



North America Sustainable Consumption and Production (SCP)
Workshop on Green Building

MEETING MINUTES

Compiled by the One Earth Initiative Society¹

31 January – 1 February 2011 in Ottawa

The Government of Canada (led by Environment Canada), the United States Government and the United Nations Environment Programme (UNEP) hosted the North American Sustainable Consumption and Production Workshop on Green Building at the Minto Suite Hotel in Ottawa, Canada (January 31 – February 1, 2011).

The goal of this workshop was to have a multi-stakeholder dialogue promoting bi-national collaboration on green building as an important application of international sustainable consumption and production efforts. A number of studies show that three consumption clusters – housing, food and drink, and mobility/transportation -- drive 70 - 80% of the ecological impacts in developed economies, and promoting green building is a high-leverage option to help transform production and consumption patterns for sustainability.

The event involved more than 80 experts in green building and sustainability from Canadian and U.S. government, industry and non-government organizations, academics as well as United Nations representatives.

DAY ONE – Monday January 31, 2011

Upon entering the workshop, participants were invited to map their area of expertise on a large Venn diagram posted on a wall composing of three overlapping circles: Policy, Sustainable Consumption and Production, and Green Building (see below).

¹ <http://OneEarthWeb.org/>

humanity's resource consumption, including 12% of all fresh-water use, and produce up to 40% of our solid waste. The sector also employs, on average, more than 10% of our workforce. With urbanization increasing rapidly in the world's most populous countries, building sustainably is essential to achieving sustainable development." She commented how in the next 2 days the group will hear from people from across the sectors who work with these statistics and are looking for opportunities for a way forward.

She then gave thanks to everyone who had helped organize the workshop including One Earth Initiative Society for supporting and facilitating the event. She then introduced the workshop's Lead Facilitator Nicole Anne Boyer from One Earth.

Nicole thanked everyone for attending the event. She had heard from many in the group that they were curious about the topic and that the diversity in the room really interested them in coming.

She noted that the goal of the workshop is to have a multi-stakeholder dialogue promoting bi-national collaboration on green building, as an important application of international sustainable consumption and production (SCP) efforts. She also emphasized that it builds on the first North America meeting on SCP that was held in 2008 and will use green buildings as an applied focus for discussion. A number of participants in the 2008 workshop were also participating in the 2011 workshop.

The particular aims of this workshop are to:

- To build on US-Canada collaborative efforts in green building and identify possible additional areas of collaboration; and
- To contribute inputs for consideration into a framework for SCP in North America in preparation for the UN Commission on Sustainable Development meeting in 2011 and Rio +20 – United Conference on Sustainable Development in 2012

Opening Remarks

Introductions: Brenda Metropolit, Director, Sustainability Initiatives, Environment Canada

Jan Dyer, Director General, Sustainability Directorate, Environment Canada

Jan is currently the Director General, Sustainability Directorate at Environment Canada. She is primarily responsible for the Federal Sustainable Development Strategy and the Canadian Environmental Sustainability Indicators.

Jan welcomed everyone. She said that she was happy to see that people were able to get there and that it looked to be an enthusiastic and full house. There was a lot of interest for the event and the workshop was oversubscribed. She expressed that this file has been a fascinating experience and growth curve. Jan asked participants to dialogue with other participants to see what is happening on either side of the US-Canada border. People were asked to look at the

initiatives that are going on and where collaborations can go forward. They want the process to feed into the Commission on Sustainable Development's 19th Session (CSD-19).

This issue matters to Environment Canada. After 10 years of highly critical audits by the Commissioner of the Environment and Sustainable Development, Canada has a new Federal Sustainable Development Strategy; its objective is to provide transparency about initiatives taking place in Canada. Previously, sustainable development objectives and efforts were very dispersed. The strategy now brings together initiatives and puts them in one place so that the breadth can be seen easily in one publication. This is a big change – the SDS is now linked to the government's annual performance reporting cycle and the government's annual expenditure system. They can now see what is being done. There is an overarching independent reporting system on all the goals and targets set under the strategy. There has been a shift and what the government is doing under sustainable development is now obvious.

One new goal is the greening of government operations. This is led by Public Works and Government Services Canada through the Office of Greening Government Operations (OGGO). PWGSC has set fairly ambitious goals in all areas of major concern for the federal government; a big chunk involving buildings. Under green buildings PWGSC has determined that 87% of greenhouse gas emissions arise from buildings and that green buildings are a major emphasis for new goals and targets. The federal target is in-line with the rest of the economy: to reduce greenhouse gas emissions by 17% from 2005 levels by 2020 for all federal operations. In order to lower our emissions, we will need to refit existing buildings in a way that they have lower emissions. By April 1, 2012 all departments must follow LEED (Leadership in Energy and Environmental Design) Silver for all new and retrofitted projects (at minimum). For new leases and lease renewals all departments will need to follow the BOMA (Building Owners and Managers Association) Best Green Globes standard. If a standard is already in place that exceeds these requirements, that standard will need to continue to be met.

We are hopeful that the combination of transparency (telling people about their goals and targets) and reporting will result in real results over time. The FSDS has a plan, do, check, improve cycle of 3 years. This will help us feed into preparations for CSD-19 and the UN Conference on Sustainable Development (Rio+20) and inform environmental performance reporting to the OECD (Organization for Economic Cooperation and Development).

Amy Fraenkel, Regional Director, United Nations Environment Programme – Regional Office for North America

Amy thanked Brenda and noted their connection through the 2010 Vancouver Olympic Games, and was pleased about the number of LEED Platinum buildings that had been erected for the Games. Amy thanked the Canadian and US governments, as well as One Earth for hosting, and her colleagues from UNEP.

Amy framed her role from UNEP during the workshop as one of providing a link to the international conversation currently happening around sustainable development. Many may

have come expecting a discussion at the bilateral level, but Amy wished to provide a link to broader international progress being made on sustainable consumption and production, specifically with green buildings. She also indicated a wish to bring voice to the United Nations Marrakech Process which was launched at the World Summit on Sustainable Development in Johannesburg, South Africa, in 2002.

Amy mentioned that as we meet every 10 years to speak about sustainable development, we seek to launch partnerships and meaningful, concrete and tangible efforts for collaboration. She noted that we are now looking to Rio +20 in 2012, where she hopes we can speak about these issues in a more concrete way.

The workshop we find ourselves at today is the second regional workshop. UNEP has 6 regional offices, and Amy said that her work in Washington sees her collaborate closely with North American governments, stakeholders, the private sector, and non-governmental organizations.

Amy reflected on the first meeting in 2008, and said that it was a way for participants to get the lay of the land and identify regional priorities. However, Amy mentioned that it was challenging to speak about these issues in an abstract and broad way. What was needed was to get much more specific. This led to a focus on green building for the second workshop.

Amy stressed the importance of this issue, given the amount of GHG emissions that come from our buildings. Furthermore, Amy mentioned that the UN estimates that population growth on the planet will reach 7 billion this year, and 9 or even 11 billion by 2050. As well, by 2050, it is estimated that 80 percent of the world's population will live in cities and urban centers, with 500 or 600 cities around the world having a population of over a million people. In light of these realities, we must ask how do we maintain our basic standard of living? This region – North America – has a tremendous opportunity to feed into the global processes we will be hearing more about during the workshop.

Arab Hoballah, Chief of the Sustainable Consumption and Production Branch in the Division of Technology, Industry and Economics at UNEP, was noted to be a leader in sustainable production and consumption on the international stage. Amy's own hope – and challenge – for the participants at the meeting is to come away from this workshop with strong ideas for regional collaboration. She asked participants to keep in mind how we might be able to shape the work we do at the UN, at the international level, as a part of the UN Marrakech Process. Beyond this work, UNEP has been working with its Sustainable Buildings and Climate Initiative. This is a fantastic opportunity to make a contribution to bilateral work, and help the rest of the world learn how to do this on buildings.

The Marrakech Process' seven task forces included one on Sustainable Buildings and Construction. Amy noted that we will learn lots about what is going on about the future of this issue in each country, as well as bilaterally, regionally, and globally.

John Matuszak, Division Chief for Sustainable Development and Multilateral Affairs, U.S. Department of State

John thanked Environment Canada, Foreign Affairs Canada (DFAIT), One Earth and UNEP for all of their work to bring the workshop together. He had chaired the first North American consultation two years ago; it was a very general consultation and was very broad. This was a challenge for North Americans because we're very practical – we like to focus on actions and programs that result in changes rather than something that is very wide and nebulous. When talking about a second program, it became apparent that, to engage all stakeholders and the two governments, the group needed to focus on a sector. The green building sector was chosen, and while this sector does not represent all of SCP activities, it is a very important component.

At this meeting he intimated that, the group will hopefully be able to recognize greater links between the two countries on green buildings and further collaborate on activities between and within the two countries. This meeting could serve as an example to the UN CSD as it takes a practical approach. A practical approach from North America that builds on experiences at the local, national/state levels should be brought to the 10-Year Framework of Programmes (10YFP) and the text that will be negotiated in May 2011 at UN CSD-19. These activities should improve lives and protect the environment more effectively. The actual process is particularly critical and all stakeholders need to be involved - local and regional governments, experts in industry, universities, NGOs, and many others.

SCP has been on the global agenda since Agenda 21. It's a chapter that came out of Agenda 21 negotiated at the UN Conference on Environment and Development (Earth Summit) in Rio 20 years ago in 1992. The issue was revisited at the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002; the Johannesburg Plan of Implementation (JPOI) committed to developing a 10YFP to support national and regional actions in support of SCP. The Marrakech Process was launched in 2003, which many believed fulfilled the need for a 10YFP, while others believed the effort needed to be further negotiated and formalized. He hopes that we can now draw on our experience to negotiate a practical 10YFP that can share best practices with the rest of the world.

People involved in green buildings have met many challenges, including a lack of funding, regulations that do not accommodate creativity, and a lack of access to products and information. We need to figure out how we can use the information that people have learned so that we can share it with the rest of the world, utilizing a good 10YFP. For example, when working on clean production in the past, people had no difficulty identifying the goals (such as improvements in lives and energy efficiency), but they did not know how to get there. Solutions could include things as complex as financial loans or as simple as making sure water is used efficiently and not contaminated so that the water becomes unusable downstream. The process that the green building movement has gone through needs to be spotlighted so that others can learn from our successes and mistakes.

This meeting should explore how governments can facilitate work on the ground (with builders, local communities, etc.). Work can't be done in a vacuum and there is a need to get to the "meat" in global building construction and sustainable communities.

The US administration is committed to working on issues related to green buildings. The U.S. has an executive order on sustainability among all agencies of government. However, the government is not alone in these efforts and we need to work together to determine the obstacles that exist to achieving green buildings and sustainable communities and share our experiences with other countries.

Goals of the Meeting – Vanessa Timmer, Executive Director, One Earth Initiative Society

Vanessa welcomed everyone and thanked the Steering Committees for the workshop including Jan Dyer and Brenda Metropolit from Environment Canada, and Pamela Hay from Foreign Affairs Canada (DFAIT). Vanessa introduced the volunteers – Alex, Carolyn, Jessie, Colin, Clayton, Carolin, Joanne, Carole and Marie-Pierre. As well, she introduced the One Earth team, including Bill Rees, Dagmar Timmer, Emmanuel Prinnet, Alistair Moore and lead facilitator for the session, Nicole Boyer.

Vanessa spoke about the way she had been thinking about this workshop. She thinks about where our stuff comes from. Her microphone – where did it come from? What about the hotel building, food, chairs, etc.? Where did the materials come from, how were they made, produced, distributed? When we think of sustainable development, many people think about energy components. What One Earth looks at is more the material flows – the resources, water, waste cycles and the people who produce and consume these material flows. For some of you, Sustainable Consumption and Production (hereafter, SCP) is a new idea. For some of us, it is our life's work. This workshop is about drawing attention to the broader system and the life cycle of the materials that flow through it and people who are active in different parts of the system - and green buildings are a key part of this SCP system. Combined with mobility and food – buildings accounts for 80 percent of our production and consumption flows. Green buildings, then, is an important part of any discussion on sustainability.

Vanessa noted that SCP professionals have a lot to bring to the Green Building community, and during this workshop, she hopes they can provide a broader lens to the building dialogue by posing questions about patterns and connections from the building sector to other sectors including mobility, and drawing attention to the underlying values and needs that drive our decisions within the building sector.

Vanessa turned to the background papers for the summit, one written by Emmanuel Prinnet, another supplied by UNEP, saying that in their discussions over the workshop she hoped to bring them to life, framing them within the context of the current international conversation.

Vanessa spoke about the word “system”, and noted that for some people it is often thought of as infrastructure or mechanical systems. One Earth uses the term ‘system’ to refer to a complex interdependent and interconnected whole that is more than the sum of its parts and serves a particular purpose (the human body is an example). It is also a term that can be used to refer to the boundaries of a challenge - and it is in this way we can look at the consumption and production system. The SCP system is the aggregate of all economic activity that provides all the goods and services that move through our lives and sustain us. There are some very strong needs and values that underpin how we approach this system. These values determine not only what we consume and produce, but also what we consume and produce and how much. In sum, we need to decide what the good life looks like and the shape of our economy.

One Earth looks at the challenge of changing this system from a way that is ecologically and socially harmful to one that sustains and supports us in an equitable way within the carrying capacity of the life support systems of our planet. Vanessa noted that while it is about supply and demand – it also takes a broader view, accounting for the sum of those things and their impact.

Vanessa noted the 3 ways in which looking at the issue of Sustainable Development and Green buildings from the SCP lens changes how we approach the issue in general:

1. It changes whom we bring together. As you can see from the participant map, we have so many representatives from government, industry, NGO’s, across jurisdictions. Among this group, we are happy to have green buildings practitioners because you look at the practical aspects of the broader issues, and we also have experts in SCP and in policy.
2. It changes how we do meetings. You will go through our collaborative cafe later in the day where we aim to generate the next steps conversations. Vanessa directed attention to the questions posted on the wall, aimed at driving collaboration, namely, what collaborations, started here, can create breakthrough solutions?
3. Vanessa also noted that by combining sustainable consumption and production and green buildings, we realize that it forces us to look at our systems as a whole. What are the trade-offs of efficiency? What does our land-use planning tell us about our society and how does it support or hinder SCP? One of the ideal outcomes of our collaborations is to better manage unintended conflicts.

Vanessa asked participants to consider throughout our time together to come away with the highest levers of change that we can talk about.

She turned to the iceberg model - a graphic which helps us think about how to have higher impact in shifting a system. Often we focus on specific events like the BP oil spill or the construction of a new green building. However, what happens when look below to the

underlying systems and cultural mindsets? It's important we get at these underlying assumptions.

The 'iceberg model', left, was adapted from the work of Donella Meadows and the work of other systems thinkers. It was presented as a useful tool in understanding the different levels of intervention, and the associated leverage by acting at any particular level. It uses the metaphor of an iceberg to illustrate the relationships between the "visible" social and ecological impacts we wish to change – the events – and the various "invisible" sets of drivers (those that are below the water line) that are responsible for those impacts – patterns of behaviour; systemic structures; and mindsets.

Vanessa challenged participants to examine the assumptions held by them and by their organizations and communities. As well, Vanessa asked participants to explore connections and patterns and opportunities for deeper change in our institutional structures, rules, culture, policies, rules of the game, and worldviews. This approach of looking for patterns and addressing deeper drivers seems to be common sense but it is often not common practice.

Vanessa noted that the structure and approach of this workshop could serve as a model for applying an SCP lens to other sectors, such as tourism, mobility, and food systems.

9:30 SESSION 1 – PANEL: A Review of Existing Canada / US Collaborative Efforts Related to Green Building (with Question and Answer Session)

Introductions: Derry Allen, Counselor, Office of Strategic Environmental Management, Office of Policy, U.S. Environmental Protection Agency

Derry expressed that it has been a pleasure to lead the US side of planning of the workshop. He thanked the Canadian team for their work. The intent of the panel was to try to identify collaborative efforts that could take place among the Canadian and US governments as well as non-governmental organizations. It was to put dots up on the wall. Participants would be asked to help connect the dots.

Michael Calvert, Global Practice Lead, Green Building, Global Business Opportunities Bureau, Canadian Department of Foreign Affairs and International Trade

Michael explained that he had been asked by the organizers to be short, pithy and powerful. We've all heard statistics that we're up against a wall. As noted by the Fourth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC), 2007 "Building-related greenhouse gas emissions could almost double by 2030" but "With proven and commercially available technologies, energy consumption in both new and existing buildings could be cut by an estimated 30-50% without significantly increasing investment costs."

The Canadian reality is that buildings in Canada account for:

- 35% of our greenhouse gas emissions
- 33% of our energy production
- 50% of our extracted natural resources
- 25% of our landfill waste
- 10% of our airborne particulates

There are many solutions where we can make inroads. But think of what we can achieve if we have new technologies and new investments. Unfortunately the grim statistics are going to become a reality for the rest of the world especially with India and China's burgeoning middle class. We'll be seeing major impacts in the next 10 years. We need to share our experiences and get it right.

The opportunity is for us to lead. We can only do that if we do 3 things: (1) work collaboratively – share experience, best practices, and lessons learned; we especially need collaboration between the government and private sector. (2) We have to act strategically – to identify key priorities and act on them (not get caught in analysis paralysis). (3) Promote the financial benefits. Back a number of years ago the environment was talked about as being a big thing but it really wasn't – the 'bottom line' was top of mind and still is. Unless we can sell the economic benefits, we can't make much progress. Money talks. It's not just about energy savings; we're talking about the greater economy and workforce. A recent study by Eco Canada on environment industries and a green economy in Canada showed that a big priority is sustainable construction and buildings.

There are collaborative efforts taking place:

(1) LEED: this is a good example of collaboration; it was born in the US; Canada was an early adopter. Canada has a small population yet we have 10,000 accredited LEED professionals in Canada. We have 2628 registered and 327 certified LEED projects in Canada. LEED is not a panacea but it's a good start.

(2) Greening the Embassy Forum – while this is a US program, Canada is doing things too – a group in his department launched a sustainability guideline program for embassies abroad based on the realities of foreign markets (can't apply same standards in Ottawa or Washington in other parts of the world). The department is doing interesting things – their embassy in Washington went through a complete building retrofit. They saw a 37% reduction of water, and energy use and achieved a \$20,000 savings annually.

(3) Greening federal buildings – they are working to make sure that government walks the talk (since it's encouraging others to do it). Initiatives include energy performance contracting; Federal Building Initiative (FBI). The FBI has 86 projects with \$320 million private sector investment and it has seen \$43 million annual energy savings and reduced greenhouse gas emissions by 285 kilotonnes.

Other initiatives: the National Research Council is seeing a lot of innovations; Centre for Sustainable and Built Environment; CMHC is doing a lot of work – e.g. sustainable buildings program; Natural Resources Canada – domestic program for energy reductions, EnerGuide rating systems; GreenUp – Canada’s building performance program. All of these are worth noting.

Chris Choi, U.S. Environmental Protection Agency

(PowerPoint available [here](#))

Chris introduced himself and noted that it was his first visit to Canada, and thanked the organizers of the conference. Chris began by talking about the EPA’s Green Building workgroup efforts, and noted his organization’s internal structure. Specifically, he focused on the EPA’s green building workgroup formed in 2003, which is made up of many different individuals, who collaborate over monthly calls. He noted 3 different entities that work on green buildings – Office of Sustainable Communities, Green Building Workgroup, and the Green Building Management Steering Committee.

Chris said that his goal today was to speak briefly about some of EPA’s efforts related to green buildings and suggest opportunities where we can improve the building and development landscape to foster greater adoption of green building practices.

Chris noted some of the EPA’s sample projects and initiatives. One of them is the Sustainable Design and Green Building toolkit, a publication from the EPA’s Region 4 office which acts as a guidebook for communities to build green. As well, he drew attention to the Lifecycle Building Challenge from Region 9, and Region 5’s research in Removing Market Barriers to Green development, which focuses on the five different areas and barriers to green development.

Chris said the EPA does not wish to create new structures for green buildings, but rather to work with and improve existing products and tools that are already used and trusted by the development community. He noted that there were already many existing institutions out there doing valuable work and often they just need to adjust their practices to incorporate green building concepts into their offerings. Chris cited a report from the Royal Institute for Chartered Surveyors that showed that architects, expectedly, have most knowledge, but appraisers have the lowest knowledge – these are the folks that influence what the market value of all buildings. Chris said that they worked with them to create a series of courses to help address the knowledge gap. He noted these are currently some of the Appraisal Institute’s most popular classes.

Chris said the EPA has looked into some of the financial challenges of expanding their efforts in green buildings, such as from an accounting standpoint. He mentioned a case at the University of Illinois, who were interested in building a green lab. Since the building would have been paid for by capital funds and donations, but maintenance and operation cost would have been covered by the State, there was different motivations between the department who was

responsible for constructing the building and those who would maintain the building. As a result, the lab was not built green because of this internal organization conflict that stems from a disjointed accounting process. He said that we need to look at how organizations can perform better as a whole, rather than creating incentives that may benefit individuals or specific departments, but may erode the organizational bottom line.

Chris also mentioned that communication is an issue. There is more to be gained from framing the conversation on the value of our buildings beyond just energy savings, cost, and payback. He says we need to look at softer issues such as the ability of green buildings to promote better health and productivity. Chris encouraged more research in this area.

Chris showed a list of EPA resources, with particular emphasis on a green building design guide from the EPA.

Brief review of initiatives outlined in [Background Paper #3: Existing Canada – US Collaboration in Green Building](#)

Wayne Trusty, President, Athena Institute on Life Cycle Assessment

Life Cycle Assessment (LCA) is different from Life Cycle Costing (which is about money). LCA is about measuring environmental impacts in physical terms. His group used to be mostly “off in the wilderness” working on this issue; now they’re on the agenda. What is critical and needs to be a foundation for green buildings, however, is having databases. There are a lot of drivers for LCA – codes; standards; Green Globe in the US; LCA is coming into LEED after a successful pilot program; and the California green building code is advancing how LCA is used.

Labels are important – there are 500 or so green labels in the world; this is a part of the green washing problem. LCA-based labels (Environmental Product Declarations) are a critical way to start dealing with this issue in policy and other ways. It is happening in France and in Japan; it can be a non-tariff trade barrier. But how do businesses (especially small and medium businesses) deal with this? It is a costly process and smaller businesses don’t have the capacity to collect this data themselves. Governments can supply key types of data (e.g., energy production) and provide a home for national databases so that businesses can access supply chain and other data they need.

Collaboration – his group has been fortunate to work with governments to get databases up and running but governments need to do a lot more and sponsor the development of such databases. In the EU there are databases that have been government-sponsored for as many as 4,000 data modules. The US has sponsored some; Canada has none. Data is critical; data needs to be able to move with products; databases need to be able to link to each other. If we don’t do this we will hurt trade and industry. We need such databases to achieve SCP and green buildings.

Evan Lloyd, Executive Director, North American Commission for Environmental Cooperation

Evan spoke to item #3 on Paper 3. He noted that according to the Commission for Environmental Cooperation (CEC), North America includes Mexico, where 3 countries share 1 environment. Furthermore, he wished to note that North America is already at 80% population urbanization, and by 2030 will be at 86% urbanization.

The CEC's international advisory panel looks at green buildings as a transformational approach. Evan said that building green represented the lowest of the low hanging fruit to reducing GHG emissions quickly. Yet green building is still only a fraction of the built environment at this point.

The panel talked about managing our existing building stock, and put forward a series of recommendations to encourage the wide-spread adoption of green building. There was a push towards establishing a continental vision, putting green buildings at the heart of our discussions around sustainability. The advisory board made some specific recommendations for driving uptake for green buildings throughout North America, including targets at least as strong as the American Institute of Architects' (AIA) 2030 challenge for carbon-neutral buildings. Targets should also include other environmental parameters of water, land conservation, and green materials aspects of building and development. Among the strategies to drive change the group noted that the net benefits of developing green buildings should be sufficient to attract capital at existing market prices. Lastly, the need for life cycle assessment and costing tools was stressed in order to more accurately report on valuations for buildings as a whole.

Evan spoke to the CEC's North American focus, working with Mexico on adopting common metrics for energy efficiency in commercial buildings. He mentioned the US Energy Star approach and their services in the development of building portfolio management methodology. He spoke of the voluntary drive for adopting the Energy Star program in both Canada and Mexico, and noted that NRCAN had made significant progress on this approach. Evan also noted the importance of integrating data from across North America.

Evan noted that Mexico has integrated its building sector into its national climate action strategy and stressed the particular challenge facing that country in this process, noting that they will be building 1 million new homes a year for the next 20 years, and that in Mexico City alone there was some 3 million square feet of high quality office environments that could benefit from increased energy efficiency.

He wished to note that NRCAN as well as other partners were making significant progress on this approach.

Guy R. Newsham, Senior Research Officer, Institute for Research in Construction, M24, National Research Council

Guy is currently involved in studying the post-occupancy performance of green buildings. Usually measurement focuses on the design and construction process; but do the buildings really meet their objectives re: performance and occupancy? This study is supported by Natural

Resources Canada (NRCan) and 12 other departments. They are building on a study of the annual performance from 100 LEED buildings in the US.

This study is measuring air quality, light level, noise levels, etc... They are issuing surveys to people about job satisfaction, sick leave, commuting patterns – all things green buildings are supposed to improve. They have been to 11 buildings in Canada and the US; have taken a lot of measurements; have more than 1200 questionnaires completed. They will look at trends in the fall of 2011 to do the analysis. They are studying both green and conventional buildings for comparison purposes.

They are also looking to develop standard protocols for the data collection process so that they can expand it to more buildings.

Roger Platt, Senior Vice President of Global Policy and Law, U.S. Green Building Council

Roger wished to give a preview on 2 points that will be covered in this talk later on. First, the importance of engagement and collaboration and second; the specific benefits to using the LEED as a tool for collaboration and engagement tool. Roger noted that is wonderful to be invited to this event by the EPA. He also extended thanks to friends at BOMA, which are critical allies. As well, he thanked the State Department, specifically Donna McIntire, as well as UNEP. He acknowledged their work on the Sustainable Buildings and Climate Initiative, which has accomplished a lot. Furthermore, he gave recognition to their partner in the Canada Green Council.

Roger wished to focus on LEED as an engagement tool. He noted that while there are other brilliant standards around the world, with others doing some things better, LEED engages people throughout the world and in Canada. At the moment, LEED certifies 1.4 million sq/feet a day, 40% of which happened outside the US during the last six months. Roger focused again on LEED being a great engagement tool for getting people involved in the process. While it remains only a tiny percentage of the building transformation work that needs to be done, it is a great demonstration project, and it helps prove that more mandatory requirements will make sense in order to do things more cost effectively.

Donna M. McIntire, Architect, LEED® AP; U.S. Department of State

Donna discussed the greening of U.S. embassies program –representing some 18,000 buildings in about 240 countries around the world. These embassies and consulates have the unique opportunity to be a platform for what they're calling eco-diplomacy. On Earth Day 2009, Secretary of State Hillary Clinton launched a Greening Diplomacy Initiative to lead by example and advance sustainable development in the government's operations. The Department of State has built 75 new embassies over the last decade –using LEED to guide their efforts. They have ~30 projects registered and have certified 4 embassies with one earning LEED Gold; their baseline is Silver. They are installing a lot of green technologies in new and existing buildings including photovoltaics, ground-source heat exchange, LED lighting, etc.

They have published a green guide for embassies; have already installed over 706 kW of photovoltaics (equivalent to powering 550 houses every year); and are moving on the water front by capturing rainwater and treating wastewater effluent for irrigation.

On the 40th Anniversary of Earth Day, Secretary Clinton launched the DC Embassy Greening Forum. 70 participating member countries are working together to share best practices; they are galvanizing the diplomatic community across Washington, DC and raising awareness of green buildings and the responsibility of buildings in emitting greenhouse gases. They are now counting on the international League of US Green Embassies to move this initiative forward.

What can we do together? There is a need for measurement: UNEP Sustainable Buildings and Climate Initiative (SBCI) has focused on a need to use common metrics and definitions. We need consistency to measure and report on what we're doing now and what we want to document in the future. Consistent metrics are key to establishing baselines and developing reasonable and aggressive targets for the buildings sector. Each federal agency is now required to develop a greenhouse gas emissions inventory to set targets for reduction. Together the US and Canada can underpin the international effort for consistent data.

Kelsey Scheich, APEC Affairs Coordinator, U.S. Department of Commerce

Kelsey gave an overview of APEC, as well as a snapshot of their green building project, which is currently underway at the Asia Pacific Economic Cooperation, of which Canada and US are founding members. Kelsey mentioned that this year, the US is hosting APEC and its meetings, the overall goal of which is to promote open and free trade and investment among APEC members. There are 3 themes at this year's meetings: green growth, regional integration, and regional cooperation and convergence.

Kelsey spoke about their department's \$400,000 green building project, which was started 2 years ago. The project surveys the landscape of all APEC economies to examine and the existing green building regulatory frameworks. This survey will be reported out in March at a 2 day workshop in Washington where there will be a suite of meetings. Kelsey noted that many speakers from today would be there, and was thankful that UNEP is participating. The meetings will have a multi-lateral focus. A second workshop is also being planned. She encouraged people to participate in the workshop.

Kevin Kampschroer, Director of the Office of Federal High-Performance Green Buildings, U.S. General Services Administration (GSA)

GSA is the lead agency on federal green buildings in the US. Measurement is very important to convey our story, but we need to think about why we need the data and for what. The US uses rigorous greenhouse gas accounting and they are using an integrative measure. They were using the typical measure for energy-intensity that has been used for 30 years (KwH or BTU/square foot). But this biases the results towards empty buildings. We need to focus on a

different metric, such as BTUs/gross square foot/minute/person/product, to link the purpose of the building to what we're actually consuming. The U.S. Green Building Council's LEED program could switch to LEEP, focusing on building performance and not just building design.

ASHRAE Standard 189 is wonderful but it does not look outside the borders of buildings. When using that standard, we may be missing neighbourhoods, communities, and the urban environment surrounding the buildings.

A lot of what we've done in the past has been incremental improvement, but science shows that climate change is going in one direction. We can't make incremental changes – we need to change direction. Buildings performing 37% better than those using the current building code aren't going far enough. We need to look at achieving net-zero buildings; GSA is aiming for zero environmental footprint. We don't know how to get there or what they will look like, but we need to move toward regenerative design.

GSA recently published a study of stress on the office worker (as opposed to a high-stress job like a pilot) and discovered that, through construction and design of buildings, stress levels can be lowered. Green buildings are improving the health of the inhabitants. It is a vast arena and there is much to cover, but we need to work on what will have the greatest impact on the areas that we are most concerned with (i.e. climate change and inhabitant health).

10:45 SESSION 2 – PANEL: Green Building and Sustainable Consumption and Production:
International and Multi-jurisdictional Opportunities and Current Issues and Efforts (with
Question and Answer Session)

Issues covered include financial structures, building construction products / life cycle, and building performance, including aligning first cost and operations / maintenance budgets, energy performance and disclosure, and indoor air quality.

Arab Hoballah, Chief, Sustainable Consumption & Production Branch, United Nations Environment Programme – Paris Office – international green building processes and green building as an application of international sustainable consumption and production activities

(Presentation available [here](#))

Arab thanked Canada and US for inviting him, and thanked his fellow Sustainable Buildings and Climate Initiative (SBCI) members. Earlier, Arab noted that it is necessary to speak in broad terms at first in order to reach a common language because at the moment, SCP is still full of misunderstanding and misconceptions. SCP is becoming, together with resource efficiency, important for government departments, private business, etc. The sustainable development work that was started 30 years ago needs to move from clean technology to products and then to whole systems and the life cycle. We cannot lose sight of this movement, as it is very important that all the partners understand the direction we must head in. It is one that requires a culture of change. It is important to have a mindset change.

Arab turned to the Marrakech Process (MP) which was launched jointly with UNDESA in 2003 following the World Summit in Johannesburg in 2002 to promote SCP. We want to understand the process better, and there have been a series of roundtables in regions around the world. This is the second we have in North America. As we look forward, we must also expand our advocacy work and implementation at the national level, as has already been the case in China, India, Brazil, South Africa and Mexico, to expand our work and delivery of a transformative change in SCP.

Marrakech task forces are, so far, voluntary initiatives to support, technically and financially, and come forward with practical results on SCP work. Buildings is one of these areas that volunteer countries can pursue.

Arab referenced slide 4 of his presentation, the life cycle perspective, explaining that it frames the way we think about SCP, the overall framework, as well as each individual sector.

Arab explained that work needs to focus on different sectors beyond energy - buildings being one of them. This is confirmed and supported by a resource panel that UNEP is leading up. He emphasized that we need to focus on buildings in order to meaningfully move towards sustainability and a green economy.

Arab stressed the need to incorporate a welfare element to economic development – we need to incorporate people. Furthermore, Arab urged Governments to lead by example and provide a framework for others by starting for themselves.

Arab shared 3 words that guide his thinking: sticks, carrots, tambourine - the most important of them being tambourine, which is to make noise, to communicate, and let people know about the tools that exist, the best practices. As well, there is an element of music to it. There is a pace, a tone, people moving together, in time and to a shared beat. As of today, we have not done more than 50% in sticks and carrots, but we are extremely weak in tambourine.

Arab said that positive work in the building sector can contribute to fighting climate change. Almost no country in the world can fulfill its climate targets without change in the building sector. The role and impact of buildings is very important. Furthermore, analysis has been done that if people are working in an environment with natural light, they can improve their efficiency by 20%. There are other benefits to improving our buildings environmental performance.

Unfortunately there are barriers – why are we not moving on? The role that green buildings have to play in the fight against climate change is not clearly organized. There is a fragmentation of interests. We have been unable to bring together and find connections between different people along the timeline of the lifecycle. Arab stated that both market and governments need to find a response and share knowledge between each other.

How can we respond to these challenges? The UN is admittedly not a specialist in buildings. But we are specialists in bringing people together, and developing a common language. We will be working to put the concept of SCP and green buildings priorities on the national agendas for governments, as well as the private sector. We need to develop a common language amongst ourselves so we can then curtail and specialize it to those who need convincing.

Arab stressed the need to development new and common metrics, by looking at different types of measurements for the performance of our buildings. However, he also noted that we do not want to disconnect our buildings from the city, and its natural surrounding environment.

Arab also mentioned that there are many policy reviews at UNEP that do exist but few people know about - particularly surrounding sustainable building policies. He encouraged participants to actively seek out public information.

He also announced a new UNEP report on The Green Economy which includes a chapter on green buildings set to be launched in 3 weeks in Nairobi. He hopes this will bring important information to light, and hopes it will enforce certain trends going on that define a common language.

Arab finished by saying that in terms of new buildings and retrofits of existing ones, collaboration with China, India, Brazil is absolutely essential, because there is a tremendous amount of awareness-raising happening in those regions right now. There are ways in which we can help each other move to low carbon cities and more liveable communities. It is the common interest for everyone.

Mikkel Stenbæk Hansen, European Topic Centre on Sustainable Consumption and Production – European best practice in bi-national and multinational green building efforts and the application of an SCP lens to the green building sector

Mikkel offered a concrete example of multi-national collaboration: the EU Directive on Energy Performance of Buildings. In 2002 the EU Commission launched the Directive; this was reviewed in 2010 containing stronger requirements for energy efficiency in new and existing buildings. The Directive establishes a methodology for calculating energy use. It sets mandatory energy standards for new buildings (including requirements by 2018 for public buildings and by 2020 for all buildings); and requirements for buildings undergoing major renovations to live up to specific requirements for energy efficiency. This legislation is expected to reduce 200 million tons of emissions by 2020 in the EU.

The Europe Topic Centre is a consortium in Europe that works under contract with the European Environmental Agency. They do analysis to provide input into policy making in Europe. The EEA and its Topic Centres produce a State of the European Environment report (most recent version released in November 2010) and have had a specific thematic section on consumption and the environment.

Facts and Figures – Europe. There is a significant difference in household energy consumption from country to country. Over the last 17 years there hasn't been much progress made overall in terms of energy consumption in households. Some countries have shown progress over the past 5-10 years; but total energy used has been on the increase despite more energy efficient buildings. The size of houses has significantly increased over those years – in Europe and in North America. We have also seen a decrease in the number of people per household. Even though we're becoming more technologically efficient we're seeing a continuous increase in net energy consumption; behaviour beats energy efficiency gains.

Some of European policy efforts on green buildings: Energy Performance of Buildings Directive; energy efficiency action plan; energy labelling directive; energy star regulation. Construction and demolition waste makes up a significant part of their waste challenges – the EU Waste Directive sets targets. North America could look at European policy initiatives.

The UK has a mandatory requirement for zero carbon buildings by 2016; Austria requires thermal rehabilitation for buildings build between 1950-1980 by 2020.

National policy initiatives include: Economic instruments – taxes (energy and water), tax rebates, eco-loans (zero rate); information and campaigns - energy labels, some free advice (consultancy comes to give an energy check for free), eco-schools engage communities and children, promotion of energy service companies (companies give a free service check and then both split the energy savings for the first 10 years then you keep saving after).

Challenges include: the existing buildings stock – major renovations aren't moving quickly; owner / renter – big challenge (benefits and costs are not equally distributed); costs of construction vs. maintenance – people are using more space and are buying more summer houses (secondary homes); they are now seeing a rebound effect – as less money is spent on energy and electricity more is spent on some other consumable.

SCP provides a promising approach by starting with the lifecycle. SCP looks at the integration between economy and environment. This approach can help minimize the extraction of natural resources from the environment and emissions to the environment. SCP can help us focus on the root causes of unsustainability (one being consumption).

SCP is becoming higher on the political agenda. In 2008 the European Commission put out the Sustainable Consumption and Production Action Plan; the 10YFP on SCP is being negotiated at the international level; at the national level there are a number of countries developing SCP action plans and strategies.

Regarding SCP and green buildings – a focus on the construction and technological stages is not enough; we need a more holistic, lifecycle-based approach. We need to: minimize the extraction of resources; focus on recycling and reuse of construction and demolition waste; focus on behavioural issues (number and size of house; regulating temperature; use of appliances); look at how to meet people's needs in a better manner; examine concepts of living

that are different - communities of living, shared space; and go from looking at just housing to local planning and transportation, land use planning, water and material use. The issue of key actors is very important to consider - when we talk about green buildings we talk about real estate agents, architects, consumers, researchers, etc..., not just builders. We also need to use policy mixes – not just single instruments.

Sadhu Johnston, Deputy Manager, City of Vancouver, past Chief Environmental Officer of Chicago and Deputy Chief of Staff to Mayor, City of Chicago – city activities in green building and opportunities for multi-jurisdictional support and efforts

(Presentation available [here](#))

Sadhu thanks the organizers of the conference, and is happy to be here on behalf of cities in general. He notes that as of today, 70 to 80% of GHGs are coming from cities, and so our focus on cities acknowledges that while we most certainly are a part of the problem, we can be part of the solution.

Sadhu referred to his slides, showing pictures of his city, Vancouver, British Columbia, which has been noted as being one of the most liveable cities in the world. It has a real natural beauty to it, but it is important to ask what's under it. Our focus should be on how we are using our spaces creatively.

Vancouver currently has the lowest GHG emissions for any city in North America. They are already below their 1990 levels of emissions, and are currently expected to exceed their Kyoto commitments. They have done this all while growing jobs as well as population, and so there is a real belief that we can and should grow an economy while achieving carbon reductions. Sadhu mentioned that around 2000, Vancouver began implementing the first carbon plan for the city – and compared the city's carbon reductions to that of Canada's overall rise in emissions, saying that cities can buck the trend.

Vancouver's newest target is below 80% below 1990 by the 2050's, with benchmarks along the way around 2030. Sadhu noted that as of right now, the "low-hanging fruit" has been captured. The challenge now becomes moving into the next layers. Vancouver did well in its buildings and waste, but struggled with transportation. Today, 55% of emissions still come from buildings in Vancouver. Sadhu mentioned that a dense urban environment can work to address the city's vehicular problems.

Vancouver's buildings provide a unique municipal perspective on how to address these issues. Sadhu said that cities have to lead by example, and that Vancouver is an example. City facilities have reduced their emissions 22% below 1990 levels, while at the same time increasing overall square footage by 24%. In sum: the city has not stopped growth. Instead, the city has taken those savings to put into new staff, driving additional work. We are trying to invest those dollars into additional savings opportunities.

Sadhu noted an example of green buildings and sustainable communities in the city's Olympic Village. It is the first zero-energy housing project in Canada.

Sadhu turned to his time in Chicago, which was one of the first municipalities in North America to adopt LEED, and he found that LEED actually did work. The important question was how the city would be able to drive it into the private sector and get corporate buy-in. The city responded by creating a Green Permit Program, which fast-tracked developers through the approval process who wished to build a LEED-certified building. The city did not want to fight with the private sector on these issues, and therefore created a small incentive of 30 day approval time-span if building a LEED-certified structure. This resulted in more certified Green buildings in Chicago.

Furthermore, the city started seeing its first LEED certified high rises, and showed that the private sector was indeed responding to the incentive programs set up by the city. Renovations were also an issue, and the city responded by creating grant programs and service support retrofitting some of Chicago's oldest and biggest buildings.

In Chicago, the story shifted gradually from high-rises and office buildings to reducing energy consumption in homes. Renovation was a key component of this, and the city responded by mapping energy consumption per square foot for the entire city. What follows was the ability to target areas, city-wide, that were in most need of efficiency improvements. Interestingly, the city was also able to map out foreclosures, which overlay almost perfectly with the homes that were least efficient. These were people who were paying the most to heat and power their homes. Ultimately, they were able to use energy efficiencies to stave off foreclosures.

As well, the city of Chicago developed a heat island map – identifying the hottest buildings, each year. They were able to use initiatives like green roofs to bring down the heat of buildings, saving energy.

Sadhu also spoke to Chicago's focus on generating jobs, through activities like deconstruction, which would employ lower-income citizens.

Sadhu acknowledged that the next challenge was how we tie everything together. How do ideas get integrates to create a whole neighbourhood approach? A good example would be the VANOC village – where they created district energy systems. As a result, every resident in the village has a 60% lower GHG production than other people in the city.

Sadhu now works with an organization that brings together a group of 100 sustainability directors from 100 cities that represent over 50 million people in North America. The focus is on the ground level, focused on collaboration, and bringing together what works and what doesn't.

Dennis Wilde, Developer, Gerding Edlen – green building practitioners experience and current issues in the green building sector

(Presentation available [here](#))

Dennis opened his talk by noting he would be focusing on the level of the practitioner. His company, Gerding Edlen Development, is a private real estate company in Portland Oregon. He said that his firm has done more LEED certified buildings than any other firm in North America, proving that you can do it without a significant cost increase. He asked why we haven't had more of an uptake of green building strategies. There are a number of different strategies and different techniques that produce high performance buildings. LEED is a point of dialogue about what we need to be doing. It is not the end-all-be-all, of course, but it does lead us towards regenerative buildings, which is what we desperately need.

Dennis spoke to his company's pursuit of challenging themselves to source buildings locally. The problem for green purchasing right now is that many of our manufacturing jobs have been exported overseas. He gave the example of not being able to purchase a ceiling fan manufactured in North America anymore. He posed the question: can we survive being a purely service economy? The challenge is to source our materials locally, and limit the materials that contain toxic substances.

Dennis mentioned that codes are big part of addressing this problem and suggested that we need to move to an outcome-based codes system, looking at codes more creatively. He gave a building example in Portland, Oregon. We have to go through a lot of additional red tape to build a green building. The goal should be to eliminate process.

Dennis also spoke to retrofits and green development, and encouraged participants to figure out how to best retrofit our existing infrastructure. Gerding Edlen, has a whole division to address this sector.

Dennis also featured the Oregon Sustainability Centre – the very first high rise living building challenge undertaken anywhere – which means it has to meet Net Zero water, Net Zero energy, and Net Zero waste requirements. Furthermore, building like this means we need to meet not only social equity, but also beauty and inspiration challenges in order to encourage more green building development. Doing this is a way for us to communicate about the value of the long-term assets we are creating.

However, as Dennis mentioned, high performance design only takes you so far i.e. 60% reductions in GHG emissions from design improvements; but we need to get to 75 to 80% reductions and we do this by engaging the occupants of these buildings. This is going to be a big source of learning over the next few years. We need to engage the occupants in order to make this work. Structure only takes one so far, so we need to create incentives and competitions to achieve those additional reductions.

Overall, green developers need to be able to overcome the existing barriers to development. The current expectation is that you need to get a 3 to 7 year return on your investment for retrofit improvements in a given building. However this mindset is wrong - these buildings will

be around for 100 years or more. Focusing on a short-term investment for something that's built to be long-term - that's "stupid math".

Dennis noted that while energy and CO2 emissions are a big deal right now, water is our next problematic area. Also, the persistent toxic chemical compounds that nature does not know how to respond to, are what currently occupies our buildings. We need to make them more efficient, more beautiful, less toxic, and more engaging.

On the collaboration side, the US / Canada partnership and sharing is becoming commonplace. To support this process, we need to standardize accounting practices as well as standardize appraisal practices. The Cascadia Green Building Council is active in both countries: He noted he was a board member of this chapter and it works across borders. Cascadia is the creator of the idea of the Living Building Challenge, and also now includes the US chapter of the Natural Step. In this sense, architects, engineers, constructors and developers are beginning to link social equity with the green building movement.

Helen Goodland, Executive Director, Light House Sustainable Building Centre – current issues in the green building sector and opportunities for concrete action and solutions

Helen introduced the group to the Light House Sustainable Building Centre as a potential model for a solution. Light House has been operating for just over 5 years. It was started by Simon Fraser University as a catalyst for green buildings. Now their reach is international. They act as a valuable bridge between all of these complicated ideas as the reality of building buildings is messy and very difficult. A building is a very complicated thing.

Light House has identified what skills are needed to make green buildings happen and they have looked at how to make sure investments happen. They try to create bridges between policy and practice and provide advice (a feedback loop to those who are developing policy to drive it all forward).

They have been advocating that "simple is good". Sustainability is a very complex and nebulous term, especially for business. Light House is a business-led organization; they have businesses on their board. They are strong advocates for simple metrics and for using the currency of carbon to link global issues to measurable results. Carbon is easy to use; you can get your hands on it; it can help businesses access and measure the prize (high-performance buildings). With over 60 certification systems worldwide and a need for standardization, carbon is a good tool.

A good example is BC's carbon tax. E.g. One hotel in Vancouver has started to pay the carbon tax and is seeing that it will soon see an increase in its bills in the range of \$30,000 if it doesn't put into place retrofits. We need to think about how businesses think about issues – it's the bottom line: risk and cost. Industry is risk adverse; contractors can't price for it. How do we manage the risk of uncertain ideas and technologies? We need to address risk at all levels – education, financial, unproven technologies. Technology is coming to green buildings whether

we like it or not. Silicon Valley is now working on energy efficiency, water treatment, etc., the majority of which are going to go to supporting businesses.

One model solution is the UK Carbon Trust, which helps provide collaboration on the ground and focuses on helping low-carbon technologies get into the marketplace (through grants and loans; providing a bridge of risk assessment; support through education). They help ensure that retrofits and new technologies are a success. They don't have hero projects that put all eggs in one basket but rather take a diversity of approaches.

Connections and questions emerging:

- Elephant in room: no matter how much you increase efficiency, houses are getting bigger and using more energy.
- Reiteration of Mikkel's comment that the sizes of houses and use of houses is staggering. We need a massive public education effort.
- How do make sure measurements are not non-tariff trade barriers? If we want to globalize this discussion, if they are non-tariff trade barriers the governments of the world will not accept them.
- Construction and building trades – how do we build not just entry-level capacity but actually integrate green building capacity into the building trade, in North America and around the world, so that you can find the people you need (e.g. if you want to install reverse metering in your house, how do you find an electrician?)
- Want to underscore comment by Kevin Kampschroer: “Wouldn't it be great if the building profession measured success by the number of added years of life for occupants?” It would be excellent if planners and builders measured their professional success by looking broadly at what their professional lives are devoted to (where improving people's lives and well being were used a measure of success)
- Nobody has yet mentioned passive houses – this is a big move in the US; it goes far beyond LEED.
- For 50 years the early movers of the renaissance worked together. This room feels like that – the people who saw the renaissance and now have better language for it; earlier they spoke a form of “UNese” and now they can connect with people. Note that we need the whole spectrum and diversity of the population to be a part of process and excited by it. We need to figure out how to get everyone in different communities to see how their communities are improved.

12:30 Lunch

1:15 BREAKOUT SESSION

Guiding Question: What actions can we take within the existing areas of collaboration, and what are additional areas for Canada-US and international collaboration given our review of current issues and multi-jurisdictional and international opportunities?

3:15 Report back on common themes and insights; Dialogue

A number of priorities emerged during the breakout session and were clustered as follows:

Current Areas of Collaboration

Databases (Lifecycle)

- Need regulations to link buildings with LCA Labels
- Industry and government partnerships to create sectoral LCA databases
 - Need to provide incentives – this will help Canadian industry to enter certain markets who require this information (Japan, Australia, Europe)
- “The Good Guide”
 - Open-source LCA database, iPhone friendly (no more than 80k)
- LCA Database development – meet ISO standards with common boundaries and parameters
- US and Canada should collaborate (at the federal level) to develop a lifestyle inventory database

Harmonization Standardization

- Matching materials standards
- Build upon / link zero energy housing (US) plus equilibrium housing (Canada), initiatives (cold and hot climate)
- Develop harmonized data and indicators on:
 - Materials and products
 - Building performance
 - Disclosure of performance

Financial / P.A.C.E.

- Expand U.S. P.A.C.E. program to the rest of Canada and US
- P.A.C.E. type of financing – cross-border approach and dialogue
- Involve insurance companies and investors

Communication Engagement (Tambourine)

- Reducing housing sizes
- Communicating through Wiki
- Use social media
- Move initiatives from Discovery Channel to major network
 - Scaling techies to politicians
 - Hyperdriving knowledge development and transfer
 - Including sustainable urban planning, and best practices
 - Linking to policy and standards development

Building Codes / Standards

- Ensuring codes and standards don't affect trade
- Performance-based building codes

- Importance of green codes to high building performance
 - Federal departments and Provinces (in Canada) need to establish green building codes i.e. like in California (collaboration with the US)

City / Municipal

- Collaboration on best practices between US and Canadian cities
- Performance assessment at the municipal scale (both integrated and cross-sector)
- Increased sub-national collaboration encouraged by federal government (i.e. cities and other actors)
- FCM and US conference of Mayors – need to collaborate
- More networking of cities (closed, 100 people, Sustainability Directors)

Training Issues / Skills Gaps

- Canada and US collaboration – to identify gaps in skill sets (trade and professional).
Examples:
 - District energy
 - Green retrofits
- Also, agree upon the standardized qualifications and training requirements
- Strengthen “demand side” to incentivize post-secondary institutions to “supply”
- North American certification for building operators of sustainable buildings

Other Ideas

- Need to move beyond the industry lobby pressures to catalyze innovation
- Direct accountability for building performance
- Reintroduce district energy initiatives
- Canada / US collaboration
 - “Deeper Dive” into Market and policy barriers to green buildings
 - Better understanding and fragmentation of interests
 - Renter vs. owner vs. builder vs. bank vs. local government etc.
- More leadership from governments on green buildings construction and operation.

Future Areas for Collaboration

Collaborate on North American Life Cycle Inventories

- LCI database
- Reporting and performance indicators
- Federal government should encourage rating system developers to use a common core set of performance indicators
- Shared database
- Transfer of knowledge on a green economy and green jobs
- Community approach – transport system

- Potential outcome of Federation of Canadian Municipalities and US conference of mayors' collaboration would be a toolkit tailored to different sized cities: to share case studies, policy ideas (i.e. Green Permit Program), etc.
- New buildings should be required to keep a log (like for elevators) to track a buildings evolution (what's in the walls, when boiler / HVAC was replaced, etc.)
 - This needs to be established by someone at the same level (and coordinated between US & Canada)
- Canada / US Collaboration
 - Harmonization of systems and common methodology
 - Common data base – linked to contrived competitiveness
 - Priorities on life cycle analysis, energy performance, carbon – across a global supply chain
- Have a central database to coordinate green-building related events, conferences and generally of who-is-doing-what-where

Communication of Best Practices

- Retrofit best practices sharing
 - Emphasize sharing of information on retrofitting vast inventory of existing buildings
- Communicate best practices (Wiki)
- Performance of green buildings and best practices
- It's not "magic"; the investment of time, resources interplay loops – through educational institutions, foundation research funders feeding policy = success
- Need to improve communications – Wiki link, catalogue of best practices
- Collaboration on clear communication (actionable intelligence)
- Canada / US collaboration
 - Best practices on communication – that will enable people to be more active and creative within their own decision-making spheres
- Investments and program on education and social marketing focused on changing occupant behaviour and avoidance of the "rebound" effect
- Improve education / technical knowledge on the ground – common language

Collaborative on Building and Energy Codes

- Smart grid collaboration
- Collaboration on internalizing true costs (ecological and social)
- Efficiency versus sufficiency
 - Conundrum needs to be addressed
 - The "rebound effect"
- Trade and green products
- Collaborating to drive innovations by stimulating new products through green purchasing criteria

Formalize and Support Information Sharing at the Municipal Scale

- Green education / teaching occupants
- Teaching the kids
- Collaboration on non-traditional civil society community (broad)
 - E.g. Boy Scouts, faith-based, etc
- Energy services agency
 - ESCO-like services to consolidate smaller projects to leverage financing
- Create a department / Ministry of buildings in US / Canada
- Consistent and harmonized, absolute signals from government – standards, direction and policy framework
- Develop equivalent to an EU Energy Directive to establish overarching targets
- Federal level acts similarly to lead by example, to change the building industry
- Mandatory building labelling
- Competition between cities and universities
- Regulators and practitioners come together to overcome barriers affecting Canada / US green buildings
- Consumer education – joint initiatives regarding public awareness (e.g. labelling)
- Canada and US competition for carbon neutral(ish)
 - Buildings and neighbourhoods: 20 to 50 winners in North America, with prizes for the winners
 - Document how they do it and share information

Common themes that emerged during the discussion, and other thoughts:

- There is an opportunity for the federal government to foster collaboration to drive this across municipalities and other levels of government.
- The importance of strong databases as a foundation for green building was mentioned repeatedly, and that collaborations are needed at all levels.
- The importance of public understanding and dialogue; “tambourines”.
- Instead of lobbies and different interests, we need to bring in science and get away from greenwashing.
- The role of cities – it is critical to think in terms of building permits, building codes, standards... we absolutely need good drivers.
- The need to take existing initiatives and make them work and communicate them better rather than always trying new things; need to work the existing paradigm harder than it is being worked.
- Communications is important to consider – there are so many good initiatives going around, but many are not known well enough. Could use model technology; wiki-links to have easy access; links to a catalogue of best practices for types of buildings; international wiki of best practices. So many good initiatives are not known – let’s make them better known.
- There is a need to formalize a lot of this work with national reporting and performance-based indicators. People can learn about it, create competition within their administration, set performance indicators, etc.

- National reporting needs to be looked at in terms of cost-benefit and what you're going to capture and how you're going to benefit from the reporting. Reporting processes can reduce the stimulation of new activities so you need to be cautious.
- Comment - push back on concept of national reporting and idea that it doesn't promote new ideas. Lack of knowledge of new buildings results in lack of progress; bankers are already scared of risks. We need data that can translate from state to state and country to country. We need a transparency that doesn't exist today – to provide details during real estate transactions and to provide every aspect of environmental performance and disclosure.
- We need to engage non-traditional allies and groups in the process (religious groups, scouts, etc.) that might not normally be a part of the discussion or dialogue. These groups are important and are making decisions about new buildings.
- A major outcome from the workshop 2 years ago was a recognition of the need for a major structure / framework for oversight. We need a structure for reporting, someone that keeps the face and keeps the issue moving with programs, data, and reporting. This remains a major missing piece.
- Governments could work more creatively together. Since so many cities and states are creating big goals – could governments initiate cross-border competitions to establish neighbourhoods that are carbon neutral and where communities get prizes; these can then be tracked and documented to figure out barriers and best practices. These would give data for us to develop communities in the future.
- Response to idea – FCM is looking to develop a showcase program to encourage additional funding for leading innovative project ideas. If there's interest, they could talk.
- Sustainable consumption perspective: how do we collaborate to achieve behaviour change and bring that to green buildings?
- Think of the whack-a-mole concept where you hit the moles down: If we are successful around improving efficiency and making money off of it, we may just go on to put that money to other purchases, thus offsetting any gain in efficiency. We need LCA for all of our purchases. We need to be able to see that purchases made with surplus dollars go to good products.

4:15 KEYNOTE: The Big Picture: What will it take to address our environmental and social challenges, strengthen our economy and reduce our greenhouse gases? What do better futures look like?

William E. Rees, Professor, Community and Regional Planning, University of British Columbia, and founder of the Ecological Footprint concept

Bill first offered his congratulations to everyone – we have to take some pride in our evolutionary trajectory. In this room we are the only species that reflects 3 qualities - We:

- bring intelligence to any problem
- extend compassion to other individuals and other species

- are able to alter our own future

Bill noted that there is no other combination that comes close to what we, as humans, have the potential of achieving. We're very unique in all of these dimensions. With all of this, we tend to only look at the opportunity for profit despite the long-term catastrophic effect.

We can see where the data is going and we can see what the end-product will be. We can think about it, but we have a reptilian brain – leading us to have an unwillingness to give up social position; we are embedded in denial to protect our other interests including an ingrained interest in maintaining the status-quo. All of these traits have helped us evolve, but Bill made the case that our reptilian brain stem has become maladaptive – it overrides our intelligent capacity. “Humanity is too clever by half, but not nearly smart enough.”

Bill then gave examples of the current global context: Firstly, we are deeply in a state of overshoot. The ecological footprint is just one indicator that says that humankind is consuming way more than the world can produce in any one year. We can't regulate anything efficiently, including a single fish species. With resource collapses, sea level rise, global warming – we're seeing a steady upward trajectory leading us where we don't want to go. Over the past few decades, we have seen most of the efficiency advances in history, but efficiency drives consumption (the rebound effect). Bill used the metaphor that there is no particular virtue in being on the titanic and driving it more efficiently into the iceberg. Efficiency is not a bad thing, but it doesn't solve the problem in isolation. We need to combine it with other policy mechanisms that will steer the titanic away from the iceberg.

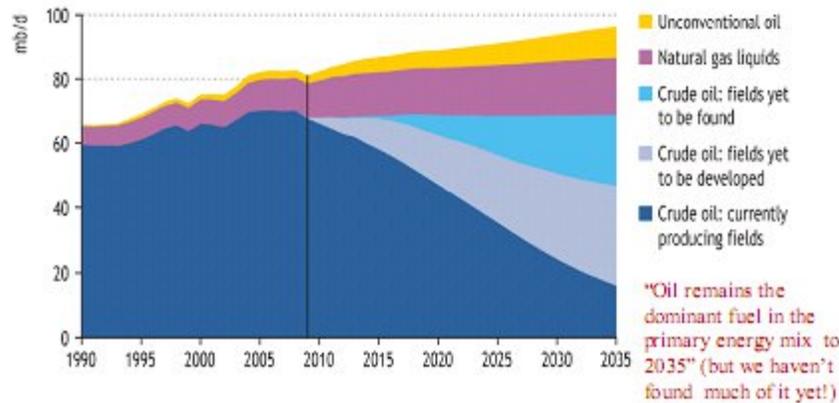
He also made light of the fact that the year 2010 was tied with 2005 as being the warmest year on record. The extremes are getting more and more extreme. July temperatures in Moscow were four standard deviations away from normal.

Bill asserted that real scientists are in a state of panic, but this doesn't permeate the media, who feel the need to report on issues in a balanced way. He posed the question as to whether we still debate gravity in order to make the point that we need to begin to take the real numbers seriously. Kevin Anderson and Alex Bows put out a 2008 paper that looked at a number of undocumented sources of greenhouse gas emission. They looked at feedback mechanisms and have declared that if we stick to everything that we've committed to, we still hit a 4 degree rise in global warming. They have said that “unless economic growth can be reconciled with unprecedented rates of decarbonization (in excess of 6% per year), it is difficult to envisage anything other than a *planned economic recession* being compatible with stabilization at or below 650 ppm CO2 equivalents”. Countries across the world will be affected including India, China, and the US. How many hundreds of millions of people will be displaced? How many are planning for this mass-migration?

There are very stark warnings. The last time CO2 levels reached this level, temperatures were 3-6 degrees warmer and sea level was 25 metres higher.

World Oil Production by Type

New Policies Scenario (regrettably, not being implemented!)



Global oil production reaches 96 mb/d in 2035 on the back of rising output of natural gas liquids & unconventional oil, as crude oil production plateaus

Bill talked about other trends. He remarked that Peak Oil has been mentioned, and that a couple of years ago, the International Energy Agency denied its existence. In their 2010 Energy Outlook, however, they let it slip – saying it's not only a possibility but that it happened in 2006. Quoting

the IEA World Energy Outlook 2010, "[Conventional] Crude oil output reaches an undulating plateau of about 68-69 million bpd by 2020 but *never again reaches its all-time peak of 70 million bpd reached in 2006...*" (emphasis added).

Bill invited participants to look at the composition of conventional oil (see slide left). The peak occurred a few years ago. Where are new sources to come from? 66% of total oil is yet to be discovered / exploited (deep water such as off coast of Brazil). Since 1983, however, the world has discovered less oil than it has consumed. Bill believes the probability of this big gulf being discovered to be unlikely.

The report's new policy scenario assumes that we're doing much better than we are now in reducing consumption (e.g. green buildings). We're nowhere close to any of the world energy outlook oil pricing scenarios. Worldwide events over rising discontent about energy and food costs go with our complete lack of capacity to be conservative in the use of resources.

Despite our capacity for intelligence, the objective of the world today is to maintain the present trajectory despite the data showing where this is taking us. We are on a path to maintain growth going at all costs. We have said that we need an 80% reduction in energy and material throughput by 2050.

"If your solution is not resulting in a reduction in per-capita material and energy use, you're not leading to a solution – you're part of the problem". Bill used the example of monster vehicles that are given awards because they have hybrid engines: people buy into the idea that consuming "green" reduces their ecological footprint. But it often doesn't. In this case, the hybrid engine won't compensate for the overall fuel consumption of the car.

According to Bill, we are engaged in a program of social engineering. Since World War II, the private industry has engaged more psychologists to undermine people's sense of wellbeing and value in their house, wife, dog, etc. Edward Bernets developed the term Public Relations as a means to make people buy things without using the term "propaganda". Thus began the social training of a consumer. When Bill grew up, people were called citizens. Now we talk about consumers. When there's a catastrophe like 9/11, we are told the solution is to get out to shop. There is a deliberate construct to make us all consumers.

He noted that whole new subdivisions in this region are being called "sustainable". However, between 1950 and 2004, the average North American house expanded by 15% from 1000 square feet to 2,349 square feet. The average house occupancy fell from 3.7 to 2.6 people. Thus, floor space increased by 235% per capita from 270 square feet (25 sq m) to over 903 square feet (84 m²). So if a house is 35% more energy efficient, who cares? Energy efficiency gains are made, and yet this direction allows us to have vastly larger footprints.

What, Bill asked, would we do in response to all of this data if we were acting like intelligent, forward-thinking species?

He then provided some statistics on waste. Waste, he said, is inevitable. All – 100% – of input energy is degraded immediately on use and permanently radiated off the planet into deep space. Half to 75% of material resource inputs are degraded and dissipated into the ecosphere within one year of use. Eventually, 100% of material inputs join the waste stream.

The quantities are prodigious. US material consumption increased 57% between 1975-2000 (23% on per capita basis). Annual waste discharges from the economy: US: 25 tonnes per capita; Japan: 11 tonnes per capita. If we include material flows (soil erosion, over-burden, construction debris, etc.) not actually use in production, US: 86 tonnes per capita; Japan: 21 tonnes per capita.

Even in the most efficient economies on the planet, consumption, waste, toxic waste, and others are increasing in the aggregate. If we add to that the invisible flows – stripping of forests, etc., the numbers rise to ridiculous amounts. This has all happened during a period where efficiency has gone up remarkably.

What we're calling politically feasible is scientifically irrelevant. He noted that the first class cabins on the Titanic sank just as badly as the 3rd class.

Bill referred to the fact that the World Business Council for Sustainable Development, at a workshop held in Belgium in 1993, acknowledged that to live sustainably within the biological capacity of the planet, we need to live more equitably and within the capacity of planet earth. For OECD countries, this means a 90% per-capita reduction in energy and material consumption. This is very conservative and erring on the side of caution. If we're serious, we need about an 80% reduction in our ecological footprint. All of us have an ecological footprint – we can't live

without it. In North America, it's about 20 acres. We need many times what the earth has to offer. It's not going to happen – we're not going to get new planet earths. Food and energy prices are rising as people realize that it's difficult.

Bill exclaimed that the next 40 years will not be a simple extension of the past 40 years. It shouldn't be that difficult to give up growth. When you look at longevity vs. per capita income, you always get a diminishing curve. You reach a certain point where per capita income has no effect – in fact, in many rich countries, life expectancy is in decline. This point may be at about \$15,000 per capita. We can say the same about subjective indicators. The Canadian economy has grown by 130% since 1976, yet there has been no change in unemployment and subjective wellbeing is constant or declining. Our income continues to grow with no subjective or objective change in indicators – this trend is also stopping others from growing and reaching a good quality of life. Through globalization and trade, rich countries are appropriating the biocapacity of trade and reducing other countries from reaching a modest state of life. Rich countries are purchasing or leasing vast tracts of land to allow food-flows back home; appropriating territory to maintain supplies back home. China, Saudi Arabia, Canada are all doing it. Trade allows us to appropriate other people's resources but allows us to keep growing. However, climate change will come in and cut off our sources of supply; the movement of goods will be cut off; oil costs will become a significant factor for overall food purchase and movement. We are increasingly capable of seeing that we're digging our hole a little bit deeper.

Bill highlighted the increasing number of books coming out relating to this issue. Peter Victor was the first economist to use real data to show that a steady-state economy in Canada would allow us more spare time, greater equity, and other benefits (see the book *Managing Without Growth*). Why are we afraid to go there? Why are we avoiding the very steps we need to take to make things better in the future?

New and green make sense in the developing world – half of construction is taking place there. This is the most energy-intensive form of consumption – we should be there helping them make green buildings. We need to go to where future buildings are being built. In North America, 2% of the building stock is being built every year. We need to retrofit and build the stock for people to demand this capacity. We need to re-socialize and focus on the collective interest. The reality is that it's in our collective interest to impose upon ourselves a regulatory regime that helps us, such as a carbon tax. We have to turn it around; get rid of perverse subsidies. If you must support subsidies, tax the bads and use those to support the goods. People will be paying more for energy even if they're using less – consumption will decline. Green consumption and production is just good economics.

In conclusion, Bill said we are facing a gathering storm – one that we are sleep walking into. There is good news if we act on our best science. He called on participants to have a look at the book *Factor 5* – it states that off-the-shelf technology, that already exists, would enable us to see a 75%-80% reduction in energy and (some) material consumption, and create a 'steady-state' economy, while actually improving quality of life.

Let's not be afraid to face our future full-on. If we don't we won't like the future. Planning is a unique capacity, but why should we be like lemmings? We need to act on qualities that make us truly human. Our mission, should we choose to accept it, is to prove Heidegger wrong.

Thoughts and discussion:

- Comment: A dilemma about consumption is that it's revenue – for business, for government. How do we get off of that; how do we look at that accounting side; how do we break that model?
- Bill response: It is the big thing - we have constructed an economic system using interest-based money that requires growth to keep it going. The economy is the means by which we survive, but we are literally consuming our planet from the inside out. How do we rearrange global finance to deal with a longer payback period? How do we change money system so we don't get ourselves into that hole in the first place? How is growth indefinitely feasible in a finite space? Why is every institution based on that? We need to create a new economy whose construction mimics the natural economy – a no-growth steady-state throughput system. Our economy will burn out in less than 200 years because it's founded on the growth system.
- Comment – cancer cells have steady growth. A carbon tax is the only way to create real change. If you tax the source, people will reduce. How do you educate, though?
- Bill response: Has spent a fair amount of time studying more and more of cognitive biology. There is a window where language learning is feasible. This is also the case for many of our intellectual functions – politics, religion, etc. When we are repeated same ideas over and over, we build constructs. The evidence is outstanding about neural circuitry in our brains. It can be stimulated by a single concept connected to it (e.g. hearing term 'free trade'). Once an individual has acquired a basic circuitry around these ideas, they tend to seek out friends, literature, experiences, etc., that support these pre-existing ideas; give charges that feel good. We then reject and deny opposing ideas. Synaptic circuitry was adapted because it gave us the selected habits of our tribe; renegades were tossed out. But if our environment changes rapidly, we find it tough to change. We need to develop a capacity to change our way of thinking. We claim to be a knowledge-based society; how do we overcome our basic biological situation? It is an evolutionary principle that those species who change to the environment are those who survive. The model repeats itself over and over. Societies who refuse to change will go down in changing circumstance. Those who adapt prolong their existence. We need to learn that globally – the competitive model will do us in; we can't compete for global pockets of fossil fuels. It's time for consciousness-raising as a species; at global level. We need to solve things amicably and redistribute wealth with certain levels of decency.
- Comment – The paradigm shift that is required will not come through by consciousness – it'll come by sharp shocks to the system. History teaches us that if a plan is on the table, it will be used. Most plans on the table are not very good – we need to foster contingency plans.

- Bill response: He is trying to avoid that situation. He doesn't disagree but thinks we're all desperate for solutions. There are 4 things that move societies rapidly: #1 is catastrophe. We will not be convinced until we're knee-deep in sea level. But if we're the society we claim to be can't we do better? #2 is military intervention; breakdown in geopolitics. These two options are very difficult. #3 - Price motivates change in behaviour. This is a behavioural problem. We're behaving organisms and we're inhibiting technology that could make this happen. If governments recognized the need for price signals and intervened significantly in the economy, the structure of the economy would change overnight. We take pride in reducing carbon emissions, but what's not computed is the embodied carbon content of manufactured goods. 1/3 of China's carbon emissions are from manufacturing goods for North America and Europe. We're allowing a form of ecological dumping that affects our global environment and the health of local people. Why isn't price reflected in computers or other goods? The point is that if you look at the history of energy consumption, it has twice taken a steep nose dive – take a look at the Arab Oil Embargo - this was a response to price (no one talked about the environment). Why not do that on purpose – implement a carbon tax or cap-and-trade system? Energy is so much a part of our economy – if we take action over the next few years we would be in such a better position. Nothing we're doing at an international level will do as much as a new pricing scheme. Can't we pay higher taxes to make it a world that we all want to live in? Our current trajectory where taxes are seen as being bad is suicidal. #4 – is a social learning process, the transfer of information, etc... It takes 40 or 50 years to make a difference. We need to throw away our entire curriculum and teach kids new things.
- Comment: Won't disagree with any of the words. But we are on a certain path and don't see humanity changing; how can we push back the date of the catastrophe? We all dream that we can change naturally because we have the knowledge. But it's likely that we will react when there is a big disaster – it will have to be a very big one if we're going to see transformative change. We are so comfortably installed in our habits. People don't realize, however, that the issue is about materials, metals, rare earth metals. How do we ensure that science can be used by policy makers to fill the gap?
- Bill response: Yes – most resources and minerals are getting scarcer and their prices keep rising. We keep forgetting that ¾ of world's people are just getting on the bandwagon. It's the nature of our reality; we have trained people in India and China to mimic us. We need to change our habits to be an example for others.
- Comment: Is concerned about children and their future. People agree with Bill's speech. What if he gave this speech in the House of Representatives, though? We wouldn't see heads nodding. It has been the power of the advertising world to create a population that wants to consume. People all vote for Congress and Parliament. We can't solve the problem with a business-as-usual approach, though; we can't solve it with politics as usual. How do we get political thinkers to think this way?

- Comment: One piece of social change is finding individuals who can get to the bottom of the iceberg and get to the paradigm shift; how do we empower those people? We need to shift how we get info out. We're motivated by our reptilian brain. We have moved away from how we can reach people. We need to take on what advertising has done... take up tambourines. We need to keep planting the trees.
- Comment: Change will come from economics. Up until today, neoclassical economics has been taught – growth, supply and demand, that technological innovation drives growth, and that it will solve all our problems. We need a new economics that will address this and get away from growth. We need to look at competitiveness – as long as society is deeply competitive, we won't get anywhere. We need to get beyond consumer culture.
- Comment: This kind of thinking is becoming what we're studying in school; it is happening in cities at the local level. There's a lot of motivation at the local level. People are planting gardens, composting, putting solar panels on brownfields, etc. Stuff is happening; it's pretty exciting. If nothing else comes out of these 2 days, we need to support grassroots efforts that are promoting alternate models.
- Bill response: We are here to rewrite cultural narrative – we are storytellers. We need to contribute to the future by outlining alternatives – what the future will look like if we stay the course. The future currently looks like hell. An alternative future is sunny and bright. There might be equity on the planet; the remaining biomass can survive. It's not difficult to write alternate scenarios and offer them to others to look at and consider where we want to go. This good-news story should motivate us to be creative, to author a new cultural narrative and to make our future look attractive.

5:15 Tour of TELUS House (green building) – optional, before joining participants for dinner at the Canal Ritz (see below); Sign up at registration desk

DAY TWO – Tuesday February 1, 2011

Venue: Minto Suite Hotel (Salons Lisgar & Massey)

9:00 Opening Remarks

Vanessa Timmer, Executive Director of One Earth, welcomed the group. She talked about how the previous day had been about converging and conversing about how to build on collaborations. Today the group will talk about the issues that were highlighted in Day 1 and will deepen the conversations; focus on how they fit into the international SCP conversation at CSD and Rio+20.

Yesterday, connections were happening across the different collaborations that exist right now. Vanessa invited people to consider how they can make linkages to build on what's happening; as well as to make more linkages with others in the room.

She noted that it was interesting to see how much synergy there was linking SCP perspectives and the green building world. Yesterday, there was talk both about what is working as well as what we are faced with. There was some tension that arose at the end of the day: Bill brought up some big-picture context ideas that can sometimes be disconnected from the day-to-day work.

How do we bridge that disconnect? Vanessa opened the floor for questions and comments on what was discussed the previous day, and some participants made the following remarks:

- When we started putting ideas on the board, it was great. Then Bill talked about the bigger level. Can we bring some of the ideas to that broader level today?
- Listened to every presentation yesterday; the only ones that made sense were the 2 from Europe, the one from Vancouver, and Bill's. Has a big interest in district energy and community energy planning. One thing that wasn't discussed was planning at the municipal level. Maybe people don't want massive buildings; then what's needed? What do people want? How does this fit into what you're supposedly providing? How do you implement that in a coordinated manner? We need to figure out a coordinated strategy.
- It will be important to go back to the model of the iceberg and where initiatives fit in the hierarchy of effectiveness. For us to shift minds, we need to go into a space in which we feel safe, with an open heart, and where we feel good with a self awareness. How do we do the tambourine with an opening for reaching the heart? Metaphor of the blind people and elephant - together we can collectively define the elephant and track how it moves.
- Want to link with the big picture; human nature will not do the job. The tambourine, no matter how good, will not do the job. The tambourine will be good to make people accept regulations. Human nature won't do it on its own, though – people want to keep the comfort; only regulations will help us move on. There are too many issues; we need to concentrate on one or two – otherwise we will fail.

- Felt a little bit down in the dumps after yesterday. There are many things that are possible and more so with collaboration. Generals and admirals in the US now speak about the defence budget this way: 60 cents for every dollar goes towards defending the oil trade. When we look at those costs, we're shifting the nature of the discussion dramatically; this has changed behaviour – cost of oil is shifted to the front; defence is budgeting for \$1000 per barrel. The comment about efficiency spurring consumption is true in some perverse ways – e.g. fluorescent lights and that offices today have 400% more electric light than they used to. We can reduce 75% of lighting in buildings by reversing an understanding that we need all the light in a room. As we couple human behaviour with what the buildings are doing, we change what is a tough 30% reduction to the 75-80% range as long as you incorporate a really good understanding of the building. When you combine server virtualization with building technology, you can reverse the curve of data centres (which use as much electricity as the entire US government). Finally – societal learning: kids today assume that changes in behaviour and lifestyle have to happen; they are working on doing that already. There's a great deal of hope out there. If we're going to make today worthwhile, we need to strive for these goals but also remember that they're achievable – we're not talking about something that's impossible. We can't afford to leave the room in a funk thinking that nothing will happen. Things are possible and doable – let's focus on what we can achieve.

SESSION 3: OPTIONS FOR THE PATH FORWARD PANEL: The Future of the Green Building Sector and Reflections on Canada and US Collaboration (with Questions and Answer session)

Phil Jago, Office of Energy Efficiency, Energy Sector, Natural Resources Canada

Phil passed along his regrets from Carol Buckley, who could not attend the meeting. NRCan has a marvellous story to tell in green buildings. They have a long history in green buildings – yesterday, his appreciation for the sector grew in leaps and bounds. Now he realizes that the NRCan journey has been about green buildings in various shades.

NRCan's work goes back to the residential and commercial sectors – R2000 dates back to the late 1970s when NRCan showed that people in the prairies could have a house that wasn't drafty in the winter, that was warm, that didn't need humidification and did not cost a lot of money to heat. Major efforts in energy conservation/efficiency in the buildings sector were part of the National Energy Program setting the stage for many of today's successes.

NRCan has worked with houses, commercial buildings, and equipment. Building on the lessons learned from a research and development program known as C-2000, NRCan launched the Commercial Buildings Incentive Program (CBIP) that helped architects and designers design better buildings; incentives were provided for designs that were a minimum 25% more energy efficient than the 1997 Model National Energy Code for Buildings. The program has since wound down but not before transforming the market such that the idea of 25% better will now be enshrined in the a 2011 national energy code for buildings. Thus, something that was once

leading edge is now a minimum. Other NRCan work has helped develop a network of architects and designers who can achieve LEED requirements.

NRCan has many other successes in green buildings; for instance, there is the first solar powered heating district energy sub-division in the world located near Okotoks, Alberta, where there are furnaces that have never been turned on. They are moving along with respect to the building code.

NRCan has been in there from the ground floor, but there have been many challenges. Training courses have been helping design along. But sophistication is lost as soon as it hits the building stage – because trades people don't have the training needed and there are issues along the whole chain of command. We have to do something. While looking at the softer aspects, NRCan is also pushing the envelope on R&D in green buildings.

NRCan is investigating the use of low-grade waste heat and need to embrace that challenge and opportunity that 40-60% of heat in industrial applications is lost to the atmosphere. What would happen if we used that to heat cities?

NRCan focuses on next generation technologies; tools and practices. There is a focus on an integrative approach including how can buildings become energy generators? How does that work for power grid integration between Canada and the US?

Moving forward, NRCan recognizes that we need to look at greening operations, not just green build. We need to make operations smarter. NRCan has a program – DABO (Diagnostic Agent for Building Operation) – where a real-time information system tells operators when there's a problem and how to deal with it. There are a number of emerging opportunities, for instance building municipal utility and trades capacity for green buildings.

There is a need to make buildings work better for occupants.

- What are we doing that we should continue to do?
- What should we stop doing (many better options)?
- What aren't we doing that we should be doing?

They have a new building in Hamilton coming up as LEED Platinum (CANMET Minerals Technology Lab). For this, they convinced the leaders that Silver and Gold were not enough. Progress is being made.

Thomas Mueller, President, Canada Green Building Council

(Presentation available [here](#))

Thomas wishes to bring some perspective from the private sector to the discussion on green buildings. Yesterday's discussion was very focused on policy and government action, but we

really need to come to the realization that the private sector needs to buy-in. Otherwise, our projects and efforts will be extremely small scale.

The Green Building Council has a cross-membership, and while government plays a role, 60 to 70 per cent is from private sector, and gives us an opportunity to bring forth opportunities for new and exciting initiatives.

Green building is a going mainstream in North America. LEED is mainstream and used widely. One of the successes of LEED is that the business case is proven – good for economy as well as the environment.

We have 3,000 LEED certified buildings across Canada at various stages of completion. Manitoba Hydro, RBC Building, Royal Trust Tower - a large part of the commercial office sector in Toronto is leading the way on these initiatives. And so we've seen that this is market driven, tenant driven. In Vancouver - the Olympic athletes' village is the greenest community on the planet. It took 10 years to make happen, but the city is going ahead with this kind of planning. We're convinced this is not just an incremental development, but rather represents the next generation for how we think about our buildings and communities.

The sights are already being set higher – we're moving from simple LEED Certified towards LEED Gold, LEED Platinum. The goal in Vancouver is to move towards being completely carbon neutral by 2020. We are seeing these buildings now, like the greenest building in North America – Centre for Interactive Research on Sustainability – which is actually carbon positive. But as has been mentioned several times in this workshop, it's not just about carbon, it's about water too. Blue is the new green – and globally, we need to think about our water consumption as part of the equation: how buildings, consumers of water, can do so more efficiently.

The challenge is the bell curve – right now we are working with innovators and early adopters, but eventually we will reach barriers of bridging the gap into the early majority and mass market. This group has different beliefs and motivations than the early adopters. We have to engage the early majority. We're learning from the IT development sector. If you don't get that sector, you become stagnant.

The GBC has several programs, namely the Living Building Challenge which is seeking out the next generation of carbon neutral, zero waste, water-neutral buildings. 10 to 15 years in the future, we will be seeing this become the mainstream way of building. And so in this sense, LEED Canada is leading the market. But the existing buildings also need attention. We cannot focus all of our energy on new buildings. And yes, we know it is hard to get politicians motivated to stand in front of an existing building.

Another program the GBC is working on is the Green Up program which takes aim at building performance. Unless there is ongoing performance management, we will not get benefits out of the buildings we design.

In this sense, occupant behaviour is critical. REALpac, one of the largest real estate associations in Canada and the GBC have worked to establish a benchmarking system for behaviour and assessments in Canada. But we acknowledge that there are very real on-the-ground issues to work through and that you cannot simply regulate your way out of this.

The other side is trade. North American leadership is recognized around green buildings. Last \$1.5 billion of GDP in BC comes from Green buildings. They create 25,000 jobs. Before the recession, the green building market was growing. Since then in Canada, it hasn't unfolded that way. But in the US, it has remained strong. Buildings that are green and certified have better tenants, rent, etc.

Therefore there is also an opportunity to work with developing countries – allowing them to leap frog to new technology right away. A good sign that this is happening - there were 10 Green Building Councils organizations in 2005 – now more than 40 in North America alone. 100's worldwide now networking to exchanging ideas.

Thomas mentioned that he wanted to move things forward by positioning green buildings as a solution to climate change. We are ready to go – we have the technology, the know-how. We can reduce energy use by 50% right away. The business case is solid, but we need the financing and incentive structures to be better established and defined.

We need a consistent methodology for benchmarking progress. Does it improve the building if we change the lights? Figure out what works. We also need consistent rating tools. It is critically important, not to go in different directions. Next generation of design happens at the community and district level – carbon neutral that we need to think about.

Roger Platt, Senior Vice President of Global Policy and Law, U.S. Green Building Council

Roger is a lead in working with the World Bank and UNEP for the Green Building Council. He is reminded of the comments made about Wayne Gretzky – that he was such a great hockey player because he was always where the puck was going to be. We need these visionaries; these 0.0001% of players who are going to shine a light on what can be and what is necessary. We also need all the other players to try to be where the puck is and do it the best possible.

Buildings, from a climate change perspective, are the most inexpensive and the largest opportunity for global progress. Because climate change has become a focus for the environmental movement, climate change has become a focus for the recalibration of LEED. LEED, as others tools are, is only one tool but it has tried to focus on the most critical issues.

Initially, LEED focused solely on new buildings, but USGBC quickly realized the necessity for a tool to measure and improve the environmental impact of existing buildings. LEED for Existing Buildings: Operations and Maintenance (EBOM) was introduced in 2009, and is now outpacing New Construction certification on an annual basis.

Progress has been made on performance through big projects – the Building Performance Partnerships program at USGBC, data collection initiatives, and bridging the gap between design and operations through tools like EBOM.

He can envision a day when you won't just put up your LEED plaque; you also try to provide accessible information about the actual performance of the building. Every time a LEED building is built, we should also see a commitment to Energy Star among other standards; if not, this should be seen as not doing as much as should be done. Users of LEED also need to do this.

Internationalization has been a success – about 40% of LEED certifications have taken place outside the US in the past six months; Canada is participating in efforts with USGBC to help make LEED certification more accessible outside of the US. Via their network on alternative compliance paths, the USGBC is working to adapt LEED to other contexts outside North America, with the vision of creating a single, global benchmark for green buildings.

3,997 LEED buildings have been certified.

There is huge potential for CO2 reduction in buildings – looking to build on UNEP and UNEP SBCI. Green buildings are an opportunity. The US Green Building Council website has a wealth of data to get people's attention. USGBC has worked with the World Green Building Council to launch the GLOBE Alliance (Global Leadership in Our Built Environment), an advocacy platform to impact discussions within technology sharing; financial mechanisms; workforce education and capacity building; and measurable, reportable and verifiable reductions. They have nearly 50 partners so far from over 20 countries.

So how do we move beyond just incremental improvements? We all are looking for the day when every building provides a net positive benefit to the environment; provides clean water, more clean energy than it uses.

We face real challenges but we try to do our best. What the U.S. Green Building Council and Canada Green Building Council are doing should provide some encouragement for the future.

Diana Osler-Zortea, President, Building Owners and Managers Association (BOMA)
Canada

(Presentation available [here](#))

Diana thanked the organizers of the conference. One question she had for the participants – where have we been as an industry on this issue? There are 2.1 billion sq. feet of office space in Canada, 9 billion sq. feet in the US. At the moment, she does not see much of her peers around the table - the owners of the properties we are seeking the transform are not present, and they need to be.

Diana hopes to provide insight into what we are doing in the Canadian marketplace. BOMA is a worldwide organization, but her talk will be focused on home front. Specifically, the program BOMA BEST created by industry for industry. It is a collaboration between operators and owners on how to improve to work and improve existing building systems. Back in 2003, 2004, local BOMA BC and BOMA Toronto – created green benchmarking system.

BOMA consists of 11 Canadian associations. 3,100 members coast to coast, owners and managers and operators. Affiliations with members at large – 555.

BOMA International – 17,000 members. 92 local associations. 7 Regions. 15 international affiliates – Europe, Australia, etc. 35,000 buildings greater than 50,000 sq. feet.

BOMA BEST is a system of building and environment standards. It is a derivative of Green Globes database as an online assessment. There are four modules right now – office, open air retail, light industrial and enclosed shopping centers – soon – multi-residential. The program and its benchmarks are based on third party verification. It does not require a consultant and is extremely user friendly.

Recently, the BOMA BEST energy and environmental report found that Canadian builders are performing at a lower rate than the stat can performance reports. BOMA BEST is a strict, and produces results.

The program has four levels of performance – Level 1, 2, 3, 4. Level 1 is for owners and operators to come into the program to understand where they are. How do they compare to the best practices? Our environment and out industry is focused on the 2, 3 and 4 levels. Scoring is focused on the dealing with Energy, Water, Waste, Emission, Indoor Environment and Environment Management Systems. There is a recognition that Energy is important, but long-term goal is to assess all of them.

Since 2005 we had about 1900 buildings undergoing certification and assessment – office buildings only (not including shopping, industry) and just Canadian buildings. Overall the trend of the program has been increased sophistication. We have seen increased participation by smaller companies and are trying to reach targets through local associations. Diana noted that is very helpful to have these smaller actors involved in the process.

Echoing sentiments expressed by other participants, Diana also noted that BOMA is working with tenants, in particular calling for landlords to take specific actions.

In terms of existing collaboration efforts, BOMA is working with its partners in the US as well as other building industry cross-boarder collaborations. Diana was happy to note that in the Canadian Federal Sustainable Development Strategy, both BOMA and LEED are mentioned.

Diana stressed the importance of understanding Important to understand how to affect real change through bi-national collaboration – an important part of which is understanding existing

structure of the real estate industry. Until there is a price attached to this work we won't get results back we are looking for. For building owners and operators, building green needs to have solid rates of return – without it, action will be slow otherwise.

However, Diana is very optimistic about collaboration opportunities - whether in commercial real estate, Public Works in the Canadian Government, at the provincial level, in French and English, etc. In all cases, we need programs that can be implemented at low cost, with harmonized standards, building performance metrics, in order to successfully leverage existing structures and engage the real estate industry.

Comments, questions:

- Green Globes involves building with the full LCA considered. The Department of National Defence has been instrumental in the development of the whole method. Green Globe is an American standard while LEED is a consensus document.. Tomorrow GBI is launching Green Globes for hospitals in the USA. Global Green Globes is now active in Asia Pacific and other regions including England, France, and Germany. There is a need to work with hospitals, real estate, and other partners.
- Is delighted to hear that US GBC is actively involved in projects in Haiti. This brings to mind that it's one thing to provide certification to a hospital or a school but another thing to provide green building certification to a company that is regarded as being a reckless financial institution. Is there an obligation to look under hood of buildings that carries the certification – is it being used as an agent of 'greenwashing'?
- When you present the potential use of heat from a power plant – the alternative is to shut the plan down and use clean technology energy at source. It's like the principle of a hybrid hummer – this won't achieve anything. 50% of energy can be saved from efficiency, but way more can be saved during construction by using fewer materials. We need to lower consumption and the impact of our consumption compared to operations.
- There's a company in Vancouver that tracks carbon emissions that happen during construction. 6% of energy used by a building is in the construction phase.
- Canadian Construction Association is part of the program. The business case was made – at 6% they could be more competitive by lowering input costs. This is the goal of every manufacturer. If you can lower your costs you become much more competitive. Some benchmarking has happened to make road construction more cost effective and more green at the same time.

10:00 Break

10:15 BREAKOUT SESSION in breakout rooms on options for a path forward (Salon Lisgar; Salon Massey; Leger A; Leger B – facilitated by the One Earth team and other participants including Ed Chu, Acting Director of the Indoor Environments Division, Environmental Protection Agency).

The objective of this session is to identify actions and opportunities based on the areas of

Canada / US and international collaboration identified on Day 1, and, where appropriate, who can take these actions and opportunities forward. Notes from Day 1 will be distributed to participants.

1. What will it take to create and sustain a lifestyle assessment database?
2. How do we bridge the training / skills gap for when green building accelerates?
3. What will it take to create / sustain sharing of best practices and accelerate collaboration?
4. How do we support / learn / accelerate green building innovation in cities?
5. What will it take to transform building codes and standards to an outcomes focus?
6. What are the financial drivers and levers to accelerate green buildings?
7. How do we build upon and link Zero Energy Housing (US) and Equilibrium Housing (Canada) initiatives, across hot and cold climates?
8. What inputs are useful in informing UN CSD (the 10-Year Framework of Programmes) and beyond? [Note: this group focused on the international processes around sustainable consumption and production, and reported back at the 2:15 pm session – see p. 57]

12:00 Lunch

12:45 Report back and discussion: How do we communicate the key messages to our communities? What is it that we need to work on together as we go forward?

1. What will it take to create and sustain a lifestyle assessment database?

Key Opportunities:

- Find a home for a database in Canada and link it to databases in the US
- As a system of systems, we must link to the UNEP-SETAC work ongoing
- Must establish consistency in naming and in how things are done
- This is a public private partnership which requires awareness and capacity
- Convene a trilateral meeting on product policy and LCA
- Provinces are already moving; need for high level US-Can discussions / full NAFTA discussions
- Focus on the market access dimensions as this is presenting real obstacles for US and Canadian manufacturers and exporters
- Also challenges for the final users of the data
- Need to re-brand LCA away from being an environmental issue and towards being a market access issue
- Build on / adapt US database

- Demonstrate LCA on a real project

Key Actions:

- Find a 'home'
- Build awareness / capacity at Industry Canada
- Tri-lateral meeting on sustainable materials and products to address databases and other issues

Who needs to be engaged? How are we contributing?

- Senior levels of government
- Industry leaders
- Exporters
- Construction sector

Key messages:

- Make it real for decision-makers and users
- Re-brand away from 'eco-focus'

Our Next Steps:

- Build industry awareness
- Make 'IT' Real!
- Approach PMO of CEQ to affect tri-lateral meeting
- Meet with Chambers CAC and Industry Associations

2. How do we bridge the training / skills gap for when green building accelerates?

[Note: Participants agreed that this was a cross-cutting issue, and discussed this in the other working groups.]

3. What will it take to create / sustain sharing of best practices and accelerate collaboration?

Key opportunities:

- We know what the best practices are: ratings systems; ISO; ways of implementing best practices – we know key issues (new green buildings and green retrofits) but how do you make these best practices come alive?
- Leverage existing initiatives - CCME, Great Lakes Municipalities; WCI
- Communicate business case
- Leadership role with businesses; NGO partnerships
- Use issues as an entry point (health, climate change)

Who needs to be engaged? How are we contributing?

- If you talk to the general public about retrofits, you get long faces. You get the same if you ask the government how to make this happen. You need to identify key

groups to engage – need to engage the voters; they will influence the government; the government will influence the industry; people will also engage industry.

Key messages:

- The opportunity is the retrofit of the building stock
- The way to make the business case is through key issues (health – ageing population, obesity, illness; climate, etc.) so that best practices are driven by governments and other stakeholders. We need a systems approach.

Key Actions:

- Can start to define the issues and how they relate to the environmental issue. (Ecological, political approach). Try to link retrofit to those issues and how to solve these issues through retrofits. Then you can start saying what the benefits are and if you package it well enough to communicate to politicians and the general public the engine will start implementing best practices.
- Need to build up the business case – opportunities and costs of not doing it; linking it to the financial value.
- Link building best practices to different international opportunities (e.g. climate change, credits).

Our next steps:

- A lot of great work is happening but on various levels – how do you communicate to stakeholders?
- Continue conversation with industry associations to communicate issues to industry groups
- Governments to refine targets – true targets
- Online platform / clearinghouse (3rd party case studies)
- Share best practices from other countries

4. How do we support / learn / accelerate green building innovation in cities?

Key Opportunities:

- Eco districts / district energy (new and existing) - idea that we have to look beyond just individual buildings to the neighbourhood and community
- Existing buildings - retrofit, operations, multifamily dwellings, at work
- Linking transport and land use
- Development of model criteria - what is a sustainable city?

Who Needs to be engaged? How are we contributing?

- All levels need to be engaged

Key actions:

- PULSE energy (monitoring and tracking coordination)

- Challenge mayors (e.g. most buildings with LEED certification)
- Awards, competition (e.g. carbon-neutral developments; give prizes to winners; document how they did it and share lessons learned)
- Charette / intervention - cross-disciplinary, bring experts to help cities
- Development of model criteria
- Cash prizes
- Link to Rio+20
- Help cities understand what levers they have available

Key Messages:

- Land use and transportation opportunities
- Think broader than energy
- Think bigger than buildings (communities and neighbourhoods)
- Cross-sector nature of the discussion (all need to be involved)

Our Next Steps:

- Convene meeting between GSA and municipalities regarding PULSE and other energy management companies
- Coordinate program “Road to Rio” - start by mapping out cities in the world who want to be involved; help municipalities gear up to link to the “Rio+20” UN Conference on Sustainable Development; cities can showcase their initiatives; a group travels around. The US Green Building Council is starting to consider such an initiative.
- Follow up with FCM re: emerging showcase program
- Collaborate with US Conference of Mayors on a conference (future FCM event?)
- Consider the peer-to-peer charette concept

5. What will it take to transform building codes and standards to an outcomes focus?

Preamble: Note that codes and standards are different (codes tend to be mandated by law; exist to eliminate worst not promote best; don't deal with operations; move very slowly; a long time to create change). If you change codes you make big change. Standards tend to be voluntary (nimble, flexible, tend to promote top end and facilitate change there).

Opportunities:

- All of these organizations that produce codes and standards are looking for people to sit on committees / task groups – you can write the code language and have a lot of power. If you want to change codes and standards you can participate. The downside is that a lot of different bodies wanting your time. Could they be harmonized to use the same people well?
- Could focus on the development of “concept code”. Consider an analogy to a concept car (seen in auto shows): no one believes car will make it onto highway but one or two pieces make it onto the road. Could a concept code be aggressive and far-reaching

where one or two ideas could filter into other things? Then cities or jurisdictions could champion some of those ideas. Could cities that straddle borders test such ideas? Twinning towns – set of twins to try the same things out in their cities / communities and see how things can be harmonized and worked through.

- All different codes and exceptions exist. When people try to be innovative they run up against hurdles but often find exceptions and creative ways to take advantage of accepted codes (meeting the intention of code). We need to figure out how to learn from these cases so that the next person doesn't have to go through the same hurdles; could use a database or other means.
- Performance measurement – if you want to try to have codes based on performance you need to have measures of performance. For energy it's ok but for health or productivity? Need metrics for measurement.

Key Actions:

- "Concept Code" (develop; determine a location for the 'playground')
- Form mechanism for sharing "accepted exceptions"

Who needs to be engaged? How are we contributing?

- Code writing organizations
- Municipal associations
- Construction community
- Owners
- Operators
- Developers
- Service / utility providers
- Green building association
- Federal Government in Canada
- States in the US

Key Messages:

- Codes are requirements, standards are voluntary. If you change the code you affect every building
- The status quo is built into our existing codes

Our next steps:

- Engage with the ten groups mentioned above
- Compare Canada / US rating standards
- Develop performance measurement framework
- Assess / share highly rated green buildings

6. What are the financial drivers and levers to accelerate green buildings?

Key Opportunities:

- Market, under-appreciation of value
- Government doing more long term building to lease projects
- Building valuation
- Greening of Government (US and Canada) targets

Key Actions:

- Education of Stakeholders
- Build on existing - PACE
- Public-Private Partnerships (PPPs)
- Marketing Strategy

Who needs to be involved? How do we contribute?

- Finance community
- Utilities
- Cities
- Insurance, Pension funds

Key Messages:

- A lot about enabling financing
- Attach financing to property from owners
- Try to get scheme right and stick to it

Our next steps:

- Data - creating, analyzing, sharing

Ideas:

- BDC Green Loans Program
- Basic data on Green Building value - use to educate insurers and financiers and realtors and cities
- Brownfield “tax holidays” on improvement of value of remediation - or cities reducing / covering remediation costs
- Use CMHC model to back green loans and surmount barriers PACE is finding
- Financing models that attach to title
- Promote utility funding of demand management initiatives
- PPPs on micro utilities - toolkit; database; barrier busting; RSP eligible

7. How do we build upon and link Zero Energy Housing (US) and Equilibrium Housing (Canada) initiatives, across hot and cold climates?

These two programs are already generating some interesting material – how do we build upon them; do common activities and shared projects? Also pulled in passive house and C2000 – good programs to pull into this body of knowledge.

Key opportunities:

- These are already generating a lot of good work; integrating efforts would give a number of benefits – zero energy housing has a specialty with much warmer climate; Canada has expertise in cold; can build a continuum
- Can get an economy of scale of investment and ideas by bringing them together; joint tech transfer
- Government role – facilitator as a catalyst for change
- Collaboration would help support product and services development, next step forward; bring from clusters to communities to cities to begin to look at national levels; move beyond housing to commercial levels; create mixed use and adaptable buildings (not necessarily committed to one use per lifetime).

Key actions:

- Using existing organizations to set up action groups with key players on each – DOE, EPA, CMHC, NRCan; HUD, NGO community, IISBE, green building councils in US and Canada, Velux, private sector
- Establish a budget
- Create an advanced building consortium (US, Canada, NGOs, private organization to develop criteria for demonstrations of new building types (wide variety of sizes; multi-occupancy and changeable occupancies; very demanding performance criteria; liaison with industry to develop appropriate new technologies; set up monitoring, training, education; financing benefits).
- Energy services corporations – using energy savings to reinvest in a revolving fund for reinvestment
- Establish a time scale – 10 year program; option to renew would be good
- For existing two programs, assess the possibility of requiring local content only for heavy materials (cement, aggregate, sand, steel, glass, masonry); want to be able to bring in materials across borders. Heavy materials count for most of the embodied energy and requiring equipment to be local impedes cross-border trade..

Who needs to be involved?

- Bring in NGOs, industry, academics, others
- Establish host organization
- CEC might be a good facilitator for this kind of thing

Next steps:

- Establish an action group to bring key partners together
- Identify gaps and opportunities for collaboration
- Looking for early adopters and innovators
- Set vision / milestone targets

Key messages:

- Not just governments

- Establish a host organization (in North America) to develop and manage innovations and product development for a very high performance
- Emphasis on up front conservation
- Needs analysis - is this building actually needed; root cause analysis

Dots to connect:

- A carbon tax would get many of these initiatives going. One of the problems is that it's politically impossible in a lot of jurisdictions. Some are working on it – British Columbia, Quebec. If we get something like that going then a lot of dots can start connecting.
- We haven't talked much about role of local building permitting systems. Houses are getting bigger. Boulder, Colorado, says that the bigger the house gets the better you have to do on energy efficiency.
- There are some inconsistencies to reconcile: new buildings are important to look at but sustainable use of the building stock is critical. Even in the rating system, you need to look at densification. We're not dealing well with the value of air space around existing buildings.
- Every group has talked about cities / municipal entities that work with financial institutions and undertake local development and implementation. It comes down to cities for implementation.

What else has emerged?

- Talk about sustainable behaviours in the built environment
- UNEP is releasing a major report on the Green Economy on February 21st; they have been holding consultations with all sorts of people to facilitate ideas that can be brought to Rio+20. A question becomes how do you link governmental and non-governmental work? We need to share best practices internationally; link building sector to the climate regime.

Additional workshop outcomes

Collaborations / Connections during meeting:

- 1) Performance tracking and performance measurement (GSA & public works)
- 2) Contributions from green building community of practice - Rio+20
- 3) Use green embassies to lead by example
- 4) Acceptance that behaviour plays an increased role. Issue: do we have expertise; social science backgrounds?
- 5) Focus: establish clear vision - "to what end?" Equilibrium Initiative; Regenerative building; Net zero
- 6) Cities group conversation continued
- 7) Green Build Toronto Conference October 3-6
- 8) APEC meeting in Washington
- 9) ASHRAE - free space in Atlanta

10) Improved collaboration North America and UNEP

11) Sustainable behaviours conversation with green building folks

2:00 Break

2:15 SESSION 4: INTERNATIONAL LINKS: United Nations Commission on Sustainable Development (CSD), 10-Year Framework of Programmes on Sustainable Consumption and Production (10YFP)

The objective of this session is to contribute inputs for the UN Commission on Sustainable Development discussions on sustainable consumption and production (SCP) in 2011 and other related efforts. Green building is an important component of sustainable consumption and production.

Can this workshop design serve as a model for a regional programme within the 10 Year Framework of Programmes on SCP in which a sustainable consumption and production lens is applied to other sectors beyond green building? What inputs are useful in informing preparations for UN CSD and beyond?

Emmanuel Prinnet, Policy Director at One Earth, opened the session. He asked what we as a group can input into the upcoming 19th meeting of the UN Commission on Sustainable Development.

PANEL:

Arab Hoballah, Chief, Sustainable Consumption & Production Branch, United Nations Environment Programme – Paris Office AGENDA

Arab presented on Developing a 10-Year Framework of Programmes on Sustainable Consumption and Production (10YFP).

It is important to understand the process. They do their best to set the scene and say “this is a process that others have been involved in; we’re now building on experiences.”

The Johannesburg Plan of Implementation (JPOI), which came out of the World Summit on Sustainable Development in 2002, has provided a clear mandate:

- Develop a 10-YFP in support of regional and national initiatives to accelerate the shift towards SCP to promote social and economic development within the carrying capacity of ecosystems by addressing and, where appropriate, delinking economic growth and environmental degradation through improving efficiency and sustainability in the use of resources and production processes and reducing resource degradation, pollution and waste.

- All countries should take action, with developed countries taking the lead, taking into account the development needs and capabilities of developing countries, through mobilization, from all sources, of financial and technical assistance and capacity-building for developing countries.

There are 3 key objectives for sustainable development: SCP; natural resources management; and poverty eradication. They are aiming to link the 3. They have also initiated an informal process to have the global community prepare for the global 10YFP.

Based on regional work and national work they are introducing national programs; expert consultations; and a proper understanding of what SCP means. They have very interesting task forces on capacity building, etc. They are mainstreaming SCP in support of a developing agenda and also looking at from an economic perspective.

Regional SCP Priorities

PRIORITIES	REGION	AFRICA	ASIA & THE PACIFIC	EUROPE	LATIN AMERICA & THE CARIBBEAN	ARAB REGION (WEST ASIA)
PRIORITY SECTORS						
ENERGY		●	○	●	●	●
AGRICULTURE—FOOD		●		●		
HOUSING (BUILDING & CONSTRUCTION)		*		●		●
TRANSPORT / MOBILITY		*	*	●		●
TOURISM		*		*	*	●
WASTE		*	●		*	●
WATER		●	●		●	●
PRIORITY SCP PROGRAMMES/TOOLS						
NATIONAL SCP ACTION PLANS/ PROGRAMMES		●	●	●	●	
FINANCE AND ECONOMIC FRAMEWORK FOR SCP		●	●	●	●	●
SUSTAINABLE PROCUREMENT		●	●	●	●	●
SUSTAINABLE PRODUCTS & SERVICES (Labelling & Standards)		●	●	●	●	
EDUCATION, INFORMATION ON SCP & SUSTAINABLE LIFESTYLE		●	●		●	●
ENHANCING BUSINESS COMPETITIVENESS THROUGH SCP (SMEs)		●	●	●	●	●
URBAN & RURAL DEVELOPMENT (SUSTAINABLE CITIES)		●	●	●	●	●
CROSS-CUTTING ISSUE						
POVERTY ALLEVIATION		●	●		●	●

● Priority identified at SCP Expert Meetings, Regional Meetings ○ Priority arising at International meetings
* Issue discussed under Urban Development

All of the regions have met; they have come up with a certain number of priority sectors and common priorities that are considered to be basis for the 10YFP (see slide left). UNEP and the Secretariat are not saying what people should focus on; countries have already done that for themselves.

Their message: they must move towards developing a 10YFP that supports and scales up ongoing activities on SCP, addresses priorities and gaps as identified at the regional and national level (a bottom-up approach); they are there to support countries and regions to deliver SCP.

They have identified a number of challenges:

- Responses to national and regional priorities could be better coordinated and coherent.
- Numerous existing related initiatives on SCP not always linked.
- SCP not well integrated into work of economics and line ministries.
- Scarce resources not fully aligned with priorities.
- Existing expertise, knowledge and resources not fully explored.

- Limited ability to respond to emerging issues and changing decision making process/behaviour.
- No process in place for reviewing progress on SCP.
- Potential of relevant UN Agencies not fully realized.

There is a need for improved coordination and coherence. They need an improved understanding and to figure out how to add value. SCP is not well integrated in ministries – it is entered through the environmental perspective. All UN agencies need to be brought together.

The next CSD cycle has 5 themes, one of which is SCP (the others are transportation, mining, waste and chemicals). SCP is also cross-cutting across all other processes. CSD-18 formally recognized the Marrakech process and have asked them to work on SCP programs. There has been a dialogue that prepared the ground to go to IPM at the end of February in New York.

Regarding a vision, goals and objectives, they are looking for them to be ambitious and actionable, practical. They want the 10YFP to provide the commitment, knowledge and networking needed. It should support policy frameworks and regional cooperation.

They have given thought to an institutional structure and have come up with 6 proposed models with pros and cons. These have been analyzed by looking at the challenges and opportunities of SCP:

- 2 models have emerged more than others: SAICM (the Strategic Approach to International Chemicals Management) due to the political commitment and also the voluntary nature of the Marrakech process in integrating regions together. Could it be a mix between 2 models?
- A leading agency needs to properly coordinate all of this. Inter-agency coordination is also needed, as is a science-policy interface. Certain funds are needed to implement it. Once a decision is made on the 10YFP, it will need a monitoring system to see what has been achieved.
- After the framework has been developed programs will need to be looked at. Some criteria for the selection of programs have been developed. They will not allow just anything to be included. A long list of programs has been submitted.
- It will be important to have one program on buildings and construction.
- There is a need to advance policy practices and look at resource efficiency. They need something with figures that people can follow.
- Can reinvesting savings into something that goes to sustainability. Slums, housing can be very interesting if we look at developing concerns.
- WSSD asked countries to lead a transformation to SCP. The building sector can be a great example. We can share experiences with other regions and be a leader.

John Matuszak, Division Chief for Sustainable Development and Multilateral Affairs, U.S. Department of State

John thanked Arab for his presentation and mentioned that while he mostly agreed with him, there were areas where they diverged. UNEP is an implementing agency, not a negotiating body, and the 10-Year Framework of Programmes (10YFP), including its criteria and limits, will be negotiated by governments. UNEP sees itself as a responsive organization, a Secretariat, and they are interested in limiting the requests that are being put forward.

However, John noted that, as member of government and speaking as a negotiator of the 10YFP, he wished to point out that governments want this to be an open process that accommodates needs and inputs that are supportive of national and regional action. As Arab identified, we will have our intergovernmental preparatory meeting (IPM) in March. At this meeting, we will create a document for intergovernmental negotiation, which is a difficult task. Governments are going to negotiate the 10YFP in May and will give assignments to parts of UN to support the Framework. Governing bodies will determine commitments that they themselves are making. During this process, we don't want to lose the work performed under the Marrakech Process. Arab talked about the institutional structure of the 10YFP and we will have to negotiate that. Form follows function. The UN should determine what governments actually want and build a structure around that.

John warned against highly aspirational goals for the 10YFP, which sometimes do not end up with concrete actions. He stated that we need to actually get down to the nuts and bolts of this issue to ensure we can get to an agreement. For example, despite almost universal agreement from most of the developing countries, UNEP could not get them to endorse language to support governments to explore payment for ecosystem services due to worries about obligations. We need to discuss what actually will and will not be expected of countries.

The 10YFP will be developed to support national regional action and accommodate for the work which countries and organizations will do to shift toward sustainable consumption and production. Support may or may not come in the form of financial support—it may, but nothing has been committed. Support may be in the form of in-kind support, including the work that green building councils do around the world.

People realize that, when it comes to sustainable development, it is up to the individuals or groups of individuals to bring sustainable development home and make it real and possible. Regulatory processes can help, where appropriate, but they should be outcome focused on outcomes and not process to encourage innovation. Voluntary programs can also be effective as they put the power in the hands of the consumer.

The UN CSD is the most advanced in the system as it has input from Major Groups - Youth, Labour and Trade Unions, Business and Industry, Non-Governmental Organizations (NGOs), Local Authorities, Science and Technology, Farmers, Women, and Indigenous Peoples. They all have the opportunity to make interventions and provide inputs to governments. We listen to them and accommodate their ideas where possible.

Within the 10-Year Framework of Programmes, you may have the ability to contribute in areas such as finance, best practices, data collection, performance and standards and we encourage that input. We need to understand what you, NGOs and Major Groups, think is most critical. We can highlight successful and practical ideas globally so that we can collectively shift towards sustainable consumption and production.

Quick comment / question:

- To input into the Marrakech process, other regions have talked to stakeholders and come up with action plans (e.g. the EU). They have come out with a fairly well thought out set of priorities and focus for the framework. What have we done in North America to develop priorities for the Marrakech process to focus on? Where is North America at in terms of arming itself with the tools and information needed?
- Answer from John: At the first North America meeting in 2008, it was suggested that participants rank different areas of interest. Civil society participants and others, however, said that not one area is more important than another. People did not want to set priorities. He certainly hopes that there will be a platform in which experiences and best practices can be shared. He knows of a particular institution that may play a role in the clearinghouse mechanism to share best practices. Not having a list of priorities won't hinder us. We have activities in all of the areas and none of these should be left out. We have good experiences and lessons learned for all of the possible priority areas that we can share, which come from the government but also from the research community, private sector, civil society, and others.

Emmanuel Prinet, Policy Director at One Earth, then reported back on the 10:15 am breakout session, which focused on the international processes around sustainable consumption and production. The session posed the question: What inputs are useful in informing UN CSD (10-Year Framework of Programmes) and beyond?

Key messages:

- Governments can't do this alone – need partnerships between all different stakeholders (civil society, business, academia, investors, educators, media, etc.)

What can 10YFP do to support region?

- Support actions / initiatives that are not called SCP but that are working towards it. There are many initiatives in North America that are working towards SCP but don't use that term (e.g. green building, clean energy, etc...). That doesn't hide the fact that people are a part of the system of consumption and production.
- Connect SCP to sectors and issues depending on regions' needs (each region is unique)
- Multi-stakeholder dialogues on SCP and sectors / high-impact areas and issues
- Mapping / surveying SCP activities (who's doing what and where in North America) and help review progress (what has happened since Rio 1992?)
- Research
- Archive of projects / work done on SCP successes
- Capacity-building to engage mass media and measure progress on sustainability

- Facilitate public-private partnerships (government seed funding?); can trigger a cascading effect
- Help legitimize SCP dialogue and sector focus - institution for SCP?
- Enable sharing of governments in leading by example; exchange lessons learned.

What can North America contribute to the 10YFP?

- This dialogue and others can be a model of multi-stakeholder partnerships / dialogues (e.g. breakout group topics - cities, skills gaps, life cycle database)
- Review of progress
- Help frame the Sustainable consumption and production dialogue with media; frame things in positive way; give life to term; focus on wellbeing. Green building a very positive story for lighting, productivity, etc.
- Have governments lead by example; show how to improve livelihoods
- Celebrate / profile energy efficiency gains since Rio

Respondents:

Derry Allen, Counselor, Office of Strategic Environmental Management, Office of Policy, U.S. Environmental Protection Agency

Derry noted that the workshop organizers saved this session of the workshop until last for a reason. Rather than focusing entirely on green buildings, this session relates the rest of the workshop to what is happening at the United Nations on Sustainable Consumption and Production (SCP). Green building is one of the strategies to achieve SCP.

Delegates from around the world will be negotiating a 10-Year Framework of Programmes on SCP at the UN in New York this spring. Arab Hoballah of UNEP talked about a planning meeting for that we recently attended in Panama, and the points expressed by different countries. Many of us were surprised that there was lots of agreement on many points. And Derry was pleased to see that our Canadian colleagues were saying many of the same things as the US representatives were saying.

Last thing Derry wanted to note: Tambourine. Arab's concept of communicating clearly is very important. And it's something everyone in this room can do on the subject of green building and SCP – carry the message in the circles you travel.

Pamela Hay, Chief Coordinator, Rio+20 Process (UN Conference on Sustainable Development), United Nations Division, Department of Foreign Affairs and International Trade

Sustainable consumption and production will be a big part of Rio+20 – a major cross-cutting theme. The intergovernmental negotiation process is a complex process and tends to result in an outcomes document that is filled with text that is very carefully crafted.

Like everyone before her, she enjoys looking at things in their most practical sense. What can one practically bring to the Rio+20 process? We can bring what has been discussed about SCP

and green buildings at a broader scale. The 2 major themes of Rio+20 are Green Economy and Institutional Framework for Sustainable Development.

How does one bring real change and catalyze action by governments through practices? What does this country (speaking for Canada) have to bring? What best practices can we offer up? How do we create a road map or toolbox of actions that get us to the point of sustainable development and a more sustainably developed globe? We need to know what these practices are; work on measurement and verification; and determine how to implement them.

We can lead on Strategic Environmental Assessment (SEA). CIDA is chairing the OECD task force on SEA. We can apply that federally then offer it to other governments to impose the process on all major negotiated bureaucratic decisions. The International Financial Institutions can then take it up. Canada is currently talking to the World Bank about implementing SEAs.

We have standards and our Federal Sustainable Development Strategy. How do we take these up? This is not just the role of governments; it's the role of all players in countries. We need enabling policies and uptake by civil society. If there's an adequate labelling program it gives consumers the information they need. We need industry voluntary action – can be voluntary or mandatory; and we need innovation. Wants to echo one point: we have the technology for every solution – it exists now, somewhere. We need to share it and to demonstrate how things can be done. We need to set up a leadership best practices model.

Dianne Dillon-Ridgley – Sustainability Expert; Past Member of the US delegation including UN Conference on Environment and Development (1992), World Summit on Sustainable Development (2002); UN Commission on Sustainable Development (1994 – 2001); Master Speaker US Green Building Council 2005.

Dianne wants to close the workshop by bringing the value of history. There are 3 meetings and conventions that should be added to our discussion:

1. Negotiation on UNEP / GA / UN (1986) – establishing the UN Guidelines for Consumer Protection.
2. Oxford Commission on Sustainable Consumption (1998-1999) – roughly 1/3 from countries in transition, developing nations, and industrialized countries.
3. Population and consumption task-force in Colorado.

SCP like development takes everyone, it takes forever. Do we have to do this again? The answer is yes. If you took a shower – would you expect to be clean the rest of your life? We will be doing this until we achieve sustainability – or a not so happy outcome.

It's a process – and it's challenging. She is inspired and encouraged by the renaissance - there are lessons to be learned. We're living in the transition, and we need to be living with the self-conscious, self-correcting design, without arrogance. If we can do that, retrofitting buildings a

cake walk. We're trying to achieve a common language to then develop a language for the commons.

It's time to *mother* Earth. This phrasing is important (using 'mother' as a verb). Diane then read from a report she had the opportunity to chair alongside Michele Lansberg, a journalist. She read from the North American Regional Caucus Report (1991, a world women's congress for a healthy planet), among 1500 women and "good non women."

"We North American women are living in nations in which overconsumption by some co-exists with poverty and social deprivation for many and ecological degradation for all; and in which women and children everywhere are threatened physically as well as economically.

As a means of deepening our understanding and developing our alternative visions and values we welcome both the North-South dialogue and the dialogue among social movements (e.g. feminist, green, environmental, developmental, anti-racist, anti-militarist and anti-colonialist). We joint with our sisters from the South in rejecting the world market economic and social order which is promoted, protected and sustained by both military might and military production.

We recognize our responsibility and potential to initiative changes in consumption and production patterns by using our consumer power in an expression of solidarity with our sisters in the South who are sustaining the North in its over consumption. We challenge the current development models through a holistic analysis of the goods and services we use, examining the environmental and socio-economic impact of their production, use and disposal, starting with the raw material in the country of origin. We will promote awareness of these impacts among the women of our countries so that as consumers we cane make informed choices and act to protect the environment. We accept the need to reduce consumption and to formulate new solutions which value the responsibilities of caring, nurturing and sustaining and share them more equitably between women and men, so that the reduction in energy use does not simply increase the workload of women."

Statement from the Women of the South Caucus

"We, the women of the South, affirm that equity and justice must be the guiding principle between men and women, among communities and among nations, for a healthy people and a healthy planet.

We believe that people have the right to sustainable livelihoods, which encompass every aspect of human well-being: material, spiritual, cultural, ecological and political. We are convinced that sustainable livelihoods for every individual can be the only basis on which human progress can be built and a healthy relationship between people and the environment can be established."

"We pledged to act in solidarity with women around the world to change policies responsible for economic, social, and political inequalities and restore our planet to health."

And so, it is time to *mother* Earth. We know much of what we need to do. We spent the last 20 years studying, planning, and implementing. We need rarest of political will. Comes from people. We can, we must, we will. The question becomes, how much damage and how much loss to people and ecosystems will we have?

Open the floor:

- How could we, without depressing people too much, talk about how the recession has improved our environmental performance? It has reduced dwelling unit sizes and purchase of equipment. Have environmental benefits been bigger than the social hurt?
- We need to be reminded that we have never been a richer society than we are now despite the so-called economic downturn. It is not a question of poverty or economic stress – it's an increasing mal-distribution of incomes that siphons wealth from the poor to the rich and that prevents people from participating in political process. As long as this is the case we will not see the groundswell needed. The whole sustainability issue has nothing to do with technical capacity. What we do not have is a functional political system. People have been demoted to consumers of stuff – brought down from citizen because of a multi-billion dollar industry. There is a fear that the world is crumbling around us (uprising in Egypt; rising food prices...). We need to wake up to the biophysical reality in which we find ourselves in. We have completely dis-capacitated ourselves from engaging our citizens. But the role of public leaders is to educate people.
- Eco-schools in Toronto area: there is a young generation; they are living and breathing. There is a new generation coming that is 'getting it'. What is this generation doing when they're not watching TV? We need to communicate with what the coming generation is doing.
- At the meeting 3 years ago there was a great outcome and a lot of good feeling about moving forward. But then it took 3 years to have this discussion again. With the 10YFP and Rio+20 – it's a historic moment. At the original Rio there were a lot of hopes and aspirations but now we hear that things have gotten worse, not better. We talk about practical but what will happen after this meeting? Can this process turn itself into a program; can we open it up to include other people who aren't here; is there political will to put resources into making sure the discussion continues? Can we use Rio+20 to look forward?
- Quick suggestion – what would be the effect if a consumption reduction newsletter was founded that aimed to give examples of consumption and production? It's a necessary step to show positive examples that people can live well.
- Work in Public Works in the Office of Greening Government. There are a lot of levels of discussion here; there's clearly a political climate and a culture that doesn't support this. But 'many small people in many small places doing many small things can make many big things happen'. Her job, day-to-day, is about setting up ways that are stupidly easy for people who are not interested in sustainable development to do the right thing – investment; procurement; financial analysis... Everyone has an opportunity. All those things can contribute to a greater change. When the right circumstances come about we'll have the pieces in place to act.

- This meeting is taking on the mood of a funeral. Let's bring the facts in – we've been talking about metrics but there's a pretty good story from 1990. In Canada, since 1990, energy efficiency has helped to avoid 67Mt of GHG emissions. We have a study that suggests that energy efficiency could more than 40% of future energy demand as well. . We need a brass band to go with tambourine to celebrate the successes. There are some good stories out there. Today's condensing technologies provide us with 90% efficiencies unlike what we had 25 years ago and are now enshrined in regulation. You can't purchase anything lower. Refrigerators have seen huge improvements, today's refrigerators are 75% more energy efficient than ones from the 1980s. Regulations are second to none in the world in Canada. We need to remember that the glass is more full than empty. There are some tremendous examples to share.
- We need bigger names behind this. We need to elevate this issue through the media. Oprah has a new program – she is asking for shows. What about a greener life show? We need others to pull messages in. People are not educated; they are confused by recycling. We need to get messages clearer; get big names behind it.
- Inspired by words of Public Works. Industry Canada has an extensive set of tools for industry – how and why to do things sustainability. It's out there and is very well received; it receives a lot of downloads every year; 75% are international and 80% of those are from the US. People from the US are asking for more. This work is having some impact. Also doing stuff on sustainable supply chains; low-carbon manufacturing; and framing sustainability in business language – “productivity”; “consumer research”.
- There will be a series of workshops starting in the spring to engage provinces and territories, civil society (as defined by the UN) to weigh into question for Rio+20 for how Canada should contribute to the conference; how to achieve sustainable development; how we can advance a green economy and institutional framework; what regulatory tools we should implement, etc...
- There are a lot of initiatives happening in North America – a whole lot of different groups are working on the issues. A lot of these initiatives are fragmented but they exist. Best practices need to be shared.
- An appeal was made - if anyone wants to be added to a network on sustainable development consumption research and action initiatives please contact Philip Vergragt; can work to float ideas, share reports, etc. They can find out more information on the SCORAI website at <http://www.scorai.org/>

3:45 CLOSING

- Brenda Metropolit, Director, Sustainability Initiatives, Environment Canada

Thanks to Amy Fraenkel and Hilary French, John Matuszak, Derry Allen; thanks to the Interdepartmental Committee Pamela Hay, Ron Lyen, Georgina Wainwright-Kemdirim, Stefanie Bowles, Carolyn MacIntosh, Malcolm Wakefield. Special thanks to One Earth – Vanessa, Dagmar, Nicole, Emmanuel. Obviously the theme had an edge that we could be controversial and also support Rio+20 and CSD-19.

Derry Allen, Counselor, Office of Strategic Environmental Management Office of Policy, U.S. Environmental Protection Agency

Thanks to Brenda Metropolit, who left herself out of her thank you list, and to the entire team from the Government of Canada, as well as the One Earth team that has done a great deal to make this event go very smoothly and graciously. Thanks to UNEP, which is an important partner in this enterprise: Amy Frankel and her team as well as Arab Hoballah, who came all the way from Paris. Thanks for all that UNEP has done for the workshop and also the bigger international process. And finally, thanks to everyone else here in the room for sharing your time and insights. You made the workshop a success.

Jan Dyer, Director General, Sustainability Directorate, Environment Canada

Thank you, this has been very positive. I hope the dialogue continues among those participants that connected at the workshop and found common ground. One of the major takeaways at a high level and on the political side, we need to keep plugging away and doing what we can do. We need both big picture and the incremental progress. We need to embrace that idea of stupidly simple ideas and capture people's attention. That needs to be kept up; people can't be discouraged. We need to keep it up. We have really achieved that positive energy with this workshop and we look forward to continued collaborations. There will be a lot of work to do in the lead up to the meetings in May at the UN CSD. This is the first step in informing that process; other consultations will also be important.

One thing that North America does well and that we can teach the world – we have a real history of collaboration between government, civil society, and businesses. The fact that businesses come to them and talk to them; that governments don't feel that they need to lead it all; the partnerships between LEED and others; these synergies between research, regulators, businesses – these are really important. If there's anything we can take forward to the UN it is these collaborations and how much we can bring forward if we involve everyone.

Jan said thanks to all and that she is really happy that everyone could come to Ottawa and wish everyone safe travels home.