

Program

50th Conference and Annual General Meeting



The Canadian Society for Bioengineering

La Société Canadienne de Génie Agroalimentaire et de Bioingénierie

Lonsdale Quay Hotel
North Vancouver, B.C.
July 13-16, 2008

The Canadian Society for Bioengineering (CSBE) La Société Canadienne de Génie Agroalimentaire et de Bioingénierie (SCGAB)

The main mission of the CSBE/SCGAB is to advance the discipline of bioengineering: the application of engineering principles and practices to systems containing biological components as a major feature. Bioengineering encompasses a number of fields involving interactions between humans and biosystems, where the latter can range in scale from microbes to Earth's entire biosphere. Hence, 'bioengineering' refers to the conception, design, construction, modification, enhancement, and operation and control of a wide variety of systems.

All biobased systems contain greater or lesser quantities of biological components, including humans, and they may be industrial, agricultural, forestry, recreational or social in nature. Some of the predecessors of bioengineering were agricultural mechanization, agricultural engineering, food engineering, environmental engineering and fermentation and these are still very significant currents in the discipline. These diverse areas of BioEngineering expertise sprang from an overall need for larger volumes and greater reliability of supply of a range of commodities to sustain human life, and they all contributed to major increases in the production of food, animal feed, energy-bearing and building materials, as well as various bioproducts such as fur, fiber, hides, drugs, etc.

Recent social changes are now causing a demand for the engineering of systems that can operate more sustainably and in whose design and operation the needs and continued existence of non-human components, as well as whole-system robustness and stability, are also considered to be significant. This is resulting in new currents such as biosystems engineering and ecological engineering which are now beginning to strongly influence bioengineering's further development.

The legacy

The CSBE/SCGAB that was officially formed in 1957 as the Canadian Society of Agricultural Engineering/ Societe Canadienne du Genie Rural (CSAE/SCGR) has roots going back ninety years ago to the Canadian Society of Technical Agriculturalists (CSTA). CSTA was formed on the evening of October 10, 1919 in Ottawa when five prominent agriculturalists of the time decided to form an association that would promote science and education in agriculture in Canada. The Agricultural Engineering Section was active within the CSTA (which later in 1946 became the Agricultural Institute of Canada (AIC) from early years and gradually grew to become a major scientific activity. In 1957 a proposal for formation of the Canadian Society of Agricultural Engineers was approved in the annual meeting of the AIC in Vancouver. The word "Engineers" was changed the following year to "Engineering" as it was decided that in Canada, the Agrologists Institutes and Provincial Associations of Professional Engineers dealt with the professional and regulatory of their respective members. It was agreed that the Society should therefore be primarily concerned with the technology of agricultural engineering and accordingly be named the Canada Society of Agricultural Engineering. CSAE's name was changed to CSBE in 2004 to reflect the profession's growth beyond agriculture.

The Local Arrangement Committee extends its warmest welcome to colleagues and friends. Please join us to celebrate our Society's 50th anniversary celebrations by renewing friendships, participating in stimulating exchange of knowledge, and enjoying the majestic surrounding environment.
Local Arrangement Committee

Welcome Sunday 6:30 PM

Wine and Hors D' Oeuvres Atrium room

Official welcome

Janet Benjamin, P.Eng.

President, Association of Professional Engineers and Geoscientists of BC

50th Anniversary CSBE Achievements (Paper# CSBE08001)

Dr. Lal Kushwaha, P.Eng.

Past President, CSBE/SCGAB

The Local Arrangements Committee would like to extend their sincere thanks to the **sponsors** of CSBE 2008.

BBRG-UBC
www.biomass.ubc.ca



Canadian Society for Bioengineering 50th Annual General Meeting and Technical Sessions Schedule
July 13 to 16, 2008 North Vancouver, British Columbia

Day 1, Sunday, July 13	Day 2, Monday, July 14	Day 3, Tuesday, July 15	Day 4, Wednesday, July 16
09:00 to 09:45 AM Journal committee Annex meeting room	7:00 – 8:15 AM Registration Continental breakfast Atrium room	7:00 – 8:15 AM Continental breakfast Atrium room 7:00 – 10:00 Foundation Board of Directors Meeting (Annex room)	7:00 – 8:15 AM Continental breakfast Atrium room 7:00 – 8:30 CSBE-SCGAB Council Meeting (Annex room)
All day Registration - mezzanine	8:15 – 10:00 Plenary Session Keynote and panel Energy Endeavour/Resolution room	8:15 – 10:00 Plenary Session Keynote and panel Environment Endeavour/Resolution room	8:15 – 10:00 Plenary Session Keynote and panel Forestry Endeavour/Resolution room
10:00AM – 12:00 CSBE-SCGAB Council Meeting (Annex room)	10:00 – 10:30 Coffee break Poster session	10:15 – 11:45 2 concurrent sessions (4A, 4B) Endeavour/Resolution; Discovery	10:05 – 10:30 Coffee break Poster session
1:00 – 6:00 PM Poster and trade show mezzanine (non secure) and boardroom (securable)	10:30 – 12:05 2 concurrent sessions (1A, 1B) Endeavour/Resolution; Discovery	11:45 – 12:15 Coffee break Board buses for tours	10:30 – 12:20 2 concurrent sessions (5A, 5B) Endeavour/Resolution; Discovery
	12:10 – 1:30 PM Annual General Meeting Bag lunch (Atrium room)	12:15 – 5:30 PM Tours Tour 1: Cascadia Terminal, Port of Vancouver, NW Hydraulics Tour 2: BC Ministry of Forests Tree Seed Centre, Burnaby Lake Greenhouses, West Coast Reduction. Bag Lunch on Bus	12:55 – 2:30 PM Lunch Student Awards Presentation CSBE New Directions (Review living strategic plan)
	1:30 – 3:35 3 concurrent sessions (2A, 2B, 2C) Endeavour; Resolution; Discovery		
	3:15 - 3:30 Coffee break Poster session		
	3:30 – 5:20 2 concurrent sessions (3A, 3B) Endeavour; Resolution	Break: Poster session, Trade Show booths	Free time Visit UBC Biomass & Bioenergy Labs by appointment at registration
6:30 – 9:00 Meet and Greet Social APEGBC President, 50 th Anniversary CSBE Achievements: Pictures, gadgets, mementos, videos (running), publications, major achievements, awards Atrium - hors d'oeuvres	6:45 to 10:00 Harbour cruise 50 th anniversary special – Stories of bygone era on the North and South Shores of Burrard Inlet Bring sunglasses, sunscreen and coat	7:00 – 9:00 Awards Banquet Atrium room Congratulate our award winning colleagues and enjoy a relaxing evening with good food, and conversation. After social Tantra	See you in Charlottetown, P.E.I. ! July 12, 2009

DAY 1 Monday July 14
7:00 AM Continental Breakfast Atrium room

Moderator: Don Gosnell

Greetings from Darryl Mussatto, Mayor of North Vancouver City

8:15 AM Endeavour/Resolution room

Welcome to CSBE 2008 Dr. Shahab Sokhansanj P.Eng. , Past President CSBE
Local Arrangements Committee

Greetings from ASABE Dr. Jim Dooley PE, President ASABE

Keynote Speakers (Energy)

Jonathan Rhone

CEO, Nexterra Energy Corp

Biomass gasification technology from laboratory to full-scale validation and commercialization

Ian Thompson

President, Canadian Bio Energy

Opportunities and barriers against biodiesel industry in Canada

Dr John Grace, P.Eng.

Professor and Canada Research Chair in Clean Energy Processes

Department of Chemical and Biological Engineering, University of British Columbia

Research on critical issues on biomass and bioenergy interface

Session 1A - Renewable Energy I

July 14 10:30-12:05 Endeavour/Resolution room Moderator: Nathaniel Newlands

10:30 am	Paper #	Introduction
10:35 am	CSBE08100	Exploring ways to deal with Mountain Pine Beetle infestation and its consequences, (D. Gosnell)
11:05 am	CSBE08102	Biodiesel Oil Quality from Feedstock Grown on Saline Lands, (H. Steppuhn, M.A. Stumborg, T. McDonald, A. Abiola)
11:20 am	CSBE08103	Co-Digestion of Hog Manure with Glycerol to Boost Biogas Production, (O. Wohlgemut, N. Cicek, J. Oleszkiewicz)
11:35 am	CSBE08104	Permeability of bulk wood pellets in storage (F. Yazdanpanah, S. Sokhansanj, A. Lau, X. Bi, C.J. Lim, S. Melin)
11:50 am	CSBE08105	Feasibility of biological hydrogen production from anaerobic fermentation of dairy wastewater, (S.G. Won, A. Lau)

Session 1B - Bioproducts and Food I

July 14 10:30-12:05 Discovery room

Moderator: Robert Kok

Time	Paper #	Topic
10:30 am		Introduction
10:35 am	CSBE08130	Microwave-vacuum drying and quality characteristics of cherries, (A. Opoku)
10:50 am	CSBE08131	Novel Drying Method for Vegetables, Fruits, Herbs, and Aquatic Resources, (C. Nindo)
11:05 am	CSBE08132	Determination of mortality of life stages of <i>Tribolium castaneum</i> in rye using microwave energy, (R. Vadivambal, D.S. Jayas, N.D.G. White)
11:20 am	CSBE08133	Effect of Microwave-Assisted Extraction (MAE) on the Bioavailability of Flaxseed Lignans, (S. M. Nemes, V.E. Orsat, G. S. V. Raghavan)
11:35 am	CSBE08134	Microwave drying characteristics of two varieties of red lentils, (A. Opoku, L. Tabil, V. Meda)
11:50 am	CSBE08135	Effect of pulsed electric field on structural modification and thermal property of whey protein isolate, (B. Y. Xiang, M. O. Ngadi, M. V. Simpson, L. A. Ochoa-Martinez)

Canadian Society for Bioengineering

Lunch and Annual General meeting

12:10 – 1:30 PM

Atrium room

Session 2A - Waste Management I

July 14 1:30-3:20

Endeavour room

Moderator: Stephane Lemay

1:30 pm	Paper #	Introduction
1:35 pm	CSBE08106	Hydrogen sulphide emissions from grower pig excreta produced by a belt conveyor system, (S. P. Lemay, J. Feddes, B. Z. Predicala, S. Godbout, M. Belzile, J.P. Larouche)
1:50 pm	CSBE08107	Setting acceptable odour criteria using steady-state and variable weather data, (Z. Yu, H. Guo, C.Lague)
2:05 pm	CSBE08110	Odour and greenhouse gas emissions resulting from surface and subsurface land application of solid and liquid manure, (J. Agnew, C. Laguë, J. Schoenau)
2:20 pm	CSBE08109	Measuring the social acceptability of participants for two manure spreading techniques, with and without an information session, (A. Veillette, S. P. Lemay, M. Belzile, D. Parent, B. Jean, S. Godbout, J. Feddes, F. Pelletier, Y. Chen, F.Pouliot, C. Roy)
2:35 pm	CSBE08108	Evaluation of Effectiveness of Nanoparticles for Reducing Odour and Gas Emissions from Swine Manure Slurry, (B. Predicala, D. Asis)
2:50 pm	CSBE08111	Defining an environmental performance measure for swine production: Part I - Gas and odours emissions from pig barns, (L. Hamelin, S. Godbout, F. Pelletier, S.P. Lemay, J. J. R. Feddes, M. Belzile)
3:05 pm	CSBE08120	Canada-BC Specified Risk Material (SRM) Management Program, (J. Luymes)

Session 2B - Soil and Water I

July 14 1:30-3:35

Resolution room

Moderator: Shawn Elgert

Time	Paper #	Topic
1:30 pm		Introduction
1:35 pm	CSBE08137	Nitrate and orthophosphate reduction from agricultural runoff in a surface-flow constructed wetland, (C. Yates, S. Prasher)
1:50 pm	CSBE08138	Base Flow Indices and their Relation to Physiography of Ontario, (A. Singh, R. Rudra, W. T. Dickinson, B. Gharabaghi)
2:05 pm	CSBE08139	Evaluation of effective parameters for water uptake through roots of trees, (H. Salamat, P. Parsamehr, S. Besharat)
2:20 pm	CSBE08140	Modeling the Effect of Temperature and Precipitation Change Signals to the Irrigation Requirements of Peaches in Southern Ontario, (R. O. Doria , C. A. Madramootoo)
2:35 pm	CSBE08141	Modeling Surface and Subsurface Nitrogen Transport in an Agricultural Watershed: Subsurface modeling using DRAINMOD 5.1, (S.Dayyani, S. Prasher, C. Madramootoo, A. Madani)
2:50 pm	CSBE08142	Runoff of liquid manure from sloping land, (R. Fleming, M. MacAlpine)
3:05 pm	CSBE08143	Evaluation of the SolarCalc model for simulating hourly and daily incoming solar radiation in the Northern Great Plains of Canada, (F. C. Kahimba, P. R. Bullock, R. Sri Ranjan, H. Cutforth)
3:20 pm	CSBE08144	A Rule-Based Intuitive Reasoning Scheme for Exploring a Large Weather Database, (Y.C. Sun, R. Kok)

Session 2C - Machinery Systems I

July 14 1:30-2:50

Discovery room

Moderator: Danny Mann

Time	Paper #	Topic
1:30 pm		Introduction
1:35 pm	CSBE08151	Measurement of Mental Workload Associated With Agricultural Spraying, (A. Dey, D. Mann)
1:50 pm	CSBE08153	Design of an agricultural driving simulator for ergonomic evaluation of guidance displays, (D.D. Mann, D. Karimi and S.J. Young)
2:05 pm	CSBE08154	Investigation of the role of different sensory cues in driving an agricultural vehicle, (D. Karimi, D. Mann)
2:20 pm	CSBE08170	Modeling soil behaviour during subsoiling, (Y. Chen)
2:35 am	CSBE08101	Energetic Feasibility of Biomass Densification with Steam Explosion Pretreatment, (P.S. Lam, S. Sokhansanj, X. Bi, C. J. Lim, S. Mani, S. Melin)

Session 3A - Building and Storage Systems

July 14 3:30-5:05

Endeavour room

Moderator: Stephane Lemay

Time	Paper #	Topic
3:30 pm		Introduction
3:35 pm	CSBE08112	Comparison of simulated and field conditions within an actively heated and ventilated poultry transport system, (K.P. C. Hui, T. G. Crowe)
3:50 pm	CSBE08113	Comparison of deterioration of rye under different storage regimes, (R. Rajaramanna, D.S. Jayas, N.D.G White)
4:05 pm	CSBE08114	Software for design of cold storage for fruits and vegetables, (R. Rajaramanna, U. Nithya, K. Alagusundaram, D.S. Jayas)
4:20 pm	CSBE08116	Effect of moisture content and post harvest storage conditions on some properties and quality attributes of red lentil, (Y. Zhang, L. G. Tabil, Etc.)
4:35 pm	CSBE08117	Deterioration of trusses and roof systems of livestock farm buildings, (Y. Choinière)
4:50 pm	CSBE08118	A standard for energy efficient agricultural ventilation fans, (R. MacDonald, M. Armstrong)

Session 3B - Machinery Systems II

July 14 3:30-5:05

Resolution room

Moderator: Grant Clark

3:30 pm	Paper #	Introduction
3:35 pm	CSBE08145	Harvesting willow rings around prairie marshes, (P. Savoie, F. Lavoie, L. D'Amours, B. Schroeder, J. Kort)
3:50 pm	CSBE08146	Investigations on Injection Molding Conditions for Making Flax Fiber-High Density Polyethylene Biocomposites, (X. Li, L. G. Tabil, S. Panigrahi, W. J. Crerar)
4:05 pm	CSBE08147	Investigation of the effect of counter knife sharpness, rotor speed and throughput on the performance of a rotary feeding and cutting system (RFCS), (E. Veikle)
4:20 pm	CSBE08148	Grain harvester repair and maintenance costs, (S. A. ALSuhaibani, M. F. Wahby)
4:35 pm	CSBE08149	Development and Testing of a Small Scale Cassava Chips Dryer, (A.F. Alonge, I. I. Yakubu)
4:50 pm	CSBE08150	Performance of an automated slope sensing system in commercial wild blueberry fields, (Q. U. Zaman, A. W. Schumann, D. C. Percival)

Harbour Dinner Cruise

6:45 - 10:00 PM

Embarks promptly at 6:30 PM from pier adjacent to Cates Tug

Sign in required at St Roque Pier prior to boarding *Gulf Stream II*

Bring your sunglasses, sunscreen and a coat

DAY 2 Tuesday July 15
7:00 AM Continental Breakfast Atrium room
8:15 AM Endeavour/Resolution room

Keynote Speakers (Environment)

Moderator: Digvir Jayas

Ted van der Gulik, P.Eng.

[BC Ministry of Agriculture and Lands](#)

Striving for a Water Balance in British Columbia - A focus on supply and demand in the Okanagan valley

Rod Bryden

President and CEO, [Plasco Energy Group Inc.](#)

Innovations to cope and profit from municipal waste

Dr. James Dooley, PE

President of ASABE

President, Forest Concepts LLC.

Environment, public, and forest as a sustained resource

Session 4A - Waste Management II

July 15 10:15-11:45 Endeavour/Resolution room Moderator: Sietan Chieng

10:10 am	Paper #	Introduction
10:15 am	CSBE08161	A Biotechnological Approach for Deproteinization of Crustacean Waste for the Production of Chitin, (N. S. Mahmoud, A. E. Ghaly)
10:30 am	CSBE08162	Carbon Monoxide Emission from Municipal Co-Composting, (D. Abera, O. G. Clark, J. Leonard)
10:45 am	CSBE08163	Pressure variation in a model biofilter bin due to wetting and drying cycles, (C. S. Ima, D. D. Mann)
11:00 am	CSBE08164	Dead animal composting facilities with a rotating drum system - on farm experiences and practical applications, (Y. Choinière)
11:15 am	CSBE08165	Windblown Dust from Desert in a Reservoir: A Dynamic Environmental Problem, (S. Chieng)
11:30 am	CSBE08174	Potential for composting of SRM materials in a drum composter, (R. Fleming, M. MacAlpine)

Session 4B - Bioproducts and Food II

July 15 10:15-11:30 Discovery room

Moderator: Stephanie Tam

10:10 am	Paper #	Introduction
10:15 am	CSBE08190	Effect of processing parameters and fibre loading on compression molded flax fibre reinforced biocomposite, (A. Rana, S. Panigrahi, L. Tabil, P. Chang)
10:30 am	CSBE08191	Flax Fibre as Reinforcement in Recycled Tire Rubber and Thermoplastics Composite, (J. Fung, S. Panigrahi)
10:45 am	CSBE08192	A Review on the Potential use of Neural Networks for the Mechanical Characterization of Materials (with a Focus on Biocomposites), (M. Ahmed, M. M. Gupta, S. Pannigrahi)
11:00 am	CSBE08200	Pressure Resistance Screening of Group I Clostridium Botulinum Spores at High Temperature High Pressure Processing Conditions, (Y. Shao, H. Ramaswamy, J. Austin)
11:15 am	CSBE08202	Heat Transfer in Canned Liquid/Particle Mixtures Subjected to Free Axial Agitation Thermal Processing, (M. Dwivedi, H. Ramaswamy)

Tuesday, July 15

12:15 – 5:30 PM Bus Tours

Tour 1:

- **Vancouver Port Cascade terminal**
- **Vancouver Port authority presentation Canada Place**
- **North West Hydraulics Laboratories**

Mini Bus

Tour 2:

- **BC Ministry of Forests Tree Seed Centre**
- **Burnaby Lake Greenhouses**
- **West Coast Reduction**

47-passenger bus

Tuesday, July 15 7:00 – 9:00 PM

Awards Banquet Atrium room

Congratulate our award winning colleagues and enjoy a relaxing evening with good food, conversation, and music.

After social - Tantra restaurant and bar

DAY 3 Wednesday July 16

7:00 AM Continental Breakfast Atrium room

8:15 AM Endeavour/Resolution room

Keynote Speakers (Forestry)

Moderator: Jim Dooley

David Flanders, R.P.F.

Research Associate Forest & Resources, University of British Columbia

Digital landscape visualization of climate futures for visioning changes in forestry and agriculture

Dr Jack Saddler, R.P.F.

Dean and Professor, Faculty of Forestry, University of British Columbia

Opportunities for converting softwood species to ethanol

Dr. Ian de la Roche

President and CEO, Forest Products Innovations Inc. (FERIC, FORINTEK, PAPRICAN)

Optimizing forest value chain

Session 5A - Soil and Water II

July 16 10:30-12:20 Endeavour/Resolution room Moderator: Murray Tenove

10:30 am	Paper #	Introduction
10:35 am	CSBE08166	Effects of Seasonality upon Water and Solute Movement in The Unsaturated Zone, (S. Kreba, C. Maule)
10:50 am	CSBE08167	Reuse of Domestic Greywater for Irrigation of Food Crops, (S. Finley, S. Barrington)
11:05 am	CSBE08168	Development of Water Quality Database for Watershed Model Evaluation to Support Source Water Protection, (S.I. Ahmed, R. P. Rudra, A. Singh, B. Gharabaghi)
11:20 am	CSBE08169	Optimum negative pressure for growing peppers using a capillary-irrigation system, (V. Nalliah, R.S. Ranjan)
11:35 am	CSBE08171	Lining Impact on Water Losses in Watercourses - A Case Study in Indus Basin, Pakistan, (M. Arshad, Q. Zaman , A. Madani)
11:50 am	CSBE08172	Performance of bubbler irrigation system for large size date palm trees farm, (A. I. Al-Amoud)
12:05 pm	CSBE08173	Rural water quality information tool, (S. Elgert, M. Tenove, D. Corkal)

Session 5B - Bioproducts and Food III

July 16 10:30-12:20 Discovery room

Moderator: Stefan Cenkowski

Time	Paper #	Topic
10:30 am		Introduction
10:35 am	CSBE08196	Identification of Western Canadian wheat classes at different moisture levels using NIR hyperspectral imaging, (S. Mahesh, D.S. Jayas, J. Paliwal, N.D.G. White)
10:50 am	CSBE08197	Non-destructive measurement of tomato quality using visible and NIR spectroscopy, (L. Chen, GS. V. Raghavan, C. Vigneault, M. T. Charles, D. Charlebois)
11:05 am	CSBE08198	Detection of sprouted wheat kernels using NIR hyperspectral imaging, (C.B. Singh, D.S. Jayas, J. Paliwal, N.D.G. White)
11:20 am	CSBE08199	Superheated steam as pretreatment to reduce oil uptake during deep frying of chicken nuggets, (J. Rosete-Hidalgo, M. E. Sosa-Morales, S. Cenkowski, J. F. Vélez-Ruiz.)
11:35 am	CSBE08194	Optimized and Efficient prototyping of Biological Fiber based Composite materials using neural networks, (M. Ahmed, M. M. Gupta, S. Pannigrahi)
11:50 am	CSBE08195	Prediction of Biocomposite boards tensile strength using Neural Networks, (M. Ahmed, M. M. Gupta, S. Pannigrahi)
12:05 pm	CSBE08201	Shelf-life stability of stability of oat groats processed with superheated steam, (D. Head, S. Cenkowski, S. D. Arntfield)

Student Awards Luncheon

12:30 PM Atrium Room

CSBE New Directions

(Review living strategic plan)

POSTERS

Poster #	
CSBE08300	Development of a small scale anaerobic digester for demonstration and testing, (R. Fleming, M. MacAlpine, J. Todd, D. Hilborn)
CSBE08301	Comparing hydraulic conductivity through both inverted auger hole and constant head methods, (B. Amirataee, S. Besharat)
CSBE08302	Feedlot Rainfall Runoff Evaluation for Saskatchewan, (C. Maulé, T. Fonstad)
CSBE08303	Influence of physical parameters on microbial oxygen uptake during composting, (A. Mohajer, S. Barrington, A. Tremier, J. Martinez, M. Carone)
CSBE08307	Off gassing kinetics related to pellet physical properties, (J. S. Tumuluru)
CSBE08308	Simulation and verification of logistics of biomass (woody and herbaceous) supply chains, (S. Sokhansanj)
CSBE08309	Self heating of wood pellets in storage, (W. Guo)
CSBE08310	Characterization and kinetics study of off-gas emissions from stored wood pellets, (X. Kuang and J. S. Tumuluru)
CSBE08311	Transient mass-size distribution model to predict the performance of biomass grinding operations, (L. Jafari)
CSBE08312	Studies on GIS based availability and supply of cereal straw as a feedstock for a biorefinery in Peace River Region, (J. Stephen)
CSBE08313	Biomass as a source of heat for greenhouse industry in lower mainland BC, (J. Chau)
CSBE08314	Multi criteria selection of appropriate energy options for district heating, (S. Ghafghazee)
CSBE08315	Bioenergy densification, (C. Igathinathne)
CSBE08316	Energy input and manufacturing costs for producing torrefied biomass pellets, (J. Peng)
CSBE08317	Set-up and Evaluation of a New Unit for Measuring Ground Speed for an Agriculture Tractor, (A.A. Al-janobi)
CSBE08318	Determination of Moisture Content of Hard Maple Lumber using Microwave Drying, (M.T. Afzal, B. Freymond)
CSBE08115	Review of dehumidification technologies in greenhouses, (X. Zhang, H. Guo)
CSBE08119	Climatic Sensitivity Analysis of AERMOD and CALPUFF Air Dispersion Models, (Y. Li, H. Guo)
CSBE08173	Rural water quality information tool, (S. Elgert, M. Tenove, D. Corkal)
	Engineers Without Borders

Local Arrangement Committee

Shahab Sokhansanj
John Morgan
Anthony Lau
Fahimeh Yzdanpanah
John Luymes
Jamie Stephen
C. Igathinathane