

Sustainability NOW

Newsletter of the Sustainability Initiative of the Association of Professional Engineers and Geoscientists of B.C.

If not now, when? If not us, who?

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Sustainability in Tourism & Climate Change

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Professional Engineers
and Geoscientists of BC
www.apgeg.bc.ca

Editorial

Tourism is a fundamental industry in all of global commerce. In British Columbia it is one of the largest earners of export income and is currently the most valuable and fastest growing sector of the province's economy. In 2002, BC welcomed 22.6M overnight guests who generated \$9.34B and maintained over 114,000 jobs. By 2010, the province aims to double these revenues. In addition, travelers are becoming more aware of the footprints they leave while traveling. The ecotourism industry in BC alone has grown significantly over the past few years with companies specializing in this type of travel.

In this issue the main focus is on Engineering within the tourism industry and with overtones of Kyoto and the awareness of sustainability at all age groups and levels of society.

I recently spoke with Sean Pander, City of Vancouver Climate Change Project Lead about what Vancouver is doing to ensure bright prospects and specifically address the issue of climate change. Vancouver being such a popular tourist destination, Sean Pander seemed a perfect interviewee for this issue.

So, with sustainability being discussed, taught and implemented at such high levels now a days, it begs the question how is it viewed from the vantage point of future gen-

erations? Today's children and adolescents already live in a world where sustainability has always existed, much like many of our lifetimes don't include a time when man hadn't walked on the moon. An Art Stretch program in the Delta School District explored the idea of sustainability in buildings, specifically schools. The students' ideas were illustrated and displayed at this year's E-Fest at the Vancouver Public Library.

The Vancouver Convention Centre expansion project is an also excellent example of ingenuity in sustainability and engineering, specifically sustainable design. This project directly relates to the promotion of tourism, increased local retail and commercial operations and will allow the location act as a hub for media during the 2010 Olympic winter games. Read all about the VCCEP and it's commitment to sustainability on page 4 of the newsletter.

In researching this newsletter, the abundance of information and tremendous number of projects occurring within BC was somewhat daunting. This newsletter explores cross sections of ages, disciplines and destinations province-wide. Enjoy!

Lise-Anne Vershinin, Editor

In Conversation with Sean Pander, P.Eng. City of Vancouver Climate Change Project Lead



How did you become involved with the City of Vancouver's Climate Change Plan?

I had just finished my Master's degree at UBC, it was in Resource Management. My thesis advisor was the director of planning for the city. They had just formed a sustainability office and they were looking for people. Mark Holland was heading it up and we knew each other from a previous background. I had an engineering and project management background, social marketing, urban planning, residential. I brought the multi disciplinary focus or experience to it and that was really impor-

tant - somebody that knew energy and that knew planning as well.

With the Kyoto agreement coming into effect on February 16, what happens now for the city?

Well, we didn't actually set up our plan around the Kyoto timeframe because no one knew when Russia would ratify. At the end of December 2003 we had a corporate plan to look at our own city operations and how to make a 20% reduction over 1990 levels. We finished that plan and we moved into our community plan looking at those emissions that are outside the direct control of the city and we've been working through a process of writing a plan with the Cool Vancouver Task Force. To date we've done a complete revision of the community plan and we look to take it to council at the end of March 2005.

If the plan wasn't developed around the timeframe of Kyoto, is it fair to say that Kyoto was the catalyst?

Kyoto was definitely the catalyst for getting a national commitment to the climate change plan. With that national commitment there was the Partners for Climate Protection - a national umbrella - Vancouver

In Conversation with Sean Pander, P.Eng.

was one of the original signatories to that. The plan is really taking off in Vancouver as opposed to some other municipalities that are still struggling with it. The Partners for Climate Protection council got elected and part of their platform was a climate change plan. They were the catalyst. Now you've got the spark, but you need the fuel.

How have local communities reactions been within Vancouver, within the private sector?

One thing we should clarify, when you're looking at a Kyoto time-frame, our target within the city is a 6% reduction below 1990 levels by 2012. Within that timeframe most emissions come from existing building stock, vehicle stock that sort of thing. 2012 is only 7 years from now, it's not a lot about new buildings, that's almost an entirely different group within the city.

BOWMA, Board of Trade, other business organizations, they're very excited. When you look at a climate change plan, especially as it relates to renovations and retrofits it can stimulate a lot of local economic activity. It's trades people, small business owners and that sort of thing. There's been quite a bit of interest.

How would you describe the City of Vancouver's philosophy on sustainability?

Climate change is an important part of sustainability. In the City of Vancouver, sustainability isn't just a re-labeling of the environment, it really has to look at the economic impacts so when we do something in the climate change plan for example, we've got to look at it realistically. We could raise the Green Building standards so they're the highest in the world, but no one would build and business would die. That's not very sustainable.

Climate Change, we look at a broader framework of sustainability but I would have to say it hasn't been clearly articulated yet. The philosophy, if I can answer for the City, because again we haven't gone through the process to articulate that yet - it's not a destination, it's a way of doing things. The city has set up it's structure to have a sustainability group but we very consciously don't call them an office or a department. We have a steering committee within the city, their job is to embed sustainability into every department and into everybody's jobs on an ongoing basis.

What do you see as the role of Engineers and Geoscientists in the climate change plan?

I feel they have a huge role and I think what I'd like to do is ask my fellow engineers to articulate that for themselves. I've been approached by someone at APEGBC to do a workshop for the engineers and geoscientists who are interested in climate change and for me—that's less of me talking and more of me listening.

The country is so big – land use, fuels, alternative technologies.

Right off the bat there are some very distinct ways to involve engineers and geoscientists.

How are you engaging the general public into the climate change plan?

We haven't done that broadly yet because our experience shows if you try to engage the public, asking people to do good just to do good, it becomes another thing that they've got to do or should do or might feel vaguely guilty about not doing. We haven't actually done a lot of the broad public engagement yet but it's an enormous part of our plan and in terms of our resources allocated it's going to be a significant part of it.

The final part of that, again it's a strategy we haven't rolled out yet, is to centralize the wealth of tools out there and make it easy for people. A big part of our plan is if we can make one place where a person can go to, a one stop shop to go for the answers. Let's bring the questions and the answers into one place and make it easy.

What have been some of the barriers that you've encountered?

One of the barriers is it's a global problem, it's difficult to engage fully at the national level, you definitely need federal and regional action. People don't really look at the world in municipal boundaries.

I think another challenge is where our authority lies and where our partnerships lie. There's so much that's easy to do that it really requires provincial action or federal action. That's a pretty big barrier.

The other barrier is roles. I think there's this whole roles question in terms of the demands on the city's resources. We see this is exciting and we see this is important but why isn't the federal/provincial government doing it, why isn't someone else doing it? So that's a challenge I think.

How are you managing to overcome or planning to overcome these barriers?

By showing the benefit or potential benefit to the city as an organization or the citizens as a whole and showing the effectiveness of action now. So far we've been fairly successful even in a planning process in securing funding partners and implementation partners. We've identified what needs to happen. By us getting involved now, there are people who want to act and we can be the catalyst. That's really how you do this, you show that there's this unique opportunity to make this change happen where if we act now we can bring in all the partnership – either in terms of federal funding or other organizations energy and attention. That's been really key, is the ability to show that the city's role in a massive change is important but it doesn't take that much. It is connecting all the players down to local implementation.



In Conversation with Sean Pander, P.Eng.

What are the short term goals and long term goals?

We consider Kyoto, 2012, our short/medium term goals. That's really it and again it's the 6% reduction in the GHG emissions – fuel and energy use. That really is a short term goal when looking at this type of issue. If you're planning to do it in a year or 2, you're going to be disappointed. Our long term goals we haven't set. The short term goal is to change the direction of the boat in a way that is good for everyone. Really Kyoto is a direction change. The longer term goals are harder for us to define, it's more involved.

Can you give me 3 of your favorite websites/books/resources for Climate Change in Canada?

Oh, for climate change, I can give you 3 favorite books with nothing to do with climate change!

1. The office of energy efficiency, a division of NRCAN, Natural Resources Canada. The office of energy efficiency has a pretty good website.
2. Smart Growth BC. There's so much. Smart Growth BC provides a lot of great information on sustainable land use planning.
3. If we had our website done I'd give you mine but it's not quite up yet.

Have you seen a ripple effect in other communities since the city of Vancouver started with this implementing a group of sustainability

and climate change professionals?

I would say we're starting to now. I'll take it out of the broader range of sustainability and more into climate change. There's a number of other municipalities that are interested or concerned but they may not have the resources or haven't committed them yet.

North Vancouver are going to be coming out with a climate change plan around the same time we are. I don't know if theirs will be as detailed into how to make it happen, they'll be pretty clear on what needs to happen.

Richmond and the One Tonne Challenge, Vancouver and Richmond are the two One Tonne Challenge communities. You see the ads about One Tonne Challenge, there is some funding for communities to have a program to help make it local and Richmond is one of those.

There's lots of excitement and it's just started to go now. I think within a year or 2 you're going to start to see people realizing that it's easier than they thought and they can skip the 2 years of how a municipality does this and just jump right in.

Finally, what is your preferred method of transportation?

Depends on what kind of trip I'm taking, I'd love to say canoe. I love to bike so I bike to and from work when I can and when the weather's nice but that said – if I can go somewhere in a boat there's nothing better. I'm not even going to tell you where my favorite canoe place is because I don't want everyone to go there!

Are we comfortable recreating in a sustainable way?

Prepared for Sustainability NOW by Greg Drury, President of Bike, Hike & Paddle Company

The world is awash today with companies that talk a great deal about sustainability. Everywhere I look I see people who are working overtime to impress me with how “ecologically sensible” their products and services are. Yet I often wonder what that really means in the day-to-day operation of any enterprise.

The Bike, Hike & Paddle Touring Company is founded upon the notion that in order for the enterprise to truly be sustainable it must leave as small of an environmental footprint as possible while bestowing economic and other meaningful benefits to the people who live in the areas that we visit. This concept goes beyond the simple techniques of “no trace” camping into areas like what clothing and gear manufacturers to support, which producers/distributors of food to support, the transportation options to utilize for getting clients to and from the remote northern areas, to which local businesses to support along the way. All of these types of decisions taken together help one to move the enterprise towards sustainability. Or as I often explain using “The Natural Step” framework (www.naturalstep.ca), “we are trying to use resources fairly and efficiently in order to meet human needs”.

Our ODYSSEY Tour comprises five separate 10-day tours that run

back-to-back with a few rest and recovery days between each leg for a total trip length of 62 days. Clients can choose to do the whole tour or individual segments. The tour starts in northern British Columbia at the beautiful community of Stewart. The tour is composed of: a 10 day bike ride along The Wilderness Highway; a 10 day hike through Mt. Edziza Provincial Wilderness Park from Iskut to Telegraph Creek, BC; a 10 day river paddle down the mighty Stikine River from Telegraph Creek to Wrangell, Alaska; and the last two legs involve sea kayaking from Wrangell to Ketchikan to Stewart – 23 days of paddling through the Inside Passage and Misty Fjords National Monument.

The tour is designed for small groups – no more than 6 clients and 2 guides total. This is an ideal group size from the standpoint of creating a safe environment for the participants without creating unacceptable environmental challenges. The larger a group gets the more difficult it is to leave campsites and remote beaches in a pristine condition – the

way we find them. After all one of the main reasons that people are participating in outdoor adventure in increasing numbers is because our urban lifestyles are increasingly unsustainable – this is one way of us have for reconnecting with the natural world and becoming comfortable with our place in it.

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Where the Vancouver Convention Centre Expansion Project is At With Sustainable Environmental Design...

Prepared for Sustainability NOW by Richard Sims, PhD, RPBio, Principle Scientist, EBA Consulting Engineers, Vancouver BC

Introduction

When completed in 2008, the Vancouver Convention Centre Expansion Project (VCCEP) will be a stunning world-class convention facility that will more than triple available convention centre space at the current Vancouver Convention and Exhibition Centre. In addition to its spectacular Coal Harbour waterfront setting, mountain views and striking urban backdrop, the new VCCEP also provides the perfect opportunity to showcase Canadian ingenuity in sustainable environmental design.

Construction has already started on the VCCEP, which straddles both land and water. Site preparation, including ground stabilization and pile driving, is the first stage of construction (see www.vccep.bc.ca to access the on-demand Web cam overlooking the site). This first stage started in October, 2004 and will extend for about the next year. Thereafter the building will rise from the land and harbour and will take its designed form.

Design and construction of the VCCEP is being carried out with a strong emphasis on the incorporation of environmentally responsible practices and sustainable building technologies. The long-term operational plan of the facility will embrace sustainable design in its day-to-day operations. This article touches on VCCEP objectives for sustainable design, and some of the steps and actions being incorporated into the Project.

The Project in Overview

VCCEP Ltd. is the provincially held limited company that is leading the \$565 Million Project. The facility's spectacular location and its role in boosting hospitality, cruise ship and tourism industries are well aligned with the concept of incorporating unique design elements into it. The expansion will be a low-lying, green-roofed building that will effectively blend into and integrate with the Coal Harbour waterfront, connecting Stanley Park and pedestrian walkways along Coal Harbour to Canada Place and the cruise ship terminals. Its footprint is nearly 4.5 hectares, with most of the final building perched over shallow tidal waters.

The VCCEP will greatly expand the ability of Vancouver to host visitors and conventions, and will also be a lively extension of the surrounding neighbourhood with public gathering spaces, plazas and retail / commercial operations. As well, one of its first major assignments will be to act as a focal point for the Vancouver 2010 Olympic and Paralympic Winter Games. During the Games, it will serve as the International Broadcast and Media Centre – it will be a central technological beehive that will host over 10,000 media from around the world.

Commitments to Sustainability

VCCEP Ltd. and its design and construction team are fully committed to developing and operating the VCCEP in a sustainable manner. The VCCEP Business Plan identifies a sustainability vision – that the VCCEP will meet the “highest environmental standards” for convention centers worldwide. VCCEP Ltd. is committed to meeting green building rating levels that will qualify it for Gold LEED[®] Canada (Leadership in Energy and Environmental Design) certification. For large public facilities, the Gold certification level is assigned only to projects that demonstrate and incorporate a very high level of sustainability across a wide range of ranked criteria.

Examples of sustainable environmental design that are incorporated into the

VCCEP's design are:

- Use of efficient on-site transportation and pedestrian traffic management designs.
- Optimization of energy performance for building operation.
- Design of an innovative overall water management strategy for the facility that incorporates wastewater / stormwater management and water use optimization.
- Development of an innovative green “living roof”, as part of an integrated landscape and exterior design that is attractive, energy-efficient and water-efficient.
- Incorporation of an innovative marine habitat design under and around the VCCEP, which will contribute significantly to the unique and connected marine ecosystem along Coal Harbour.
- Attention to the maintenance of high levels of indoor environmental quality (e.g., through the use of low-emission materials, CO₂ monitoring systems, and thermal comfort monitoring systems).
- Extensive use of recycled materials and local/regional materials in the building construction.
- Implementation of a construction program with minimal impacts on the site's receiving environments.
- Remediation of historic contamination of marine sediments and upland fill.

Sustainability goals for the Project are being addressed through the VCCEP's Sustainability Advisory Committee (SAC). Members of the 3-person SAC are UBC



School of Architecture professor Dr. Ray Cole, Peter Busby, of local firm Busby and Associates Architects, and Joe Van Belleghem of BuildGreen Consulting, Victoria. The SAC, which meets regularly with VCCEP Ltd. and its design team, has the following key roles:

- Identify state-of-the-art practices and trends in sustainability that may influence the design.
- Develop sustainability targets and review design and operating strategies.
- Document the process through which

sustainability considerations can be accommodated into the Project.

The SAC continues to be actively involved in the design and development stages of the Project, and is working effectively to ensure that opportunities for sustainable design and construction are being fully considered and, where possible, incorporated into the planning.

Next Steps...

VCCEP Ltd., the design team, and the SAC have been working together to incorporate innovative sustainable features into final designs. During construction, VCCEP Ltd. and the construction team are closely adhering to environmental requirements and conditions that were set out as part of a broad-ranging Federal/Provincial harmonized public and regulatory agency environmental review and approvals process.

Commitments to sustainability must be long term and to this end, steps are being taken now, in finalizing the design, to anticipate future scenarios. A critical challenge is to create a facility that can evolve and adapt positively through time, and provide increasing economic and ecological value during its extended life.

Over the next few years, the Project will take its final form, and when the doors open in 2008, Vancouver will be home to one of the most environmentally sustainable convention centers in the world. It will be a landmark facility that we will be proud to showcase during the 2010 Games.

Centre Photo: Overview of Design

Sowing the Sustainability Seed...

Prepared for Sustainability NOW by Diana Klein, P.Eng., LEED® AP Read Jones Christoffersen Ltd, Maggie Wojtarowicz, EIT, LEED® AP EcoSmart Foundation Inc., and Member of APEGBC Sustainability Committee

If you ask people why we need to preserve the environment and build sustainable buildings, many will say “because we want a future for our kids”. But perhaps we should also acknowledge that the future of our earth is in the hands of our children. Building a sustainable future is not learning a set of concepts but changing our mindset. And as with everything in life it's easier to learn when you're young....

At EFest 2005 during this year's National Engineering Week, the engineering community and the public at large were lucky enough to experience the vision of what a sustainable school might look like to a group of elementary school children.

The project was spearheaded by Diana Klein, P. Eng., Structural Engineer, who volunteered her time and forward thinking to lead a series of sessions with the Delta School District that offers an Art Stretch program to grades 4-7. The project began with a field trip to the Vancouver Art Gallery in the fall 2004 for the exhibition: **Massive Change: It's not about the world of design...It's about the design of the world.** The gallery exhibition was an inspiring representation of the world of design with emphasis on the future of the world and how we can survive as a species.

The teachers (Joanne Young, Helen Robertson, Katya Rempel, Gailene Powell), kids and Diana responded to the exhibition's challenge by designing a fun sustainable school. The **Vision** was to inspire within these students a passion to improve the built environment.

They explored what sustainability could look like in a building and how to design using 'The Natural Step' (TNS) as a framework:

The Four System Conditions (www.naturalstep.org)



In small groups, the students let their ideas and imaginations create their designs for sustainable schools, including the setting, energy use, water harvesting, modes of transportation, among other features of the school – not just the building itself. Observing the process, it was quickly evident that they got it! They understood because they did not come to the table with all the baggage we, as professionals do. They were not bounded by

'how much will that cost' and 'this is the way we've always done it'. The visions of these 6 groups were presented in an artistic form of sets of drawing with short descriptions in an exhibit at the Vancouver Public Library as part of EFest.

'Our school in the Woods' Designed by Fiona, Emily and Holly
"We build our school in a forested area without cutting down trees. We made our school tall and thin so using less land. There are composting toilets, and the waste is food for our fruit trees which feed us in school. Staff and students get to the school by using gravel paths, there are no cars, people walk, bike, and use other people-powered transport."

'Tree House School' Designed by: Judy, Teresa, Elaine, Ruxin, A Yeong
"There is a pond at the site used for recreation (e.g. swimming, skating, and canoeing) but is also functional. Water from the pond is piped through a filtration system inside the trunk of the tree into the school to be used for drinking, cooking, etc. The water is cleaned and returned to the pond, some of it through the waterslide feature".

'Lakeside School' Designed by: Marnie Lynne, Alexa, Melissa
"Our school is built into and onto a large tree. It is located beside a lake and is accessed by canoes and kayaks, which are provided. So less of the forested area is disturbed, the gym is underwater, it also keeps it cooler. The science room is also underwater, with large windows so that the students can see the underwater life".

'Our Ideal School' Designed by: Ben, Chris, Richard
"The science room is in the form of a geodesic dome. There is a transportation tube to move people up and down. We have solar panels to collect energy. We also have a windmill and a water wheel as extra energy sources. The water wheel also moves water into the purifier before it is piped into to the school for use in the building".

'The Bus School' Designed by: Pricilla, Nancy, Kristina
"Our school is also a bus that can drive to different places for field trips or special activities, or pick up the students from different places. The bus is powered by solar energy. The roof has a grassy area which is used as a garden and play area. The floors, desks and security fence on the roof are made of bamboo because it is very strong and flexible and easily renewable".

'Mountain School' Designed by: Michelle, Shannon, Azra
"Our school is on a mountain among many trees. There is a tunnel through the mountain to the building so the natural environment was not damaged to build a road. The glass walls let people look at the amazing view and also use natural light as much as possible. Parts of the building are made of recycled brick so that no trees had to be cut down"

Working with elementary school students is fun. They see our world through different eyes. Our challenge is find ways to help them grow as caretakers of our earth towards a sustainable future.

Centre Photo: Students from Delta School District's Art Stretch Program: Sustainable School Design Project



Preparing Yourself for Sustainable Olympics in Vancouver

How coaching can get you where you want to be

Prepared for Sustainability NOW by Julia James

No professional athlete would aim for the Olympics without a coach. Why are professionals working towards a sustainable Olympics in Vancouver approaching this goal without the support of a professional coach? In a 2004 survey conducted among professionals working in the environmental / sustainability field in British Columbia, **90% of the participants considered coaching as a way to find solutions to their challenges** and yet 70% had never used coaching services before. There is a great potential for environmental professionals to take advantage of this personal and professional development tool. David*, a leader in a municipal sustainability initiative, recognized this potential. Through his work with a coach he learned to set clear boundaries around work commitments and increased his productivity on the job. He now spends more quality time with family and friends. He appreciates that his coach assisted him to "think through options in a creative way" and helped him to "pursue professional and personal goals."

Professional coaches are trained to listen, ask questions and assist you to assess, clarify and realize your vision and goals.

Benefits of Coaching:

- Find balance in your life
- Achieve and exceed your goals
- Increase your productivity and performance

While most survey participants receive support through colleagues (75%) and professional development (38%), a professional coach provides a dimension of accountability that can mean the difference between achieving your goals or not. **Unlike your friends, colleagues or spouse, a coach offers a truly unbiased perspective.** While professional coaching is relatively new, its popularity is growing rapidly as individuals, companies and organizations become increasingly aware of its value.

For more information on coaching please visit the International Coach Federations website at: www.coachfederation.org

Julia James is a professional coach with a M.Sc. in Geography. She specializes in supporting environmental / sustainability professionals achieve their best.

604-484-0389 or www.juliajames.ca

**The name in the story has been changed to protect the privacy of the client.*



Upcoming Events

Adapting to Climate Change in Canada

Natural Resources Canada—
May 4, 2005— Montreal, QC

The focus of the conference will be structured to address regional and sectoral themes as well as approaches, techniques, and integrated studies.

www.adaptation2005.ca

EECO 2005 Environment and Energy Conference

Globe Foundation
May 26, 2005— Toronto, ON

EECO 2005 is a powerful forum designed to enable cross-border economic & environmental dialogue in the Great Lakes Economic Region.

www.eeco2005.com

Ethics and Social Responsibility in Engineering

Loyola Marymount University and Gonzaga University
June 9, 2005—Los Angeles, CA

www.gonzaga.edu/engineeringethics

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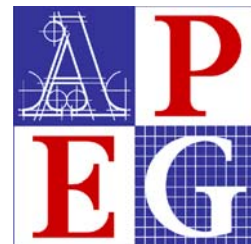
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