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## **SUSTAINABILITY AND THE SEMINAR SERIES**

### **EcoNomics - Integrating Sustainability into Corporate Decision Making and Operations**

**Date & Time** Tuesday, January 27th, 2008; 6:30 p.m. - 8:30 p.m.  
**Location:** Spencer Engineering Building,  
University of Western Ontario, London, ON, N6A 5B9  
**Room:** 2094  
**Cost:** Free

#### **AGENDA** Introductions

**Maike Luiken**, Ph.D., Chair, IEEE London Section,  
Dean, Applied Research, Business Development & Innovation, Sustainability Development

#### Presentations

**EcoNomics™ - Integrating Sustainability into Corporate Decision Making and Operations**

**Wes Funk**, B.Comm., B.Sc., M.E.Des. – Director, EcoNomics™

**Planning & Forensic Tools for Large-Scale Monitoring Initiatives**

**Jon Fennell**, Ph.D., P.Geol. P.Geo., P.Eng. - Director, Water Resources,  
Principal Hydrogeologist

**An Integrated Approach to Industrial Water Management - The Complete Solution.**

**Stuart Torr**, M.Eng., P.Eng. - Manager of Water, WorleyParsons Calgary

Beverages and light snacks will be provided at the break

Questions and Answers and General Discussion

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*The views expressed here are those of the authors and not necessarily those of the Ontario Ministry of Energy. Any errors are the authors' responsibility.*

## EcoNomics™ - Integrating Sustainability into Corporate Decision Making and Operations

Many companies have publicly embraced sustainable development (SD) as a key corporate strategy. SD can be a very effective means of leveraging social and environmental benefits associated with a project while providing sound risk management. Importantly, however, many companies today wrestle with translating corporate SD policies and objectives into operational decisions. This presentation discusses means of identifying and measuring SD risks and opportunities and integrating this knowledge into corporate decision making and operations. It will address various triple bottom line (i.e., social, environmental and economic) decision making systems including WorleyParsons EcoNomics™ Assessment process. EcoNomics™ Assessments rely on the tools of environmental economics to monetize SD risks and opportunities so as to fully inform project decisions. Finally, the presentation will discuss means of leveraging opportunity and mitigating risk through the application of synergistic industrial processes whereby the waste streams of one enterprise become the feedstock of another.

### BIOGRAPHY

**Wes Funk, B.Comm., B.Sc., M.E.Des.** - is the Director of EcoNomics Canada. He has 14 years of experience providing sustainable development (SD), management and environmental consulting services both domestically and internationally. During this time, he has managed a variety of private and public sector projects. These projects have ranged from land use planning and policy creation to the assessment, management and reporting of corporate SD risks and opportunities.

Mr. Funk's expertise lies in the identification, quantification and financial treatment of environmental, social and economic risks and benefits associated with hydrocarbon and mining projects. He has led socio-economic studies and development projects in Canada, Africa and the Middle East. In Northern Canada, he worked closely with a variety of stakeholder groups to identify, fund and develop private sector enterprises in support of community economic development initiatives. Similarly, Mr. Funk has worked with public and private sector stakeholder groups in support of regional land use planning initiatives in the Northwest Territories. Mr. Funk was engaged in Zambia over a three-year period to lead an SD-based project to determine optimal closure strategies for a series of mine sites. Mr. Funk had overall project management responsibilities including the design and implementation of all stakeholder engagement activities. Most recently, Mr. Funk led the social impact assessment and resettlement action plan for a major urban redevelopment program in the United Arab Emirates (UAE).

Finally, Mr. Funk has been involved in the capital and closure planning of mining and industrial facilities in Canada and Southern Africa since 1997. He led the development of SD-based models to aid closure planning and capital improvement decisions for facility improvements and decommissioning in Canada (refineries and gas plants), Zambia (copper mines) and Australia (aluminum smelters).

## Planning & Forensic Tools for Large-Scale Monitoring Initiatives

Monitoring is an important aspect of determining whether changes to a parameter or system are occurring, and whether these changes may be the result of natural or human-related influences. With respect to surface water and groundwater, the parameters typically assessed include flow volumes, timing of flows, water level fluctuations and quality conditions. In order to understand if changes to any of these parameters are due to natural variations or the result of anthropic effects, various management approaches and forensic tools can be used to identify the source and/or cause. Such tools include assessment of palaeo- and instrumental data, statistical analysis, intrusive and non-intrusive geophysical reconnaissance, and geochemical fingerprinting.

The following presentation will provide case examples where planning and forensic tools have been used to gain a better understanding of complex hydro[geo]logic conditions in the vicinity of large industrial developments. It will be demonstrated how these techniques can help differentiate between sources and causes of observed change, and how they can be used in the design of effective large-scale monitoring systems to protect the environment. The approach used to establish the first-of-its-kind regional groundwater monitoring system for the Athabasca Oil Sands region of northeast Alberta will be presented as an example of how to elucidate complex systems using these techniques.

### BIOGRAPHY

**Jon Fennell, Ph.D., P.Geol. P.Geo., P.Eng.** - Fennell is the Director of Water Resources for WorleyParsons Canada, and a Principal Hydrogeologist with over 22 years of consulting experience in the oil & gas sector. He received his B.Sc. degree in Geology from the University of Saskatchewan in 1985 and a M.Sc. degree in Hydrogeology from the University of Calgary in 1994. Recently Jon completed a Ph.D. degree in Geochemistry from the University of Calgary.

Jon's areas of specialization include physical hydrology and hydrogeology, environmental forensics, trace element and isotope geochemistry, water resource evaluation & management, and the development of large-scale monitoring systems. Much of this experience has been gained in the various oil sands regions of Alberta. Jon's skills also extend to assessing the effects of climate change and land cover alterations on basin-scale hydrology, and the development of effective management strategies to ensure water resource sustainability.

In addition to his company duties, Jon is a volunteer for the Bow River Basin Council (a water planning and advisory council) and serves as Vice-chair on the Board of Directors. He is also involved with the Integrated Watershed Planning Team and is Chair of the Modelling & Monitoring Working Committee.

## An Integrated Approach to Industrial Water Management - The Complete Solution

Industry is facing increasing challenges related to source water protection, sustainability and water scarcity. The impact has promoted stronger management of water, energy emissions and waste. This presentation will provide an overview of the importance of an integrated and holistic evaluation of the “full life cycle” of water, and show how this approach provides a strong decision framework that promotes informed and cost effective water management. The presentation will evaluate a three level framework that will demonstrate how the process promotes innovative methods of efficient water treatment, re-use and effective discharge management.

### BIOGRAPHY

**Stuart Torr, M.Eng., P.Eng. - Manager of Water, WorleyParsons Calgary** - is a Senior Water and Wastewater Engineer with more than 10 years of experience in process design, project and construction management of Infrastructure and Environmental projects throughout Europe and North America. His project experience includes all stages of project delivery including design, construction, start-up, turnover and optimization. Stuart is PMP trained and fully experience in the WorleyParsons Project Management Procedure (WPMP).

Stuart has further specialized in the practical application of renewable energy resources, integrating a wide variety of renewable systems to support infrastructure and Environmental projects worldwide. This work has lead to the award of two prestigious Awards, the APEGGA Summit Award for Environmental Excellence, and the Alberta E-Award for Quality Enhancement in the Workplace.