ATLANTIC CLIMATE CHANGE CONFERENCE 2009
SPEAKER BIOS (LISTED ALPHABETICALLY)

DAVID BURTON
Dr. David Burton, Ph.D., P.Ag., is currently a Professor in the Department of Environmental Science at the Nova Scotia Agricultural College and a Research Chair in Climate Change. Dr. Burton has a B.Sc. from Dalhousie University, a M.Sc. from the University of Guelph and a Ph.D. from the University of Alberta. His area of specialization is Soil Microbiology and Biochemistry.

Dr. Burton's research examines the role of the soil environment in influencing the nature and extent of microbial metabolism in soil. His current research programs involve an examination of the production and consumption of greenhouse gases in natural and agricultural landscapes, influence of climate on soil biological processes, and the assessment of the quality of the soil biological environment and its influence on overall soil quality. It is the aim of this work to better understand the factors that control microbial metabolism and to use this information to developing sustainable land management systems in a changing climate.

Education
- B.Sc. in Biology from Dalhousie University - 1979
- M.Sc. in Soil Science from the University of Guelph - 1982
- Ph.D. in Soil Biochemistry from the University of Alberta - 1989

Memberships
- Nova Scotia Institute of Agrologists
- Associate Editor Canadian Journal of Soil Science
- Canadian Agri-Food Research Council Expert Committee on Greenhouse Gases and Carbon Sequestration (Chair 2000-2006)
- Canadian Society of Soil Science (National Secretary 1995-2000)
- Greenhouse Gas Mitigation Advisory Council of the federal government GHG Mitigation Program for Canadian Agriculture (1999-2003)

For more information visit his website at http://www.nsac.ns.ca/envsci/staff/dbu/

ZOE CARON
Zoë is the co-author of "Global Warming for Dummies", written with Elizabeth May, Leader of the Green Party of Canada. She is active on the Board of Directors of Sierra Club Canada and has worked with non-profit companies and organizations within environmental activism, education and social mobilization. Zoë was a founding member of the Canadian Youth Climate Coalition and has recently returned from Antarctica.

NORVAL COLLINS
Norval Collins has been President of CEF Consultants Ltd. founding it in 1983. He is a member of the Canadian Institute of Planners and a Licensed Professional Planning in Nova Scotia, with a BSc in Biology and a Masters in Urban and Rural Planning. Mr. Collins' involvement in climate change and energy issues began in with the 1990 Energy Roundtable, a broad-based workshop establishing Nova Scotia's energy policy. In 2002, he was a founding member of ClimAdapt and has continued his involvement in Climate Change Atlantic. Mr. Collins was a lead in teams developing guides to incorporate climate change into the impact assessment process and the land-use planning process and has made numerous presentations on these topics.

ALLAN CRANDLEMIRE

Allan Crandlemire is the Executive Director of Conserve Nova Scotia, a Special Operating Agency of the Province of Nova Scotia established in January 2007. Conserve Nova Scotia has responsibility for policy as well as program development and delivery for energy efficiency and conservation, including public education and social marketing/behavioral change. Its energy efficiency mandate covers all sectors – residential, commercial, industrial, transportation, and government house-in-order.

DOUGLAS DEACON

Doug Deacon was raised in Unionville, a small community on the outskirts of Toronto, but moved to Prince Edward Island in 1972. He first settled in the Belfast district where he married and started a family. He attended the University of Prince Edward Island and graduated in 1979 with a Bachelor of Arts in Economics. Douglas is currently enrolled in the Masters of Island Studies program at UPEI.

For the next ten years Doug worked in horticulture. He managed the Halifax Seed Company in Charlottetown and then opened his own garden centre, the Island Seed Company in East Royalty. In 1990 he sold the business and was a horticultural sales representative with Island Fertilizer Ltd. in the Maritimes until 1990. Throughout this period Doug distributed hay seed, peat moss, garden seeds and other supplies to many Maritime farms and businesses and gained first hand knowledge of the agriculture industry and rural communities in Prince Edward Island, New Brunswick and Nova Scotia.

In 1996 Doug changed his focus to the tourism industry. He purchased the old Coop store on the Main Street of Mount Stewart to become an inn, café and bicycle rental shop along the newly established Confederation Trail. The building was dilapidated and about to be torn down but he and his son Jonas worked hard to stabilize the structure. Their restoration efforts were rewarded with a provincial architectural heritage preservation award. Since then, Doug and his family have worked to create a successful seasonal tourism business that is now widely known across Prince Edward Island and beyond. The Trailside Café attracts performers and visitors from all around the world, to enjoy good food, great entertainment and wonderful hospitality. The business has employed many local people, helped to create economic activity in the area, and has become a leading brand in the Island cultural scene.

Doug has also had a long interest in the environment. He served as vice-president of Island Nature Trust for three years. As a board member on the National Round Table on the Environment and the Economy from 1998 to 2004, he provided advice to the Prime Minister and the federal government on matters relating to the environment and the economy. Doug also has a strong interest in community and economic development. In the past he served on Belfast CIC, was chair of the Southern Kings and Queens Regional Service Centre and a councilor on the East Royalty Village Council.

Doug currently serves on the Atlantic Board of the Nature Conservancy of Canada, the Board of Directors of Island East Tourism Group, and on the Board of Island Trails. Doug is also a founding Director of the Hillsborough River Area Development Corporation, a community development organization in Mount Stewart PEI. In 2008, Doug began work with the Town of Stratford as Sustainable Economic Development Coordinator.

GARTH DEMONT

Garth DeMont is a geologist with the Geological Services Division of Nova Scotia Department of Natural Resources. He is the team leader for the Central Antigonish County Land Use Planning and Climate Change Adaptation Project.

CAMERON ELLS

Cameron Ells is a Professional Engineer, environmental consultant, and entrepreneur. He has over 20 years of private sector engineering and environmental experience. In 2000, he founded Cameron Consulting Incorporated, and is the current President of the Environmental Services Association of Nova Scotia (www.ESANS.ca).

He is an original member of ClimAdapt, Climate Canada Atlantic, and similarly was with the Atlantic PIRI Committee. On the initiative of Gordon McBean, he presented "Practical Measures for Adapting Infrastructure to Climate Impacts" to the Adaptation to Climate Change Team's (ACT) "by invitation" conference at Simon Fraser University in October 2008. At an Ontario Society of Professional Engineer's symposium that same month, he presented on the "Placentia NL Case Study Example of Incorporating Climate Change Adaptation into Infrastructure Decision Making."

In 2007 he led a project team that had won the nationally tendered contracts for the broad based consultation and preparation of the climate change - infrastructure vulnerability evaluation protocol documents for the Public Infrastructure Engineering Vulnerability Committee (PIEVC) organized by Engineers Canada. This was based in part on his earlier work in developing a "Practitioner's Guide to Incorporating Climate Change Adaptation into Design, Development and Management Decision Making."

PHILIP FINCK

Graduated from Dalhousie University in 1983. Employed with the Nova Scotia Department of Natural Resources since 1983. Worked on a broad range of activities including mapping surficial geology, till geochemistry, avalanches, as an industrial mineral specialist, projects studying cretaceous aged kaolin clay and silica sand deposits, and coastal zone processes - natural hazard assessment. Phil Finck is a coastal geologist with the Geological Services Division of Nova Scotia Department of Natural Resources

GEORGE FOOTE

George Foote is the Director of Climate Change Directorate with the new Nova Scotia Department of Environment. He has been working in government on energy issues for the past 25 years, mainly in the areas of energy efficiency and renewable energy. For the past 10 years, he has worked on the climate change file. The Climate Change Directorate is responsible for providing policy advice and strategic analyses to the Department on climate change. Among the more recent accomplishments of the climate change directorate is the release of the province's first climate change action plan on January 16, 2009 and a discussion paper on greenhouse gas emissions caps and the electricity sector on February 26, 2009.

Mr. Foote has experience and knowledge of national and international climate change policy and program issues as well as a working understanding of energy supply and demand options, including an appreciation of technical and cost issues associated with various technologies and mitigation strategies.

He is a graduate of the University of Western Ontario.

CHRYSTAL FULLER

Chrystal Fuller, MCIP is a municipal planner (currently Manager of Planning with the Municipality of Kings in Nova Scotia) with a keen interest in environmental and agricultural planning. She is the former director of Planning and Lands for the City of Iqaluit, where her interest in climate change issues first developed. Chrystal is also part of the Emergency Management team at the Municipality of Kings.

JENNIFER GRAHAM

Jennifer Graham is the Coastal Coordinator at EAC. Jen first started volunteering at the EAC in 1996, with the Marine Issues Committee. She was part of the breakaway group that started the Coastal Issues Committee in 2001, so as to be able to focus more attention on Nova Scotia's amazing, dynamic, and threatened coastlines. After a stint on the EAC Board of Directors, including serving as co-chair, Jen now works full time promoting coastal planning and coastal stewardship — with a strong soft spot for beaches and salt marshes. Jen has a Bsc in International Development Studies from the University of Toronto, and a Masters in Environmental Studies from Dalhousie University. She has over 10 years experience working with inshore fishermen's organizations, and groups involved in community–based coastal resources management in the Maritimes and in south east Asia. As befitting a coastal coordinator, Jen is happiest in or near the water: swimming, surfing, or in the winter, taking a bath.

KATE GREENE

Kate has a wide range of experience working within municipal policy and regulatory environments across Atlantic Canada to this project. She has worked with municipal and provincial clients in NS, NB, PEI and NL to develop various planning policy and regulatory documents, some of which focused on sustainability planning and climate change. Her work is now centering on the development of community strategies for environmental management, including sustainability, wind energy and water quality. She is currently engaged in developing ICSPs for the Town of Georgetown PEI, Town of Shelburne NS and the City of Corner Brook Nfld.

GAY HARLEY

Gay Harley is a qualified researcher and policy analyst with a specialty in energy and climate change issues. She is currently engaged as public policy and carbon management advisor by Scotian WindFields Inc. In previous contracts she developed international carbon strategies through the Clean Development Mechanism of the Kyoto Protocol with the establishment of partnerships and projects in Central and South America and Southeast Asia. In the course of advocating for sustainability in international development, she has amassed considerable expertise in the regulatory landscape of climate change policy and the Kyoto protocol. Her speaking credits include the Montreal Conference of the United Nations Framework Convention on Climate Change (Conference of Parties 11), the Sustainable Business Committee of the Conference Board of Canada, and the Carbon Expo in Cologne, Germany. She has been involved in environment and business consulting in Nova Scotia for the past 9 years.

MARY KILFOIL

Mary Kilfoil, Senior Economist with Gardner Pinfold Consulting Economists Limited in Halifax, specializes in environmental economics and has over 21 years experience as an applied economist, consultant, and analyst. Mary has a strong theoretical (Ph.D., economics) and applied background in economic modeling and impact analysis, and has amassed considerable expertise in current methodologies used in the economic valuation of environmental resources and assessment of climate change policy. She has over 75 major reports to her credit including the development of a national economic valuation framework to estimate the value of water, as well as the economic impact assessment of alternative energy technologies, improved resource management practices, protected area management, and climate change policy. She has acted as Project Manager or Principal Analyst for numerous environmental economic valuation research projects for clients ranging from Environment Canada, the National Round Table on the Environment and the Economy (NRTEE) and the Climate Change Action Fund (CCAF). Mary also teaches a range of economic and research methods courses at Dalhousie University.

STEPHEN KING

A graduate of the Nova Scotia Agricultural College and University of Guelph, Stephen King brings over 35 years of senior level environmental asset, parks and urban forest management and operations experience to his portfolio. This also includes extensive environmental, sustainability and parks related policy and strategy development and implementation. Stephen was the Manager and Senior Advisor of the Sustainable Environment Management Office at the HRM and the Corporate Lead on the Environment and Sustainability Policy and Strategy for HRM.

DAVID LAPP

David graduated with a bachelor's degree in geological engineering from the University of Toronto in 1978. He is a professional engineer, registered in Ontario and presently works as Manager, Professional Practice with Engineers Canada and has been part of the Secretariat to the Canadian Engineering Qualifications Board since 1997.

His current work focuses on environment and sustainability issues as they relate to the practice of engineering. He has worked in the area of climate change adaptation and engineering since 2001. Responsibilities include the implementation of a 2004 engineer's national action plan on climate change impact and adaptation, including a long-term project to evaluate the engineering vulnerability of public infrastructure to the impacts of climate change. Since 2007, David provides the Secretariat for the World Federation of Engineering Organizations Standing Committee on Engineering and the Environment, chaired by Engineers Canada.

GARY LINES

Mr. Lines completed his Bachelor of Science (BSc) Degree at Dalhousie University in 1974 and BSc in Meteorology in 1975 in Toronto. His meteorological experience spans over 30 years and, geographically, most areas of Canada and offshore. In February of 2000 Mr. Lines joined the Climate Change Division (CCD) of Environment Canada Atlantic as a climate change meteorologist. In 2006, Mr. Lines was appointed the Manager of the Climate Change Section in Meteorological Service of Canada Atlantic Operations to focus on the science, impacts and adaptation issues related to climate change in Atlantic Canada.

PETER LUND

Peter Lund, raised in the small community of Hantsport in the Annapolis Valley, attended Acadia University where he graduated with degrees in Geology and Biology in 1978. Working as a Hydrogeologist, in the environmental consulting field for 28 years, he has cleaned up many contaminated sites, and developed clean water supplies for municipalities. Peter has worked with CN, CIBC, PWGSC, DND, City of Toronto and others in the redevelopment of contaminated sites.

In recent years, Peter has been President of Sheep's Head Island Association, and on the Boards of Environmental Services Association of NS (ESANS), Provincial Round Table of Environment and Sustainable Prosperity, and WET subcommittee of the St. Margaret's Bay Stewardship Association.

Since elected as HRM Councillor in November 2008 for District 23 (Hammonds Plains – St. Margaret's Bay), Peter is actively participating on the Boards of HRM Library and Destination Halifax, along with Committees of Tax Reform, Regional Advisory Planning, Solid Waste, Community Monitoring, Grants, EMO, and Private Roads.

SCOTT MCCOOMBS

Graduated in 1982 with a Bachelor's Degree in Engineering from the Technical University of Nova Scotia (TUNS) - since been renamed Dalhousie University's Sexton Campus.

Began working for the Province of Nova Scotia in 1983 with the former Department of Mines and Energy as an Engineer in Training. He subsequently attained his Professional Engineering designation in 1985 and he continues to hold an active membership with the Association of Professional Engineers of Nova Scotia (APENS) at this time.

His entire Professional career has been devoted to working for the Province of Nova Scotia in various energy related capacities - too numerous to mention here today.

As the current Acting Director of the Nova Scotia Department of Energy's Energy Markets Division, his areas of responsibility include policy and regulatory issues related to natural gas pipelines, underground storage and distribution, electricity and renewable energy.

KYLE MCKENZIE

Kyle McKenzie is a climate change impacts scientist and adaptation planner. He helps communities understand the potential impacts of climate change and how to adapt to these changes through Planadapt.com. Previously he was a Climate Change Specialist with the Meteorological Service of Canada at Environment Canada in Dartmouth, Nova Scotia and the Atlantic Regional Coordinator for the Natural Resources Canada's Canadian Climate Impacts and Adaptation Research Network (C-CIARN), based at Dalhousie University in Halifax, Nova Scotia. Before these positions he worked as an environmental scientist and planner at the Nova Scotia Department of Transportation and Public Works in Halifax and at S.N.C. Lavalin in Dartmouth.

Mr. McKenzie possesses an honours Bachelor's degree in Geology from Dalhousie University and a Master's degree in Regional Planning and Resource Development from the University of Waterloo.

DEBBIE NIELSEN

Debbie Nielsen has a solid foundation in community development and has worked for over 12 years in the field of environmental programming, planning and education. She holds a Bachelor of Science and a Bachelor of Design in Environmental Planning, and presently works as the Municipal Sustainability Coordinator for the Union of Nova Scotia Municipalities (UNSM). Prior to joining UNSM, she worked for several years as a environmental planning consultant and completed a number of climate-change projects, including the City of Iqaluit's first impact and adaptation study. In April 2008, she was invited to join Climate Project Canada and became part of the first group of Canadians to be trained by Al Gore to spread awareness about climate change.

ROBERT NIVEN

Robert Niven, M.Sc., holds degrees in Chemistry and Engineering from UVic and McGill University, respectively. He is President of Carbon Sense Solutions Inc., a Halifax-based firm specializing in Carbon Capture and Storage (CCS) technology development and consulting.

Robert has earned international recognition from his policy and technical contributions to the CCS field and practices both top down and bottom up approaches to accelerating this technology's deployment. He actively contributes to various international (UNFCCC, CSLF, IEA) and Canadian CCS policy processes. Carbon Sense Solutions also provides tools for deployment, such as its CO2 Accelerated Concrete Curing process; currently under development in Lantz, NS. As a CCS practitioner, Robert is engaged in CCS project development and deployment in Western Canada, Brazil, Europe and recently with the Nova Scotia Carbon Storage Research Consortium (NSCSRC).

MIKE PEARSON

Mike received his Bachelor's and Master's of Science Degrees in Surveying Engineering from UNB, and Post Graduate Diploma in Land Information Management from the same institution. He served as Director of the Surveys and Mapping Division for the Maritime Provinces for five years, and is a past councillor for the Canadian Institute of Surveying and Mapping. Mike is a member of the Association of Professional Engineers of Prince Edward Island and on the Board of Directors of the Geomatics Industry Association of Canada For the past fifteen years has been the CEO and Director of Marketing for GeoNet Technologies in PEI.

JAMIE SIMPSON

Jamie is the Forestry Program Coordinator at the Ecology Action Centre, and has a background in forest ecology and forest management, with a degree in biology from Acadia and a Masters of Science in Forestry from the University of New Brunswick. He has nearly a decade of work experience in land conservation planning and ecosystem-based forestry. Jamie is the author of Restoring the Acadian Forest: A guide to forest stewardship for woodlot owners in the Maritimes, and currently coordinates the forestry program at the Ecology Action Centre. He loves to cut, split and stack firewood.

JAN VAN EGTEREN

Mr. van Egteren is the Vice-President of Marketing for Landis Energy Corporation and Alton Natural Gas Storage L.P. He graduated with economics degrees from the University of Lethbridge (B.A. – 1974), the University of Alberta (M.Sc – 1976) and the University of Toronto (M.A. - 1978 and ABD in the Ph.D program). Mr. van Egteren is an energy marketing professional with over 25 years of energy industry experience with ProGas Limited, Lukens Energy Group and Montana Alberta Tie Ltd.

TIM WOOD

Tim Wood is an Economic and Regulatory Strategist with the Climate Change Division of Nova Scotia Environment. Tim began his government career as a Policy Analyst at the Department of Energy, where he specialized in Nova Scotia's energy end use and economics. He has a variety of energy and analytical experience from the not-for-profit, private and institutional sectors including stops at the Atlantic Institute for Market Studies, Enbridge Gas New Brunswick, the Canadian Embassy in Paris, as well as the European Bank for Reconstruction and Development.

Tim has a Master's degree in Economics and European Culture from the University of Provence in Aix-en-Provence, France.

DAY 1: TUESDAY, MARCH 10

MANAGING INFRASTRUCTURE IN A CLIMATE OF CHANGE

Cameron Ells, Cameron Consulting Inc.

Recent public policy is resulting in growing opportunities to account for climate change in infrastructure performance decision-making. Broad based project teams (i.e. public, private, research and community persons) form in response to project opportunities with budgets. Evaluations could be made of a wide variety of infrastructure - energy, physical, natural resources, socio-economic, and intangible. Evaluations can be made of a prioritized series of relationships between the Infrastructure of Interest - the climate and similarly influential changes - and the performance by which success is defined. Such performance goals can include strength, reliability, function, capacity, rate of return, enjoyment, bio-physical activity, and more. Climate has long been an influence in infrastructure decision making. Vulnerability and adaptive capacity can be relatively or absolutely calculated.

Incorporating the use of climate change information by those involved in regular decision-making, is easier when using information formats that are already familiar to them. A physical infrastructure evaluation example is the 2008 PIEVC Placentia NL (Newfoundland) Case Study. Among other things, this resulted in a Year 2050 IDF curve for the highway culvert designers, which was an already familiar information format. Timely, available, cost effective information can be a challenge. Resulting recommendations can be grouped in a risk management structure of: more information, no further action, management actions, and the more significant changes. Comments are made in looking to the future, and benefits, including exportable experience and services.

REGULATING NOVA SCOTIA'S GREENHOUSE GAS EMISSIONS – DISCUSSION PAPER

Tim Wood, Economic and Regulatory Strategist, NS Environment

DATA REQUIREMENTS FOR ADAPTATION TO SEA LEVEL RISE, STORM SURGES, AND EROSION

Mike Pearson, Geonet Technologies Inc., Prince Edward Island

Computer models have been developed that predict water levels due to storm surges and sea level rise. These facilitate the creation of flood risk maps and flood depth maps, and allow the modeling of different flood risks, based upon generated water level probabilities and a high-resolution digital elevation model (DEM) of the topography. The end result of applying these tools and processes is an understanding of coastal zone changes or events which pose a threat, and identification of the various steps that could be taken to avoid or ameliorate the effects of such changes or events.

We have successfully integrated water level probabilities with topography and demography to indicate and illustrate the likelihood of flood extent and potential damage. Animations and graphs are generated as a user interface to better understand flood hazards and better manage risk. On the erosion side, historic aerial photography is analyzed using accurate measurements to determine rates of erosion, which allows us to focus on sections of shoreline historically most prone to erosion. More work is being done on determining future erosion risk based on natural processes.

This paper describes further research which will enhance the Coastal DSS by

- taking into account dynamic processes that result in wave runup, overtopping, and wave damage,
- including the contribution of rivers and precipitation to the total flood probabilities in coastal estuarine regions; and
- enabling analyses in data-poor areas.

As an inundation model TUFLOW allows us to report, time unit by unit, the movement of water over the landscape. Furthermore it allows for multiple water sources, and this then, allows us to consider more realistic storm situations where water is being driven in from the ocean on one hand (storm surge, waves) and flowing downstream through river systems. Since it allows the specification of rainfall during an event, it will allow more sophisticated linking of land and ocean flooding factors.

Many areas have insufficient historic tide gauge data to enable rigorous statistical analyses. This research will suggest means of determining the range of acceptable parameter values for sensitivity analysis, e.g. what are upper/lower limits, what other constraints might be applied to the parameter values (can any of these constraints be discover/expressed statistically).

FOR PLANNERS – ENGAGING MUNICIPALITIES IN CLIMATE CHANGE ADAPTATION

Kyle McKenzie, Climate Change Impacts Scientist and Adaptation Planner, Planadapt

The case for climate change adaptation at the municipal level is growing, but challenges remain. Lack of understanding among municipal officials of not just the need for adaptation but the differences between climate change mitigation and adaptation is, perhaps, one of the biggest hurdles to overcome before undertaking an adaptation program.

Guides, tools, and other expertise are available to assist municipalities undertake adaptation. Areas of municipal concern include planning, development, engineering, infrastructure, asset management, and emergency management. This presentation will show what an adaptation program might look like for a municipality, including examples.

DATA RESOURCES FROM ENVIRONMENT CANADA: WHAT WE KNOW NOW ABOUT CLIMATE CHANGE IN ATLANTIC CANADA

Gary Lines, Climate Change Meteorologist, Environment Canada

This talk steps through the various sources of climate and climate change information from the perspective of what we know about climate change in Atlantic Canada. The information has been pulled together by the Climate Change Section of Environment Canada Atlantic and presented by the current Manager of the Section, Gary Lines. All sectors impacted by climate change will need one or more types of this information in order to best adapt to the projected changes over the next century.

FOR PLANNERS – CLIMATE CHANGE DECISION-MAKING TOOLS

Norval Collins, CEF Consultants

Climate Change Adaptation Decision Making Tools Available for Planners will be described, with discussion of recent initiatives in Canada's North by the Canadian Institute of Planners and the Halifax Regional Municipality.

FOR ENGINEERS – EXAMPLE CLIMATE CHANGE DECISION-MAKING TOOL: PUBLIC INFRASTRUCTURE ENGINEERING VULNERABILITY COMMITTEE (PIEVC)

David Lapp, Engineers Canada, PIEVC

This presentation will provide an update on activities of the Public Infrastructure Engineering Vulnerability Committee overseeing a long-term project to conduct a national engineering vulnerability/risk assessment of public infrastructure to the impacts of climate change.

Seven case studies have been completed to date and a first report on the results was published in June 2008. Summary results from some of the case studies will be presented to illustrate the nature of the findings and the framework for combining results will be introduced. A structured risk assessment methodology known as the PIEVC Engineering Protocol was developed and validated through the case studies across four categories of infrastructure.

The presentation will conclude with an overview of the next phase of the project, which includes more case studies with municipal and provincial partners across Canada.

POTENTIAL PROJECT INFORMATION: NATURAL, SOCIAL, AND ECONOMIC RESOURCES

RESILIENCE: FOREST MANAGEMENT DESIGN FOR CLIMATE CHANGE

Jamie Simpson, Forest Program Coordinator, Ecology Action Centre

The changing climate is adding new stresses to forests in North America. Research in western forests in particular documents increased tree mortality. The devastation caused by the mountain pine beetle, for example, is attributed in part to climate change. Increased stress on forest systems, including the Acadian Forest, is inevitable. Given our forest's economic value, and the environmental, social, and ecological services it provides, it is prudent to guide forest management in the context of climate change. Ecosystem resiliency is central. Specific, short-term actions can be taken by forest managers and government to support forest resiliency, particularly in terms of silviculture and harvest treatments, conservation area design, and habitat management.

ON THE FRONTLINES: STRATEGIES FOR HEALTHY BEACHES IN NOVA SCOTIA

Jen Graham, Coastal Coordinator, Ecology Action Centre

Nova Scotia's sandy beach systems are an incredible asset, providing tourism and recreation opportunities, protection from storm surges and rising seas, and habitat for many beach-depending species. Beaches are particularly sensitive to climate change impacts, and their vulnerability is exacerbated by certain human activities such as poorly sited coastal development and infrastructure. Better beaches management in integral part of climate change adaptation,. This presentation summarizes goals and recommendation for Healthy beaches in Nova Scotia stemming from On the Frontlines: Strategies for Healthy Beaches in Nova Scotia, a recent report from the Ecology Action Centre.

GEOLOGY, CLIMATE CHANGE ADAPTATION AND LAND-USE PLANNING ARE PART OF AN INTRICATE WEB

Garth J. DeMont, Philip W. Finck, and Dan J. Utting, NS Dept. of Natural Resources

Climate change has the potential to pose some serious risks to communities in Nova Scotia. Sea-level rise is predicted to accelerate the rates of coastal erosion, and more frequent storm events could cause more damage in flood-prone coastal areas. Changes in rainfall patterns could adversely affect groundwater re-charge, which in turn could affect water supply and the development of geohazards such as sinkholes. Increasingly municipal planners and property owners want answers to questions

such as: How quickly is the coastline eroding? How susceptible are various coastal areas to damage from major storm events? Is my water supply secure? Is there any potential for sinkholes on my property?

Geological information is a key component of the baseline data required to answer these questions and to develop effective climate change adaptation strategies. The Geological Services Division of the Nova Scotia Department of Natural Resources has initiated a pilot project in central Antigonish County to develop the capacity within the local community to incorporate geoscience information in land use planning activities. If successful, it is hoped that the project will become a model for other communities in Nova Scotia.

COASTAL HAZARD ASSESSMENT MAPPING IN ST. MARGARETS BAY, NOVA SCOTIA

Philip Finck, Coastal Hazard Assessment, NS Department of Natural Resources

The Geological Services Division of the Nova Scotia Department of Natural Resources (NSDNR) has embarked on a systematic mapping program of Coastal Hazards in Nova Scotia. This represents the first geology based coastal hazard mapping undertaken by NSDNR. Mapping, data collection and interpretation was undertaken at a 1:10 000 scale and the resulting products will be released as GIS based maps. These maps will include links to photographs with accompanying detailed captions, figures illustrating important coastal processes, and explanatory captions typically describing aspects of data interpretation and predictive comment.

St. Margaret's Bay was chosen as the first area to be mapped because it encompasses a diverse spectrum of coastal attributes, examples include varying geomorphology, bathymetry, different wind exposures, different types of development, and varying degrees of infrastructure risk. The bay also offered the author an opportunity to observe and contrast the varying effects of Hurricane Juan and Post-tropical Storm Noel on the area. Though not known in the initial program planning stage, choosing St. Margarets Bay was somewhat fortuitous. In 1893, an unnamed Category 3 hurricane on the Saffir-Simpson scale, made landfall in Nova Scotia. A category 3 hurricane on the Saffir-Simpson scale is defined as having sustained winds ranging from178 to 209 km/hr. This was the strongest hurricane to ever hit Nova Scotia and it tracked directly up St. Margaret's Bay.

AGRICULTURE AND CLIMATE CHANGE: RESOURCES AND OPPORTUNITIES

David Burton, Nova Scotia Agricultural College

Agriculture has a wealth of experience dealing with the vagaries of weather. The prospect of climate change and a greater frequency of extreme events, present new and unique challenges for the agriculture sector in Atlantic Canada. To enable the agriculture sector to capitalize on the opportunities that climate change presents and to minimize the impact of adverse conditions it is important to examine the adaptive capacity of the sector. Biological, social and economic aspects of the challenges that climate change presents to Atlantic Canada will be discussed highlighting emerging research opportunities.

SMALLER CARBON FOOTPRINTS: THE GREEN GENERATION

Zoe Caron, Co-Author of Global Warming for Dummies

A look at what the current generation of young professionals and university students are doing to change the face of climate change in Atlantic Canada. Links between the youth and adult generations are being used across the region, making partnerships more effective in reducing the carbon footprint of communities and ourselves.

AN EXPLORATION OF THE ECONOMICS OF CLIMATE CHANGE

Mary Kilfoil, Gardner Pinfold Consulting Economists Limited

Climate change has not been fully integrated into mainstream thinking about the future of Canada's economy and relatively little is known about the full economic implications of climate change. The physical impacts of climate change (such as sea-level rise and changing weather patterns) have important economic implications, as does the global policy response to climate change (such as carbon pricing and carbon tariffs). International studies, such as the Stern Review and Australia's Garnaut Review, illustrate that the economic costs of taking action to reduce emissions are less than the economic costs of not taking action on climate change, highlighting the economic implications of climate change. However, in Canada, climate change research has generally been framed as an environmental challenge, with a focus on the environmental and health impacts of climate change, and on the economic impacts of reducing greenhouse gas emissions. In addition to a comparison of the benefits of action or inaction, there is a need for greater understanding of the risks of climate change impacts as well as the opportunities that action on climate change may create. In addition to understanding the economic and employment opportunities that arise as a result of 'mitigation industries' – renewable energy, energy efficiency and carbon capture and storage, for example, there is a need to better understand the economic opportunities presented by a global transition to a low carbon economy.

OPPORTUNITIES ASSOCIATED WITH PROVINCIAL POLICY

George Foote, NS Environment

The Province' released its first Climate Change Action Plan on January 16, 2006 and a discussion paper on February 26, 2009 on its proposed approach to managing greenhouse gas emissions in the electricity sector. The action plan contains 68 commitments for managing the province's greenhouse gas emissions and preparing the province to adapt to the effects of a changing climate. This short presentation will focus on the opportunities this will present for the environmental community.

Scott McCoombs, Nova Scotia Department of Energy, Acting Director - Energy Markets Division

Allan Crandlemire, Conserve NS

DAY 2: WEDNESDAY, MARCH 11

MUNICIPALITIES & CLIMATE CHANGE: LAYING THE FOUNDATION FOR MORE SUSTAINABLE INFRASTRUCTURE

Debbie Nielsen, Municipal Sustainability Coordinator, Union of Nova Scotia Municipalities

Infrastructure is a critical component of communities and as climate becomes more variable and extreme, communities and the infrastructure upon which they rely are increasingly vulnerable. In the last two decades, escalating damage to infrastructure from weather-related impacts has raised the question of its durability in the face of climate change. While all jurisdictions of government share some responsibility for various aspects of public infrastructure, municipalities carry the greatest responsibility for adapting infrastructure to climate change. The environmental gauntlet is thrown in at a time when municipalities are grappling with funding needed to maintain, repair and replace aging municipal pipes and systems as well as the cost of meeting legislation intended to safeguard public safety and health. This presentation will examine at the role of municipalities in adapting infrastructure to projected changes in climate (including initiatives the Union of Nova Scotia Municipalities' Sustainable Office is implementing to respond to climate change) and explore the importance of working in tandem with various jurisdictions to create communities that are better prepared and more sustainable in face of inevitable change.

ATLANTIC MUNICIPAL ROUNDTABLE: ROAD TO SUSTAINABLITY THROUGH CLIMATE CHANGE ACTION (ALL HANDS ON DECK)

Municipalities, agencies, businesses and others, large and small across Atlantic Canada are laying out their roadmaps to healthy, vibrant, sustainable communities. Several are well on the way to putting in place their own Integrated Community Sustainability Plans (ICSP) and related initiatives. All of the disciplines involved with climate change mitigation and adaptation will be required to make these plans realities. A skilled green collar workforce to on the ground sustainable infrastructure, to all of the planning and engineering in between will be engaged. All hands will be needed on deck.

Panelists from example proactive communities and agencies in Atlantic Canada will share their experiences and provide insight on some of the challenges, issues, and needs to operationalize these plans.

Moderator: Stephen King, King's Gardens and Environmental Services

Kate Greene, Land Use Planner, Jacques Whitford Stantec Ltd.

There are two principal ways of approaching the integrated community planning process. The ICSP can either become part of the existing community plan or can be developed as stand-alone document. This decision is an important one that influences the approach and content of the consultation and analysis. This difference will be explored briefly by highlighting approaches to climate change mitigation and adaptation. Some of the current challenges in the ICSP process will also be highlighted.

Doug Deacon, Sustainable Economic Development Coordinator, Town of Stratford, Prince Edward Island

Sustainable Development has been a priority for Stratford, PEI residents and council for some time. Amid a backdrop of declining regional population growth how will Stratford continue to grow and deal with the challenges of creating a town where all residents have the opportunity to lead productive lives within the community?

Key actions for the future include: defining authentic local values; implementing a regulatory framework; addressing key climate change challenges like carbon reduction and watershed improvements; developing closed loop production systems and a variety of alternative energy systems; fostering cultural and artistic development; shifting to active and public transportation; and developing modern communication tools for improved governance.

Chrystal Fuller, Manager of Planning, Municipality of the County of Kings

Peter Lund, Councilor for District 23, Halifax Regional Municipality

PLANNING, EMERGENCY MANAGEMENT AND CLIMATE CHANGE

Chrystal Fuller, Manager of Planning, Municipality of the County of Kings

Chrystal examines ways professional planners are adapting current approaches to land use planning in light of the prospects for increased extreme weather events. Chrystal will deal with why planners should be concerned with these issues, the link between Municipal Planning and municipal emergency management. Chrystal will explore how Municipalities could mitigate any future emergencies through land use planning.

OPPORTUNITIES FOR NATURAL GAS STORAGE

Jan Van Egteren, Landis Energy

Alton Natural Gas Storage LP is in the process of developing salt caverns for use as energy storage. Initially, the salt caverns will be developed for natural gas storage, but subsequent developments will include compressed air storage as well. Alton believes there is an abundance of renewable energy in the form of wind and tidal energy in Nova Scotia. However this energy is not available on demand when needed. Therefore the issue is not a question of production, the issue we need to deal with is storage. How can our abundant renewable clean energy resources be made available when people need it? Alton believes compressed air energy storage systems are a technically and economically viable form of bulk energy storage that can meet daily consumption patterns and changing renewable energy production patterns. The Alton facility is uniquely positioned to develop a world-class bulk energy storage facility in Nova Scotia in the form of Compressed Air Energy Storage.

OPPORTUNITIES FOR CARBON CAPTURE AND STORAGE

Robert Niven, Carbon Sense Solutions

CARBON OFFSETS AND CARBON CREDITS: PRACTICAL GUIDANCE TO TAKING ADVANTAGE OF THE CARBON ECONOMY

Gay Harley, Public Advocacy and Carbon Management, Scotian WindFields Inc

Governments throughout the world have levied a price for carbon. Whether it's done with strict caps on emissions or through a tax, businesses will be on the hook for their greenhouse gas emissions. Accounting for emissions, identifying reduction opportunities, and then tracking actual emission reductions will be common business practice within the next 2 to 5 years.

Business leaders will need to know how to ensure quality on both sides of the carbon offsetting ledger. Buying offsets can be a confusing process for the uninitiated. Many brands of offsets exist and the quality, price, and verifiability of each offset option varies wildly. On the flip side, carbon dioxide (CO_2e) is a valuable commodity on the open market. Emission reductions can be turned into cash if you know how to make a carbon credit.

This presentation will outline the 'how to's' of both sides of carbon offsetting. We will offer practical guidance to ensuring your organization can procure quality offsets as part of a credible carbon management strategy. As well, we will present step-by-step instruction on the basics of making carbon credits to help you realize income from your emission reductions.

WORKSHOP

INCORPORATING CLIMATE CHANGE ADAPTATION INTO INFRASTRUCTURE DESIGN, DEVELOPMENT, AND MANAGEMENT DECISION MAKING

Host: Cameron Ells, Cameron Consulting Inc.

Based in part on the influential Practitioner's Guide of the same name. For infrastructure owners, operators, managers, and evaluation team members. This is a step-by-step "How to" workshop, with examples, discussions, limitations, and pre-printed notes.

POSTER

THE CURRENT HUMAN FOOTPRINT FOR THE NORTHERN APPALACHIAN/ ACADIAN ECOREGION

Two Countries, One Forest:

The Human Footprint (HF) of the Northern Appalachian/ Acadian ecoregion maps the extent and intensity of human influence on the lands surface, relative to ecological subregion, at a resolution of 90 m. A low Human Footprint score (green) indicates a location where there are few or no human influences on the land and that the land is in a natural state, where as a high Human Footprint score (red to purple) indicates a location that has experience total transformation to a developed state. The Human Footprint is created by mapping 4 classes of human influence using the best geographic data available:

1. Human Settlement - population density, dwelling density, urban areas
2. Human Access - access roads, rail lines
3. Human Land Transformation - landuse/landcover, dams, mines, watersheds
4. Electrical Power Infrastructure - major utility corridors

The Human Footprint is just one of the datasets resulting from the Northern Appalachian/Acadian Ecoregion Human Footprint Project. The Human Footprint methodology for the ecoregion is based on the global Human Footprint developed by Sanderson et al, 2002