal of cellphones and other small consumer electronic products into landfills.

• Reduction in occupational and environmental risks associated with the use of toxic materials in electronics

Milestones

• NSF funding ($1.5 million, from 2005 – 2010).

• Determination of hazard category of defunct cellphones (April 2007).

• Bioepoxy laminate materials for Printed Wiring Boards (December 2007).

• Center of Excellence in Green Materials (proposal pending - Toxic Substances Research and Teaching Program – February 2008)

Cost (Pilot)

• Incineration study ($100,000).

• Assessment of European RoHS-compliant products ($50,000).

Cost (Ultimate)

• Moisture control in green PWBs ($250,000)

• Comparative Life Cycle Assessments ($250,000)
Innovation

- Help downscale scientific information to help small communities make better climate change adaptation decisions
- Collect data about adaptation success and failures

Green Impact

- Improving resilience and adaptive capacity requires developing sustainable livelihoods
- To develop solutions, we need better information about how problems impact particular places

Milestones

- **Phase I**
  - April 2007 - Workshop at Georgetown University
  - Summer 2007 – Fieldwork in Uganda
  - December 2007 – Presentation at 13th COP in Bali
  - April 2008 – Fieldwork in Rwanda and DRC

- **Phase II**
  - Fall 2008 - East Africa Training Workshop in Kigali Rwanda
  - Spring 2009 – Identify field sites for pilot projects

Cost (Pilot)

- **Phase 1**
  - Background research/literature review
  - Initial workshops
  - Research trips and presentations
  - Total: $95,000

Cost (Ultimate)

- **Phase II**
  - East Africa Workshop
  - Planning for future work, selection of field sites
  - Total: $180,000
TRUST-IT
Marlon Boarnet, Sharad Mehrotra, Nalini Venkatasubramanian, et. al.

Innovation
- IT driven urban infrastructure that enables systems to dynamically reconfigure to changing situations.
- Adaptation at all scales – real time control to long term planning and simulation.
- **DeviceWeb**: Societal scale middleware to connect lifelines

Green Impact
- Exploiting IT to control consumption of non-renewable energy.
- Controlling/limiting waste.
- Planning tools to study long term impact over environment

Milestones
- 2003-2007 various studies showing positive impact of IT on dynamically adapting real-world crisis response processes (part of RESCUE)
- 2006 – A transportation study showed evacuation time of Long Beach downtown can be cut to about ½ by proper information dissemination. (RESCUE study)
- March 2007 – formation of an ERC team including many centers that deal with lifeline issues at UCI.
- June 2007 – an initial (very preliminary) study based on monitoring electricity usage of Calit2 showed that proper control based on building occupancy patterns could lead to substantial savings.
- 2008-2009 – plans for resubmission and ground work.

Cost (Pilot)
- Prototype study at a building level scale – 15K
- GSR/programmer for initial study of IT framework to control lifelines -25K
- Team building & sustaining the effort within UCI – 15K

Cost (Ultimate)
- TRUST-IT budget was approx. 3M/year for 10 years!!
Innovation

- Incorporate preferences over multiple variables into environmental decisions
- Provide a method for clear decision-making based on GIS data

Green Impact

- General model assists policy makers with environmental decisions
- Applied specifically to Arizona water management issues

Milestones

- Winter 2006 – Survey of stakeholder preferences for Arizona water management decisions
- Fall 2006 – Complete technical report on analysis of stakeholder preferences
- Winter 2007 – Apply for funding from ASU Decision Center for a Desert City (NSF Center for Decision Making Under Uncertainty) to introduce decision analysis models to the GIS framework
- Winter 2008 – Apply for continued funding from ASU DCDC to develop spatial decision models
- 2009 – Publish analytical results on the application of these models to environmental decisions

Cost (Pilot)

- Survey development and administration (Staff & PIs’ time)
- IRB approval process (Staff contribution)
- RA support

Cost (Ultimate)

- Faculty summer support- 1 month in each of 3 years
- RA support- $10,000/year for 2 years
- NSF Dissertation Support (pending, for Jay Simon)
- Conference talks/posters preparation and travel
High Resolution Urban Flood Modeling
Prof. B. Sanders (bsanders@uci.edu), J. Schubert, H. Gallegos

Innovation
• Fluid mechanics-based flow routing algorithms
• Exploitation of new data types (LiDAR based DEMs, aerial imagery, building footprint, etc.)
• Towards GIS-based decision support systems for urban infrastructure

Green Impact
• Adaptation of civil infrastructure in response to climate change
• Applications in developed and developing nations

Milestones
• 2002-2008: Numerous journal publications describing fluid mechanics-based flow routing algorithms
• July 2007-June 2009: UC Water Resources Center grant supports further model development aimed to improve run-time efficiency in urban applications
• April 2008 – August 2008: US/UK Set-Squared partnership supports international collaboration on GIS-based decision support system to mitigate flood impacts in developing and developed countries

Cost (Pilot)
• CASE STUDY OF URBAN FLOODING (LA)
• 6 month post-doc ($25k)

Cost (Ultimate)
• A COUPLED FLOOD / WAVE MODEL FOR COASTAL APPLICATIONS (2 YRS)
• Summer support for faculty ($20k)
• GSR – fluids mechanics/waves ($120k)
• Travel ($10k)
• Total: $150k
Can Law Change the Climate?

Joseph F. C. DiMento, PHD, JD
Professor of Law and of Planning, Policy and Design
Director, The Newkirk Center for Science and Society

JUSTICES SAY E.P.A. HAS POWER TO ACT ON HARMFUL GASES
Agency Can’t Avoid Its Authority — Rebuke to Administration
By LINDA GREENHOUSE
- The New York Times
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