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Industry Expert Review Meeting in South Africa: Comments on IPCC’s AR4

By John Nyboer

The Intergovernmental Panel on Climate Change (IPCC) is currently preparing its Fourth Assessment Report (AR4). The report will contain an assessment of scientific, technical, and socio-economic information relevant to understanding human-induced climate change, its potential impacts, our vulnerability, and options for adaptation and mitigation. The writing team of Working Group (WG) III, assigned to review the mitigation aspects of climate change, completed the First Order Draft (FOD) of a report to be presented to the Panel for final approval in June 2007.

In September 2004, an expert meeting was held on “Industrial Technology Development, Transfer and Diffusion” (ITDT), in Tokyo, Japan that included industry representatives from many industrial sub-sectors. There was a concerted effort on behalf of the organizers to include industry directly in the discussions. Dr. John Nyboer was requested to present work done in EMRG on modelling technology transfer and diffusion. Proceedings from that meeting provided insights, information and suggestions from these industry experts that were to be used as input into the AR4 of WG III. Dr. John Nyboer was honoured to join 60 experts from around the world who were requested to attend a follow-up meeting to review the FOD and the impact of the Tokyo meeting on this draft.

The follow-up “Industry Expert Review Meeting”, held in Cape Town, South Africa, 17-19 January 2006, was the first time in IPCC history that an opportunity for face-to-face dialogue between industry expert reviewers and Lead Authors of the WG III AR4 could add value to the written expert review, submitted earlier by the participants. Lead Authors explained the key messages from their chapters and also discussed problems they are having on obtaining Continued on page 2…
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information and literature on specific issues. The contribution from Industry experts not only provided for a wider range of perspectives related to key messages and identified new literature, but also identified gaps and concerns related to any technologies, processes or other issues not adequately covered in the FOD.

Three main questions addressed at the ITDT meeting were revisited:

1. Are the driving factors of industrial technology development identified in the FOD?
2. Does the FOD identify the factors that drive or limit the process of transfer and diffusion of technologies?
3. How accurate are the estimates in the FOD of future cost and future market potential of technologies?

During the meeting, experts discussed all chapters of the FOD except for the introduction and sections on agriculture and forestry. Priority was given to reviews of emissions related to energy supply, transport and infrastructure, residential and commercial structures, and industry. The meeting focused on three components of these sectors that produce a major portion of global greenhouse gas emissions, and hence have a large potential for mitigation technology, as considered at the ITDT meeting:

1. Energy-intensive industry (e.g., cement, metals, chemicals);
2. Energy-intensive consumer goods (e.g. passenger cars and fuels, air conditioners and lighting equipment);
3. Electricity production and energy carriers (e.g. fossil, nuclear, renewables, less carbon intensive fuels, efficient conversion, hydrogen).

Overall, the Lead Authors were very pleased with the outcome of the meeting and felt that dialogue that included input from knowledgeable industry representatives was very valuable in the development of a useful report related to the mitigation of climate change.

EMRG Students Making an ‘Impact’

By Krista Phillips

In Spring 2004, Jonn Axsen and Bill Tubbs were approached by some REM alumni to start an SFU chapter of Net Impact – an international network of students devoted to using the power of business to create a better world through the implementation of socially- and environmentally-responsible activities. Enthusiastically, Bill and Jonn rose to the challenge and, with the help of Katherine Muncaster and Krista Phillips, have been extremely successful in assembling an expanding network of like-minded people, both students and professionals, from the Vancouver area.

Over the past year, the SFU Net Impact chapter (SFUNI) has been steadily increasing profile throughout the academic and business community by organizing, hosting, and facilitating a number of highly engaging events, such as a dialogue on policy design for corporate sustainability and no-
table speaker events discussing the opportunities and barriers to achieving social and environmental responsibility.

Last semester, SFUNI presented a provoking and controversial panel discussion on corporate sustainability with key corporate executives from Alcan, Placer Dome, and the Aurora Institute. With multiple successes under SFUNI’s belt, new co-presidents Katherine Muncaster and Julia Mackenzie are leading the chapter in its most ambitious initiative yet: the Corporate Environmental and Social Responsibility Challenge. To be held in March 2006, the CESR Challenge brings together competing teams from SFU, UBC and the Bainbridge Graduate Institute in two two-week case competitions, with consulting contracts awarded as prizes.

**Combining Stated and Revealed Preference Data for CIMS**

By Jonn Axsen

Recent EMRG projects have explored the derivation of dynamic behavioural parameters to enhance the behavioural realism of CIMS, such as Paulus Mau’s Master’s project. It is widely known that consumer preferences change over time, and this should be accounted for when modeling policies that induce technological change. For instance, if we were to simulate a vehicle emissions standard in CIMS, stipulating that automakers had to increase the market share of low and zero emission vehicle technologies, we would want to have a dynamic component to the intangible (or perceived) costs of hybrid-electric vehicles. This is because we expect that as hybrids gain market share, consumers gradually perceive them as less risky and more attractive.

Previously, these dynamic intangible cost parameters were estimated by eliciting ‘stated’ consumer preference data through an online survey, which are then used to estimate a discrete choice model. However, the use of such ‘hypothetical’ data is often criticized in choice modeling literature, as it is highly susceptible to the many cognitive biases of the human mind. This can result in inflated estimates of the desire of consumers to purchase environmentally-friendly products. On the other hand, if we were to limit ourselves to ‘revealed’ preference data, that is, real market data, we would not be able to study new technologies that have yet to enter the market on a large scale.

My Master’s project seeks to resolve this dilemma by bringing both types of data together into a ‘joint’ model, exploiting the flexibility of stated preference data and the down-to-earth realism of revealed preference data. I am currently constructing an online survey that will collect information about respondents’ most recent vehicle choice (revealed preferences) as well as their anticipated choice in a series of hypothetical situations (stated preferences). Both sets of data will be integrated into a single choice model that can be used to derive dynamic behavioural parameters for CIMS with an enhanced degree of realism. The survey will be launched in March of this year, so stay tuned for updates on this project.

**Latest Publication**


by Nic Rivers and Mark Jaccard
EMRG Updates

New EMRG Students Bring New Research Projects

EMRG’s continues to invest in human capital with two new graduate students: Steve Groves and Dale Beugin.

Steven Groves recently graduated from the University of Waterloo after earning an undergraduate degree in Environmental (Civil) Engineering. Though his background is in water resources he is looking forward to broadening his field of interest into another necessity of life, energy. Originally from Brandon, Manitoba, Steve is looking forward to spending some time on the coast after being landlocked for most of his life.

Steve’s master’s project will analyze the rate of development of new energy-using and GHG-emitting services including processes, technologies, and behaviours not currently captured by the bottom up, technologically explicit approach to modeling. Data sources will include historical sources on energy-using service purchases as well as the use of current surveys to assess the empirical growth of these services. He will develop a mechanism to reflect the influence of time, economic wealth, and energy prices on the usage of these services. This mechanism will be integrated into the CIMs model to improve its energy consumption forecasting abilities.

Dale Beugin holds a degree in mechanical engineering from UBC. After graduating, he worked as a consultant designing and managing the implementation of sustainability strategies and ground source heating utilities for resorts in the Okanagan and China. Dale spends what free time he has skiing, backpacking, playing tennis and ultimate.

For his master's research project, Dale will be integrating revealed consumer preferences into the CIMS model by calibrating the model using historical data.

Mark Jaccard Travels with New Book

Mark Jaccard’s new book, Sustainable Fossil Fuels, was released in 2005 and is now available throughout the world. To speak about his book, Mark has traveled to Edmonton and Eastern Canada, as well as England and Switzerland. In March, he will be touring several US cities, and speaking in Paris and Iceland. For more information about Sustainable Fossil Fuels, visit the book’s official website: www.emrg.sfu.ca/sustainablefossilfuels

Congratulations to Jacqueline!

Jacqueline Sharp successfully defended her master’s thesis project in the Fall of 2005, entitled Public Attitudes Towards Geological Disposal of Carbon Dioxide in Canada. Jacqueline surveyed Canadians to investigate perceptions of the risks and benefits of technologies that sequester carbon dioxide to prevent their release into the atmosphere. She now resides in Ontario, and continues to work as a researcher for EMRG.

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EMRG News

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