

Sustainability Now

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



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

Editorial

Welcome to the December 2002 issue of Sustainability Now. As part of the Sustainability Committee's commitment to train one recent engineering graduate, Rob Dies was hired last year as a Sustainability Researcher/Engineer. He has now moved on to MIT, where he is working toward his M.Eng., and I am now filling his shoes at the Association. Part of my mandate from the Sustainability Committee is to continue the Sustainability Now newsletter, as it is a great way to share ideas over a coffee break. It also provides a link to more extensive resources available on our website (www.sustainability.ca).

The Sustainability Committee continues to pursue its ambitious plans to integrate sustainability into both the APEGBC organization and engineering/geoscience practice. The website continues to grow and act as an excellent resource for information that this newsletter can only touch on. To watch out for in the next year: the creation of an online forum, the expansion of the Primer (see page 5), the offering of Continuing Professional Development sessions on sustainability, and progress toward ISO 14001 certification for APEGBC.

This issue of Sustainability Now highlights the APEGBC Annual Conference and AGM, held October

24-26 in Victoria. The conference, entitled "Creating a Sustainable Future for BC", was attended by over 750 delegates. Sustainability was the focus of two full lecture streams each day and was an underlying theme throughout lectures in other streams. The municipal stream tackled issues such as innovative storm-water management ([link to presentation](#)) and waste-water management, while the Computer and Software Systems stream included a seminar on Sustainable Designs for High-Tech buildings (see Technical Brief on page 3).



The Sustainability Committee sponsored the Friday stream entitled "Sustainability in Action". This day's lectures covered assessment and reporting, tools used in the mining sector, professional practice and sustainability, and a forum on climate change.

An excellent tour of the Vancouver Island Technology Park was also led by Development Manager Joe VanBelleghem. More information on the first LEED™ Gold Building in Canada can be found at www.vipt.ca.

This issue features the seminars from the "Sustainability in Action" stream.

-Christy Love, EIT

In Conversation with Linda E. Thorstad, P.Geo, Executive Director of the Vancouver Economic Development Commission



The Sustainability Committee was fortunate to cross paths with the busy Linda E. Thorstad, P.Geo, at this year's annual AGM. Linda was the first geoscientist to be registered with the Association when the Act was changed in 1990. Linda then served on APEGBC's Council from 1992-1997, acting as President in 95/96. She was instrumental in developing and implementing the Sustainability Guidelines in 1995 and continues to infuse sustainability into her work with the Vancouver Economic Development Commission (VEDC).

How and when did you become involved in sustainability?

I was an early believer in sustainable development and worked within the mining industry, the BC Round Table on the Environment and Economy and the BC Commission on Resources and Environment to put that belief into practice. [In those days, Linda was known within the mining industry as 'that lady who rides her bike.' Ed.]

I thought that engineers and geoscientists were uniquely positioned to play a leadership role with respect to sustainable development given their area of practice. Following extensive consultation with members, the Strategic Plan was adopted in

(Continued on page 2)

Linda Thorstad Interview cont.

1995 and the Sustainability Guidelines were adopted in 1995.

How would you describe your philosophy on sustainability?

Sustainability is really an ethic, a way of thinking. It integrates social, economic and environmental considerations so that a balance is found. Sustainability asks that we look ahead and think about our future when making decisions about projects and actions today.

How does your philosophy on sustainability guide your work with the VEDC and the other organizations you are involved with?

I have made a point of involving myself with organizations that believe in sustainability. Our long-term strategy for economic development for Vancouver focuses on five guiding principles (IDEAS): Innovation, Diversity, Entrepreneurship, Alliances and Sustainability.

Sustainability is also a key driver at the University of British Columbia where I currently serve as Vice Chair, External for the Board of Governors. The University has a Campus Office of Sustainability (established by policy in 1998) that is implementing a number of key initiatives at UBC.

How have engineers/geoscientists' attitudes and trends toward sustainability changed since your pioneering work in the mid 90's?

With the Guidelines in place and the good work of the committee in advancing education on sustainability and translating the guidelines into real applications, I believe that there is much greater awareness within the professions. Awareness generally leads to changes in behaviour and professional practice. There is still much work to do, but I do consider that we have made good progress.

How do you see the role the engineers and geoscientists evolving in the future?

As so clearly stated in "Yesterday's Progress: Tomorrow's Promise", engineers and geoscientists have a real opportunity to apply their areas of expertise and play a leadership role with respect to sustainability. They have the ability to apply their knowledge in a very real way to address many of the challenges that we face if we are to achieve a sustainable future.

What do you see as the major barrier to bringing ideas about sustainability to practical application within engineering/geoscience work?

Perhaps our greatest challenge is one that we faced as we conducted consultation before adopting the Guidelines- the challenge of making it clear just how the principles can be translated into day-to-day practice. As I mentioned earlier, we have made significant progress but there is still a good deal of work to be done in this area.

Do you have any suggestions for overcoming these challenges/barriers?

It is really a matter of ongoing communication, education and as the committee is already doing, taking case studies- the "show me" to demonstrate where and how the principles have been and can be applied.

Education and thought-provoking professional development sessions at the AGM and throughout the regions facilitated by our branches

offer good opportunities to further discussion and debate.

What are two specific things that educational institutions can do to promote sustainability as an integral part of engineering and geoscience?

It is important to introduce the concept of sustainability early in education and to integrate the concept throughout the learning process. Sustainability should be completely integrated into curriculum. In addition, looking at UBC as an example, it is important to integrate sustainability into day-to-day operations. They are reducing energy consumption and enhancing recycling activities, to mention just two of the many initiatives underway there.

How can the work of engineers and geoscientists influence the work of other professions and other occupations such as economists and developers?

Given their unique skill set, they have an opportunity to influence early design from a technical perspective.

What is your vision for the City of Vancouver?

We have facilitated a 2020 Vision for Vancouver involving mayor and council, city staff and the business community. Our shared vision is "to be the preferred global centre for innovation and knowledge-based enterprise."

List 3 books, people, and/or websites that have influenced you the most in terms of sustainability.

- [*Engineers' Role in Support of Sustainable Development*](#), Michael Sanio, Executive Director, World Engineering Partnership for Sustainable Development
- [*Business Strategy for Sustainable Development: Leadership and Accountability for the 90's*](#), 1992, International Institute for Sustainable Development, Deloitte and Touche and the WBCSD.
- [*The Sustainability Advantage*](#), 2002, Bob Willard

What is your preferred mode of transportation?

Skiing...more seriously... in Vancouver I use public transit, a bicycle and my car as appropriate.



Car Free Day 2001 in Seattle, WA
www.thinksmall.org/car-free/hoyt-pix-2001.htm

TECHNICAL BRIEF — Innovative Communications Cabling Systems: Sustainable Designs for High-Tech Buildings

What makes a building 'sustainable'? Some general features include energy and operational efficiency, maximization of space, and worker comfort. These general characteristics apply to sustainable buildings for high-tech tenants, but additional qualities of these specialized tenants require a new approach.

Behzad Mehrabadi, P.Eng., RCDD, LEED™ Accredited Professional and Associate Project Manager Electrical at KEEN Engineering, has been successfully serving the needs of high tech clients. He describes some of the techniques he is using to design sustainable buildings from an electrical engineer's perspective.

[View Technical Brief](#)



A Sustainability Success: Snapshots of the 2002 AGM and Conference

The Annual General Conference was held in Victoria October 23-26. Not only did we see record numbers in attendance, we also saw increased interest in and understanding of sustainability themes. As a new member of APEGBC, I was impressed by the level of engagement and awareness of sustainability displayed by many of the con-

ference delegates. There was a feeling amongst the attendees of Friday's "Sustainability in Action" seminars that yes, we know that something needs to be done, now give us an idea how to do it! Here are my summaries of the Friday seminars, along with links to the presentations.

Creating a Sustainable Future for BC: Assessment and Reporting

—Lauren Walker, MA, PricewaterhouseCoopers and Tony Hodge, P.Eng, Ph.D., Tony Hodge Consultants

To open the first session of the day, Lauren Walker outlined the increasing trend of companies to seek ISO 14001 certification (a Sustainability Management System), and what this means in practical terms. In Canada, about 800 companies currently have ISO 14001 certification, most of these being large companies such as Shell, Xerox, Nortel, and Weyerhaeuser.

Tony Hodge then stepped in to outline a management framework that he developed within the mining industry. Tony has spent considerable time working with mining companies of all sizes to improve their businesses and apply sustainability principles. He commented that, for smaller companies with limited resources, similar principles to the ISO 14001 can be applied without going so far as seeking formal certification.

The framework that he and the mining workgroup developed evolved into "The Seven Questions to Sustainability" ([link](#)). In applying these questions to your company's decision-making process you can effectively define your policy. The Seven Questions are basically an interrogative form of a goal statement. In following this policy-defining approach, you do not risk implementing a management system that very effectively sends you in the wrong direction.

Lauren then returned to give a brief overview of Sustainability Reporting. She described what goes into Sustainability Reports and outlined their benefits, such as increasing accountability to stakeholders, increasing access to information and improving transparency.

[View Lauren Walker's Presentation](#)

[View Tony Hodge's Seven-Questions Presentation](#)

Towards Change: Trends in Sustainability for the Mining Industry

—Tony Hodge, P.Eng. Ph.D., Tony Hodge Consultants

In the second session, Tony Hodge returned to cover the background events that led to the development of the 'Seven Questions'. As the environmental movement picked up speed in the 70's, it looked as though the mining industry was doomed. All the attention was directed at the negative stories— the abandoned mines, the failed companies and their accompanying economic, social, and environmental disasters.

In a unique and forward-thinking move, industry leaders and members worldwide called a meeting of the minds to find ways to adapt their industry to a changing world situation. What ultimately resulted was that mining— formerly the dinosaur of world industry— leap-frogged ahead of other industries to become early adapters of sustainability principles. The Seven Questions document ([link](#)) is the latest result of this continuing process.

During questioning, the concern was raised by a conference attendee that small companies do not have the resources to plan 10, 20, 30, or 100 years down the road (their survival depends on their actions *today*). How can they find relevance in this very broad and inclusive process?

Tony replied that the small companies are actually leading the way because of their ability to act *now*, without the levels of bureaucracy that often cripples the operation of larger companies. He also said that it was not necessary to invest exhaustive resources for decades down the road; rather, all that was needed was an informal process whereby the question of the future is addressed. By identifying *at the beginning* all the potential future influences of a project, your company will be better equipped to avoid business catastrophes. For ex-

(Continued on page 4)

AGM Seminars cont.

ample, taking the time to involve local stakeholders *early* in the design of a project will help forge a publicly transparent, inclusive design process that will likely pre-empt future difficulties.

As much as the 'Seven Questions' work is quite recent, a program is underway to monitor approximately 20 companies and organizations of all sizes across Canada (including native groups, exploration, and mining companies) that have agreed to adapt the 'Seven Questions' framework to their own businesses. They will reassess the program in one year, revise and push the process forward once again.

[View Tony's presentation on Sustainability in the Mining Industry](#)

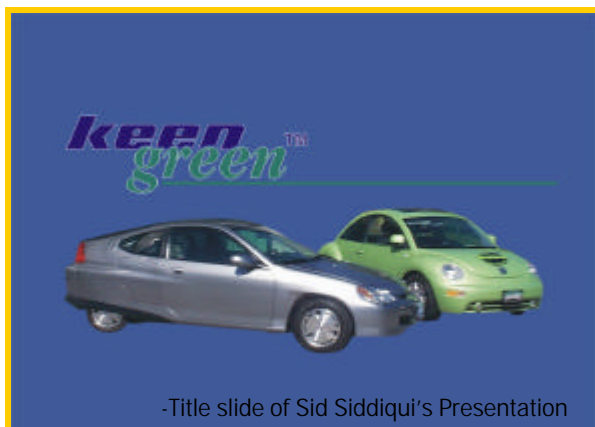
Professional Practice and Sustainability

-Sid Siddiqui, P.Eng. LEED™ Accredited Professional, KEEN Engineering

In the most popular session of the day, Sid Siddiqui laid the context for his presentation by highlighting some of the growing evidence of climate change. He related these trends to his professional focus on green buildings design and the use of LEED™ rating system, by pointing out that 40% of the total energy consumed in North America goes into buildings. North America is also considerably more extravagant in its energy use when compared to other developed nations.

Sid used these facts to launch into an overview of how he has directed his professional focus toward incorporating green technologies into the building mechanical and electrical systems. He gave some examples of such features, which include raised floors, displacement ventilation, natural ventilation, dual flush toilets, water-less urinals, and thermal slab heating and cooling.

One interesting question that arose during the presentation related to the risk involved in being innovators. Sid claimed that the risks can be mitigated through a complete understanding of the factors involved, extensive research and the use of modelling tools in the design. Generally, technologies considered new in North America have already been in use in other parts of the world. In addition, the green design usually leads to simpler and less risky mechanical and electrical systems.



[View a short version of Sid Siddiqui's presentation.](#)

Sustainability in Action

-Michel de Spot, P.Eng. GVRD Ecosmart, with panel members Sid Siddiqui and Tony Hodge

The final session of the day was offered in an open panel format. Michel got us thinking with a summary of the World Summit on Sustainable Development in Johannesburg earlier this year. He highlighted the Consulting Engineering field as one that had representation at the Summit and that can take a strong leadership role in advancing sustainability. It is consultants who ultimately recommend solutions, so it is they who hold the responsibility for showing clients "the big picture".

A lively discussion followed. How do we sell these ideas to the contractor who does not care about the long-term savings of an efficient design but can find a boiler that will save \$5000 in capital costs? It was agreed that shifting the focus away from first cost analysis to life-cycle cost analysis was one of the toughest challenges for Professionals, but one that ultimately reflects true costs and can therefore result in the greatest benefits.

Michel then gave an overview of current greenhouse gas emissions data. Within the GVRD, where his work is based, the biggest sources of CO₂ are space heating (28%), light duty transportation (26%), cement plants (12%) and the Burrard thermal plant (10%). Tony commented that in reducing CO₂ emissions, you are generally also reducing other contaminants. The move away from greenhouse gas emission can therefore be viewed as an opportunity to become more efficient, clean and innovative, rather than as a threat to industry. For example, a resource-efficient company has an undeniable market advantage over an inefficient one.

One delegate commented that regardless of whether or not climate change is anthropogenic, it *is* occurring, so engineers and geoscientists must consider this. Given that we have the technology and the capability as professionals to address climate change, we should put our heads together, get on with it, and institute change.

[View Michel de Spot's Presentation](#)

Resources

www.iisd.org/pdf/2002/mmsd_sevenquestions.pdf

The Seven Questions to Sustainability: How to Assess the Contribution of Mining and Mineral Activities

<http://www.johannesburgsummit.org>

Official United Nations site for the 2002 World Summit on Sustainable Development.

<http://unfccc.int>

United Nations Framework Convention on Climate Change.

<http://www.usgbc.org>

LEED™ is a Green Building Rating System recommended by APEGBC as the preferred method of environmental building assessment. A LEED™ BC Guide is also due out imminently.



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APEGBC Sustainability Activities

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Lauren Walker, MA

Upcoming Events

JANUARY 2003

Jan. 17-18
Cranbrook, BC
*Climate Change Impact and Adaptation Workshop in the
Columbia Basin*
<http://c-ciarn-bc.ires.ubc.ca/index.cgi?Events>

Jan. 23-25
Richmond, BC
*State of the Fraser Basin Conference 2003: Collabora-
tive Leadership for Sustainability*
Contact: Sarah Lowis 604.683.7718
register@seatoskymeetings.com
www.fraserbasin.bc.ca/SOFB2003/Conference.html

Jan. 30
North Vancouver
*Sea to Sky Branch Dinner Meeting: Sustainable Building
Design Using LEED™*
Contact: Yen 604.525.3341; yenhung@decdesign.bc.ca
www.apeg.bc.ca/branches/seatosky/events.html

Please check the [website](#) for more events. If you have
an event that you would like to post on the website or in
this newsletter, please send info to clove@apeg.bc.ca.

The Primer has Landed

The Sustainability Committee, with the help of industry experts and consultants, is pleased to present the completion of the first phase of the "Sustainability in Engineering and Geoscience: A Primer".

The Primer is a practical resource tool to guide professionals in the application of sustainability to their practice. The Primer contains introductory sections that describe sustainability in relation to the activities of engineers and geoscientists as well as suggest practical approaches for applying APEGBC's Sustainability Guidelines. Subsequent sections apply these concepts to specific disciplines.

Practice-specific modules now available include one on Municipal Engineering and one on Mining. An educational Primer on Climate Change has also been completed. Soon to be added is the Building Primer. Watch the website for its debut. New modules are also under development.

Comments about the Primer are welcome and should be directed to either info@sustainability.ca or clove@apeg.bc.ca.

Professional Development Session

APEGBC's Continuing Professional Development Program is offering a one-day seminar in Richmond **February 28, 2003** on green building technology and LEED™ application. The morning session will be led by Mechanical and Electrical Engineers from KEEN Engineering, who will provide guidance for the practical application of alternative building practices. The afternoon session will feature Ecosmart™ Concrete. This product produces less CO₂ than conventional concrete mixes by "replacing cement with a maximum percentage of supplementary cementing materials, within the parameters of cost-effectiveness, constructability, and performance." Several projects in the Lower Mainland have already used this concrete with great results. Check www.apeg.bc.ca for registration details.

Heisenberg gets the *The Final Word*:

Even if we realize that the meaning of a concept is never defined with absolute precision, some concepts form an integral part of scientific methods, since they represent for the time being the final result of the development of human thought in the past...

-Werner Heisenberg, Physics and Philosophy

