### ATLANTIC CLIMATE ADAPTATION SOLUTIONS KNOWLEDGE TRANSFER STRATEGY

Bу

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Natural Resources Canada

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Ressources naturelles Canada



Canada

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This report is also available for download from the ACASA website at: www.atlanticadaptation.ca

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## Introduction to Atlantic Climate Adaptation Solutions

In 2008, Natural Resources Canada announced a \$30 million program of Regional Adaptation Collaboratives (RAC) aimed at stimulating regional climate adaptation planning and decision-making over three-years (2009-2012). In 2009, the Atlantic Provinces (New Brunswick, Newfoundland and Labrador, Nova Scotia and Prince Edward Island) entered into an agreement to partner on the Atlantic RAC, titled Atlantic Climate Adaptation Solutions (ACAS). Under this project, the Department of Environment in each of the four Atlantic Provinces manages a suite of projects focused on addressing common climate change adaptation issues in Atlantic Canada. Projects primarily focus on assessing coastal and inland vulnerability to climate impacts, and on the development of guidelines for climate adaptation planning and protection of groundwater resources from the intrusion of saltwater. A non-profit organization, the Atlantic Canada Adaptation Solutions Association (ACASA), was created to coordinate the management, financing and reporting of respective provincial projects with the federal government.

The purpose of the ACAS initiatives is to provide information and decision-making tools regarding the anticipated effects of climate change on local communities. The ACAS collaboration between adaptation practitioners (planners and engineers) and multiple levels of government will create resources and processes that will facilitate routine consideration of the adaptation measures that will guide land use and protect valuable infrastructure now and in the future.

By partnering with over 20 communities, and with numerous non-government organizations and professional associations across the region, the ACAS will help decision-makers understand the need for, and provide tools to climate-proof the natural and built environments, thereby avoiding future catastrophic expenses associated with extreme climatic conditions.

The work of the ACAS can be categorized into the following themes:

- Community Assessment
- Sea Level Rising/Flooding
- Erosion
- Inland
- Infrastructure
- Groundwater

The ACAS partners identified that it is important to share the knowledge, lessons learned, and results from the ACAS work from around Atlantic Canada. This ACAS Knowledge Transfer Strategy report provides an overview of knowledge transfer, identifies the audiences (stakeholders/partners) of the climate adaptation messages and considerations for sharing information with them. The Strategy itself identifies the stakeholders, purposes of messages, the methods to be used to reach the audiences, the resources required, who is responsibility, and a suggested time frame.

The report then goes into further detail on two elements of the Strategy – the web-based toolkit and an Atlantic-focused Community of Practice. Finally, the report concludes with considerations for evaluating the process and impact of the Strategy.

## Introduction to Knowledge Transfer

Knowledge transfer and exchange can be described as *making relevant research evidence accessible and usable through interactive engagement with specific audiences to help inform practice, planning and policy-making.* Engaging stakeholders early in research processes allows them to provide input into the research questions and share the context of how the results of the research are likely to be used. Knowledge transfer and exchange activities also provide the opportunity for stakeholders' skills and capacities to be built for understanding research evidence and how it can be applied in decision-making (*Institute for Work and Health, 2012*).

There are five key questions that guide knowledge transfer development:

- 1. What (what is the message)?
- 2. To whom (who is the specific audience(s))?
- 3. By whom (who is the messenger considered credible by the audience(s))?
- 4. How (the strategies used to engage with the audience(s))?
- 5. With what effect/impact (performance indicators/measures specific to the audience(s))?

These questions have been considered in the development of the target audience considerations and this Strategy. The following graphic outlines an operationalized model for the exchange and transfer of knowledge. The model reflects the five key questions, researchers and decision-makers environments, and identifies the benefits of a sustained knowledge transfer and exchange relationship for researchers and the audience(s).

#### **Operational Model for Knowledge Transfer & Exchange**



Adapted from Institute for Work & Health

# **Target Audiences & Considerations**

The provincial ACAS partners identified the following general categories of audiences with whom they currently share knowledge:

- Provincial government departments/agencies (e.g. Transportation, Municipal Services);
- Municipal government
  - Elected officials
  - ➤ Staff;
- Federal government;
- Land use planners;
- Engineers;
- ACAS partners;
- Community organizations/leaders (e.g. coastal, watershed groups);
- Academics; and
- General public.

Specifically, the ACAS stakeholders are:

- Natural Resources Canada;
- Environment Canada;
- New Brunswick Department of Environment and Local Government;
- Newfoundland and Labrador Department of Environment and Conservation;
- Nova Scotia Environment;
- Prince Edward Island Department of Environment, Energy and Forestry;
- Atlantic Planners Institute;
- Atlantic Engineering Associations;
- Association Francophone des Municipalités du Nouveau-Brunswick;
- Municipalities Newfoundland and Labrador;
- Union of Nova Scotia Municipalities;
- Federation of Prince Edward Island Municipalities;
- Municipal Councils in project sites across Atlantic Canada;
- University of New Brunswick;
- Mount Allison University;
- Université de Moncton;
- Dalhousie University;
- Saint Mary's University
- Nova Scotia Community College;
- University of Prince Edward Island;
- Memorial University of Newfoundland and Labrador; and
- Community based organizations (e.g. watershed organizations, historical societies).

When sharing research/project results, and learnings, etc., understanding the following information about the target audience is important:

- What decision-making the audience 'owns' or influences;
- What facilitates uptake of the information and what barriers might prevent uptake of the information;
- Who has credibility with the audience; and
- What existing networks or knowledge channels already exist for the audience?

The following table provides an overview of these considerations as it relates to the ACAS stakeholders.

### **Target Audience Considerations**

Target Audience	Decision-making 'Owned' or Influence	Facilitators to Uptake	Barriers to Uptake	Credibility	Existing Networks/ Knowledge Channels
Provincial Government Departments	<ul> <li>Recommend provincial policy</li> <li>Implement policy</li> <li>Oversee and direct staff</li> </ul>	<ul> <li>Understanding of climate adaptation on responsibility area</li> <li>Availability/access to:         <ul> <li>✓ Tools and resources</li> <li>✓ Training opportunities</li> <li>✓ Resource people (ongoing basis)</li> </ul> </li> </ul>	Competing priorities	Colleagues	• Dependent on Department/area of focus
Municipal Government- Elected Officials	<ul> <li>Municipal policy</li> <li>Municipal by-laws</li> <li>Recommendations for provincial municipal federation/union resolutions</li> </ul>	<ul> <li>Identifying what the problem is and why findings of the research are important</li> <li>Focusing on the implications of the research rather than the information</li> <li>Summarizing the wider implications of the research in relation and comparison to other knowledge sources</li> <li>Showing specifically how the research can shape policy and why it is important</li> <li>Highlighting any short term observable benefits that could be gained</li> <li>Identifying specifically what can or should be done</li> <li>Showing how it could be achieved (ideally including a time frame)</li> <li>Providing a method for</li> </ul>	<ul> <li>Competing priorities for time and resources</li> <li>Lack of staff support (in small units)</li> </ul>	<ul> <li>Municipal Administrators</li> <li>Colleagues from municipal units in other jurisdictions</li> </ul>	<ul> <li>Provincial municipal federations/unions conferences, workshops, publications</li> <li>Regional caucuses, as applicable</li> <li>Federation of Canadian Municipalities conference, publications</li> <li>Newsletters to taxpayers</li> </ul>

Target Audience	Decision-making 'Owned' or Influence	Facilitators to Uptake	Barriers to Uptake	Credibility	Existing Networks/ Knowledge Channels
		<ul> <li>measuring success</li> <li>Structuring ideas simply and persuasively</li> <li>Simplifying complex information and make points clearly and concisely and</li> <li>Avoiding information overload - condensing the research into actionable, solution based points. (<i>MEECE Knowledge</i> <i>Transfer Strategy</i>, 2009)</li> <li>Memorandum of Understanding on Climate Change – NS</li> <li>Understanding of impact on public infrastructure</li> </ul>			
Municipal Government Staff - Administrators	<ul> <li>Recommend         <ul> <li>Municipal policy</li> <li>Municipal by-laws</li> <li>Recommendations                 for provincial                     municipal                     federation/union                     resolutions</li> <li>Implement policy</li> <li>Oversee and direct                 staff</li> </ul> </li> </ul>	<ul> <li>NS - Memorandum of Understanding on Climate Change</li> <li>NS - UNSM Municipal Sustainability Office</li> <li>A champion among peers</li> <li>Understanding of impact on public infrastructure</li> </ul>	Competing priorities for time and resources	• Peers	<ul> <li>Municipal Administrators associations and professional development opportunities</li> <li>Provincial municipal federations/unions</li> </ul>

Target Audience	Decision-making 'Owned' or Influence	Facilitators to Uptake	Barriers to Uptake	Credibility	Existing Networks/ Knowledge Channels
Land Use Planners	<ul> <li>Promoting safe and healthy living conditions</li> <li>Conversion of land from its natural state to development</li> <li>Protection of natural, cultural, and heritage resources</li> <li>Infrastructure development</li> <li>Social and community services</li> <li>Economic community vitality</li> <li>Emergency measures (<i>Birch Hill GeoSolutions, 2010</i>)</li> <li>Recommend and implement:         <ul> <li>Municipal policy</li> <li>Municipal by-laws</li> </ul> </li> </ul>	<ul> <li>Availability, access to:         <ul> <li>Geographic Information Systems (GIS) tools</li> <li>decision support tools</li> <li>engineering and scientific analysis tools</li> <li>Regulatory analysis</li> <li>Planning policies in a community's Strategic Plan</li> <li>Land use by-law,</li> <li>subdivision by-law</li> <li>Other municipal by- laws,</li> <li>Best practices recommendations to other municipal departments</li> <li>Building codes in municipalities where planners serve as Development Officers. (<i>Birch Hill GeoSolutions,</i> 2010)</li> </ul> </li> </ul>	<ul> <li>Not identified as a priority by municipal unit</li> </ul>	• Engineers	<ul> <li>Atlantic and provincial planners associations' professional development opportunities and publications</li> </ul>
Engineers	<ul> <li>Recommend and implement:</li> <li>✓ Municipal policy</li> <li>✓ Municipal by-laws</li> <li>✓ Municipal capital projects</li> </ul>	<ul> <li>Availability/access to:</li> <li>✓ GIS tools</li> <li>✓ Decision support tools</li> <li>✓ Engineering and scientific analysis tools</li> <li>✓ Regulatory analysis</li> <li>✓ Engineering codes of practice (Birch Hill GeoSolutions, 2010)</li> </ul>	<ul> <li>Assumptions based on past observations (Birch Hill GeoSolution, 2010)</li> <li>Not identified as a priority by municipal unit</li> </ul>	• Peers	<ul> <li>Provincial organizations</li> <li>Professional development opportunities and publications</li> <li>University, technical institute courses</li> </ul>

Target Audience	Decision-making 'Owned' or Influence	Facilitators to Uptake	Barriers to Uptake	Credibility	Existing Networks/ Knowledge Channels
Community Organizations/ Leaders (e.g. Watershed organizations, EMO, Historical Societies)	<ul> <li>Determine and implement projects and programs</li> <li>Provide learning opportunities for members and/or communities</li> <li>Advocate with and inform municipal and provincial elected officials</li> </ul>	<ul> <li>Clear understanding of issue and impact on community</li> <li>Availability/access to:         <ul> <li>✓ Tools and resources, appropriate for community use</li> <li>✓ Training opportunities</li> <li>✓ Resource people (ongoing basis)</li> </ul> </li> </ul>	<ul> <li>Resources not geared to community use</li> <li>Insufficient support from resource people</li> </ul>	<ul> <li>Related provincial agencies/</li> <li>organizations</li> <li>Provincial Environment staff (particularly if relationship has been established with community)</li> </ul>	<ul> <li>Provincial/national organizations</li> <li>Media print, radio/tv, social)</li> </ul>
General Public	<ul> <li>Advocate with municipal and provincial elected officials</li> </ul>	<ul> <li>Clear description and understanding of the issue and impact on community(s)</li> </ul>	Information not geared to community	<ul> <li>Provincial Environment staff (particularly if relationship has been established with community)</li> <li>Key spokespeople</li> </ul>	<ul> <li>Media (print, radio/TV, social)</li> <li>Community organizations/ agencies</li> </ul>

The ACAS projects are slated to be completed in 2012. The ACAS partners have identified that it is important to share and effectively disseminate the knowledge, lessons learned, and results from the ACAS products and deliverables from around Atlantic Canada. The partners also have identified that this transfer and exchange of information is key to stimulating the recognition of climate adaption and the inclusion of a climate adaption lens in regional, provincial and local planning and decision-making.

Specifically, the ACAS Knowledge Transfer objectives are:

- To increase stakeholders' understanding of climate adaption and its impacts;
- To increase stakeholders' opportunities to access resources and decision-making tools to facilitate consideration of adaption measures in policy planning and program development; and
- To increase the capacity of ACAS partners and stakeholders in using the resources and decision-making tools.

The Knowledge Transfer Strategy outlined on the next eight pages was created using information about ACAS partners' current knowledge transfer methods, and incorporating research in the area of knowledge transfer and exchange. The strategy describes the ACAS stakeholders (broadly), the purpose of message(s) to those stakeholders, methods to reach the stakeholders (audience(s)), and identifies who is responsible to transfer or share the information, the resources required, and a suggested timeframe. Each province's current knowledge transfer initiatives are attached in Appendix A.

A discussion about two elements of the Knowledge Transfer Strategy follows: first, types of toolkit structures that can be developed for the ACAS website and suggestions for promoting and sharing the toolkit with partners and stakeholders; and second, details about a suggested Atlantic-focused Community of Practice (CoP). Finally, considerations for evaluating the Knowledge Transfer Strategy are identified.

### ACAS Knowledge Transfer Strategy

Stakeholder	Purpose/Key Objective	Method	Responsibility	Resources Required	Time Frame		
	<ul> <li>Share findings from projects and initiatives</li> <li>Inform planning and policy development</li> </ul>	Distribute final reports electronically and via ACAS website toolkit and provincial climate adaption websites Maps in ACAS toolkit and on provincial climate adaptation websites Share case studies in ACAS toolkit/provincial websites Digital elevation models on ACAS/provincial websites		<ul> <li>Partners' time</li> <li>Access to web space</li> </ul>	Distribute and post when available'		
Provincial Government Departments/			Host provincial climate adaptation conferences/workshop	ACAS Partners	ACAS Partners	<ul> <li>Partners' time</li> <li>Financial resources to host conferences</li> </ul>	Annually
Agencies	• Share projects' methodologies, processes, and learnings	methodologies, processes, and	Distribute final reports electronically and via ACAS toolkit and provincial climate adaption websites			<ul><li>Partners' time</li><li>Access to web</li></ul>	Distribute and post when available
			Share case studies in ACAS toolkit/provincial websites			space	As completed
	• Build capacity within provincial government agencies to use resources and tools	Technical presentations		Partners' time to develop presentations	Ongoing, upon request		
		Issue papers - fact sheets and summaries (regional); provide copies in ACAS toolkit		Partners' time to develop and distribute	As available		

<sup>&</sup>lt;sup>1</sup> It is recommended that the ACAS web-based toolkit be completed, launched and promoted to partners and stakeholders as soon as resources allow, so as to not loss momentum for the work and maintain the linkages and relationships.

Stakeholder	Purpose/Key Objective	Method	Responsibility	Resources Required	Time Frame
		Community of Practice (CoP) on/linked through ACAS website		• Time and budget to add CoP elements to ACAS website	Immediate link to Climate Change Adaptation CoP
		Municipal Administrators Association annual conferences (staff)		• Partners' time to develop presentations	Annually
	<ul> <li>Share results from projects and initiatives</li> </ul>	Municipal Federation conferences (elected officials)		• Budget to participate in conferences	Annually
Manisinal		Distribute final reports electronically and via ACAS toolkit and provincial climate adaption websites	ACAS Partners	<ul> <li>Partners' time</li> <li>Access to web space</li> </ul>	As available
Municipal Government - Elected officials - Staff (e.g.,	<ul> <li>Share projects' methodologies, processes, and learnings</li> </ul>	Distribute final reports electronically and via ACAS toolkit and provincial climate adaption websites		<ul> <li>Partners' time</li> <li>Access to web space</li> </ul>	As available
administrators, Emergency Measures)	<ul> <li>Build capacity at the community level</li> <li>Inform community planning and policy development</li> </ul>	Technical presentations Community assessments/ meetings and workbook Share case studies in ACAS toolkit/provincial websites and/or sessions at conferences		<ul> <li>Partners' time to develop presentations</li> <li>Partners' time to develop</li> <li>Partners' time</li> <li>Access to web space</li> </ul>	Upon request and/or Continue to develop ongoing relationships with pilot communities and together
	development			<ul> <li>Budget to participate in conferences</li> </ul>	identify capacity building opportunities

Stakeholder	Purpose/Key Objective	Method	Responsibility	Resources Required	Time Frame
		Share checklists of considerations through ACAS toolkit/provincial websites, electronically, and/or skill development sessions at conferences		<ul> <li>Partners' time</li> <li>Access to web space</li> <li>Budget to participate in</li> </ul>	
		Digital elevation models in ACAS toolkit/provincial websites and provided to specific communities Issue papers - fact sheets and summaries (regional); provide copies in ACAS toolkit		<ul> <li>conferences</li> <li>Access to web space</li> <li>Partners' time to develop and distribute</li> </ul>	
		Training modules (where identified in provincial plans)		<ul> <li>Partners' time to develop and deliver</li> <li>Budget for ongoing delivery</li> </ul>	
		CoP on/linked through ACAS website		<ul> <li>Time and budget to add CoP elements to ACAS website</li> <li>Time to promote value of CoP</li> </ul>	
Federal	Share findings from projects and initiatives	Issue papers (regional)	ACAS Partners	Partners' time to develop and distribute	As available
Government	Inform planning and policy development	Encourage participation in provincial adaptation conferences and workshops		<ul> <li>Identify key stakeholders to invite</li> </ul>	Annually/as required

Stakeholder	Purpose/Key Objective	Method	Responsibility	Resources Required	Time Frame
	• Inform planning and policy development	Ministers' meetings	Provincial Environment Ministers	<ul> <li>ACAS partners to brief provincial Ministers, as required, around key climate adaption issues/policy concerns</li> </ul>	As required
	<ul> <li>To share project findings</li> <li>Share methods, approaches and learnings</li> </ul>	Atlantic Planners Institute annual conferences Provincial Planning Directors Association conferences	ACAS Partners Key opinion leaders in field	<ul> <li>Partners time to develop presentations</li> <li>Budget to participate in</li> </ul>	As available
Land Use Planners • Improve knowledge and skills for using	<ul><li>and skills for using resources and tools in community/</li><li>municipal settings,</li></ul>	CoP on/linked through ACAS website ACAS toolkit	ACAS Partners	<ul> <li>participate in conferences</li> <li>Time and budget to add CoP elements to ACAS website</li> <li>Time to promote value of CoP</li> </ul>	Immediate and Ongoing
Engineers	<ul> <li>To share results from projects and initiatives</li> <li>Share methods, approaches and learnings</li> </ul>	Annual conferences of Atlantic Canada Professional Engineers and Geoscientists Associations Provincial engineers/geoscientist	ACAS Partners Key opinion leaders in field	<ul> <li>Partners' time to develop presentations</li> <li>Budget to</li> </ul>	As available
	• Improve knowledge and skills for using resources and tools in community/	conferences CoP on/linked through ACAS website	ACAS Partners	<ul><li>participate in conferences</li><li>Time and budget to add CoP</li></ul>	Ongoing Ongoing

Stakeholder	Purpose/Key Objective	Method	Responsibility	Resources Required	Time Frame
	• municipal settings, e.g. maps, checklists	ACAS toolkit		elements to ACAS website	
				• Time to promote value of CoP	
	Provide information on impact on built and natural environment due to changing climate	Meetings/information sharing sessions	ACAS Partners	• Time for meetings	Upon request
	• Increase understanding of climate change, its impacts and adaption	Use of media/publications (hard copy and online) *	ACAS Partners	<ul> <li>Develop and distribute media releases</li> <li>Engage with</li> </ul>	
General Public	• Increase awareness of regional and community based initiatives	Community based presentations, particularly in project communities	Academic Partnersmedia/ publications identified as being interested in the issueKey Community LeadersTime and budget to create 'community-	Immediate and	
General Public	<ul> <li>Share results of projects and initiatives, as appropriate</li> </ul>	Public display, particularly in project communities		ongoing	
	• Create support for regional and community based action	Written and video case studies in ACAS toolkit	n staff friendly' displays, presentation materials, tools		

Stakeholder	Purpose/Key Objective	Method	Responsibility	Resources Required	Time Frame
	Provide information on impact on built and natural environment due to changing climate	Community meetings with maps Story sharing sessions	ACAS Partners	• Time for meetings	Upon request
ACAS Stakeholders/ Partners	<ul> <li>Share results from projects and initiatives</li> <li>Share methods, approaches and learnings</li> <li>Improve knowledge and skills for using resources and tools</li> </ul>	CoP on/linked through ACAS website	ACAS Partners Academic Partners	<ul> <li>Time and budget to add CoP elements to ACAS website</li> <li>Commitment to contribute to and use CoP</li> </ul>	Immediate and ongoing
		Distribute final reports electronically and via ACAS and provincial climate adaption websites		<ul><li>Partners' time</li><li>Access to web space</li></ul>	
Community Organizations/ Leaders	• Share findings from projects and initiatives	Maps in ACAS toolkit/provincial websites	ACAS Partners	<ul> <li>Partners' time</li> <li>Access to web space</li> </ul>	As available
(e.g. coastal, watershed groups)	<ul> <li>Influence local planning and policy development</li> </ul>			<ul><li>Partners' time</li><li>Access to web space</li></ul>	
		Digital elevation models in ACAS toolkit/provincial websites and provided to specific communities		<ul><li>Partners' time</li><li>Access to web space</li></ul>	

Stakehold	ler Purpose/Key Objective	Method	Responsibility	Resources Required	Time Frame
		Invite to participate in provincial climate adaptation conferences/workshops		<ul> <li>Partners' time</li> <li>Budget to subsidize participation</li> </ul>	Annually
	Share projects' methodologies, processes, and learnings	Distribute final reports electronically and via ACAS and provincial climate adaption websites		<ul> <li>Partners' time</li> <li>Access to web space</li> </ul>	As available
		Technical presentations		• Partners' time to develop presentations	
		Community assessments/ meetings and workbook		• Partners' time to develop agenda and facilitate	
	• Build capacity at the community level	Share checklists of considerations through ACAS/provincial websites, electronically, and/or skill development sessions at conferences		• Partners' time for distribution or skills session development	Upon request and/or continue to develop ongoing
	Influence community			Access to web     space	relationships with pilot communities
	planning and policy development	Issue papers - fact sheets and summaries (regional)		• Partners' time to develop and distribute	and together identify capacity building
		Training modules (where identified in provincial plans)		Partners' time to develop and deliver	opportunities
		CoP on/linked through ACAS website		<ul> <li>Budget for ongoing delivery</li> <li>Time and budget to add CoP</li> </ul>	

Stakeholder	Purpose/Key Objective	Method	Responsibility	Resources Required	Time Frame
				elements to ACAS website • Time to promote value of CoP	
	Provide information on impact on built and natural environment due to changing climate	Community meetings with maps Story sharing sessions	ACAS Partners	• Time for meetings	Upon request
Academics	<ul> <li>Share results from projects and initiatives</li> <li>Share methods, approaches and learnings</li> <li>Influence community planning and policy development</li> </ul>	Implement a comprehensive dissemination plan for ACAS projects at regional, provincial and community level. CoP on/linked through ACAS website	Academic partners	<ul> <li>Time and budget to create and share project findings and learnings</li> <li>Commitment to contribute to and use CoP</li> </ul>	Ongoing

Note: where conference or education sessions are identified, an interactive agenda should be considered that includes opportunity for participation and discussion about how to apply learnings in participants' own settings, and to practice new skills and/or with new tools.

\* Consideration should be given to creating relationships and communication opportunities with media and/or publications that can reach a significant audience and have an expressed interest in climate adaptation (e.g., the Atlantic Salmon Federation journal, Saltscapes Magazine, Eastern Woods & Waters, and Ducks Unlimited Canada).

# Considerations for Web Based Climate Adaptation Toolkit

The ACAS partners are considering a toolkit component for their website. In the toolkit's development, attention should be given to clear navigational signposts, ease of accessing resources, and an easy to find help feature.

A toolkit can be structured in a number of ways on a website. Two of these ways are described below.

#### Database

The database style toolkit can provide access to information by category of project, initiative or issue area, by province and community, the resource type (reports, resources, tools, case studies, etc.), specific issue, and date included on the database. The Coastal Climate Adaptation website,

<u>http://collaborate.csc.noaa.gov/climateadaptation/default.aspx</u> provides an example of this type of online resource.

#### Website Section

Although the 'back-end' of a website based toolkit would be similar to a database toolkit, in this case, designated webpages would outline the information included in the toolkit, similar to the information above, with hyperlinks to the information. The Scottish Government Climate Adaptation website,

<u>http://www.sccipcommstoolkit.org.uk/index.php?option=com\_content&view=article&id=13&Itemid=12</u> offers an example of this type of toolkit; as does the U.S. Environmental Protection Agency site:

http://www.epa.gov/safewater/watersecurity/climate/toolbox.html.

#### Promoting and Sharing a Toolkit

Once complete, tested and ready for use, the online toolkit can be promoted to ACAS partners and stakeholders in a number of ways:

- Developing and distributing articles for newsletters/publications and websites;
- Providing an introduction and link on provincial Environment Department/Division websites and government sites opening pages and Twitter feeds;
- Distributing email invitations to partners/stakeholders;
- Incorporating the introduction of toolkit and if possible, overview of content categories, in workshops, meetings, conferences, etc.;
- Providing support and coaching for using the toolkit, as resources allow; and
- Developing a CD-ROM version of the toolkit resources for communities and organizations without limited or no access to the internet.

# Considerations for a Community of Practice

A community of practice (CoP) is a group of people who have made a commitment to be available to each other to offer support to share learning, consciously develop new knowledge, and share discoveries with anyone engaged in similar work, in order to advance individual and organizational practice (Wheatley, 2007). Through networking and collaboration, community of practice members strive to advance individual, organizational, and systemic practice by sharing and promoting the use of promising practices and supporting evidence informed decision making.

ACAS partners have access to the online Climate Change Adaptation Community of Practice, as well as a Regional Adaptation Collaboratives provided web space. The Climate Change Adaptation CoP is used to varied extents by the partners, with the forum, webinars, and library used most frequently.

Because of the ongoing importance of the ACAS work and the value of the reports, resources, and tools created; and rather than re-creating a CoP on the ACAS website, the partners should consider promoting the Climate Change Adaptation CoP to their ACAS stakeholders as a way to remain connected, share ongoing work and build their capacity and skills. To make access easier for stakeholders, consideration should be given to creating a link or portal to the CoP directly through the ACAS website.

## **Considerations for Evaluation**

The Institute for Work & Health, in a webinar focused on knowledge translation methods and tools (2012) identify that the following indicators of knowledge transfer and exchange can be measured:

- Indirect use or conceptual use which can lead to changes in awareness, knowledge and attitudes (e.g. agreement with recommendations, informing debate; and adopting of the concepts and language of the evidence);
- Direct use (of products or tools and in problem-solving) leading to change in behaviour (reported or observed) (e.g. policy and program changes, changes in practice); and/or
- Symbolic use, including political, tactical or strategic use of the research to validate positions already taken.

The following elements of the ACAS Knowledge Transfer Strategy can be incorporated into an evaluation framework to measure its impact:

• The objectives (which reflect short, medium and long term outcomes);

- Stakeholders (as potential data sources);
- The purpose of the message (the impact or outcomes to be measured)
- The methods of transferring knowledge (which provide indicators or measures, activities and outputs); and
- Resources required (identify the inputs needed).

## APPENDIX A

### ACAS Projects and Knowledge Transfer Activities by Province

#### **Province: Newfoundland**

Completed by: N. Rowsell

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
Flood Risk Mapping in Two NL Communities (includes Climate Change inundation mapping)	Final reports in process of being completed and approved.	To share results, share methodology, build capacity	Community stakeholders, partners, planners, policy makers, technical experts, government.	Shared one time, presented on and methodology used into the future.
	Reports will be available to the communities; maps will be placed on website; technical presentations planned.			
	Information not currently being shared	Share results	Community stakeholders/leaders, government, policy makers, planners, other climate experts.	Shared on web
Regional Climate Modeling for NL to 2100	Will be used in case study development, adaptation website, community assessments/meetings where relevant.	Build capacity, improve planning processes, share methodology		Used in case studies of pilot communities
	Could be used in future projects.			Updated as climate models improve Used in future
				projects

ACAS Current Initiatives – Newfoundland and Labrador Atlantic Climate Adaptation Solutions Knowledge Transfer Strategy Horizons Community Development Associates Inc.

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
Flood Risk and Vulnerability	Report is not complete	Share results, used for future planning, emergency measures	Government, policy- makers, community leaders, partners	Used for the long- term
Analysis Project		Build knowledge and capacity		
Digital Elevation Model Remote Sensing Project	Final report not complete	Shared to assist community stakeholders, inform	Government, policy- makers, community	May be used for various reasons to inform policy into
		planning and policy	leaders, partners	the future
Climate Change Community Vulnerability Assessment	Final workbook not complete	To build capacity at the community level, to inform community planning	Small communities who have little capacity to assess vulnerability	Shared continuously
Workbook	It has been shared in draft form to other provinces within ACASA			
				Shared as part of
Case Study Development – Pilot communities	Not complete	Shared to build capacity at the community level	All levels of government, community leaders, policy makers, planning professionals.	the workbook and separately through municipal outreach events.
A Report on NL Vulnerability to Coastal Erosion	Not currently being shared	Share results, inform planning and policy	Government, community stakeholders, policy makers, partners	Shared one time

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
Saltwater Intrusion Project	Final report currently being incorporated into an Atlantic report on saltwater intrusion.	Share results, inform community planning and policy	Community stakeholders, policy makers, government departments	Shared one time

### **Province: New Brunswick**

Completed by: Prativa Pradhan

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
Acadian Peninsula Coastal Erosion and Sea Level Rise Project/ Projet sur l'érosion et l'élévation du niveau de la mer de la Péninsule acadienne	<ul> <li>Studies and Reports includes:</li> <li>Inundation maps, erosion rates, and infrastructure at risk</li> </ul>	To make informed decisions and apply solutions by concerned departments and sectors.	Provincial Departments such as Transportation, Public Safety, Natural Resources, Health, and Environment, and concerned parties at regional and community scales.	
	Conference held in Tracadie Jan 26 <sup>th</sup> 2012	Engaging and working together with municipalities	Included 20 municipalities	
http://atlanticadaptation.ca/node/78	Project details posted in GNB Department of Environment website and ACASA website	Support and influence planning and decision making	Stakeholders, planners and policy makers	Ongoing/ quarterly
	Outreach projects ongoing through Environmental Trust Fund		Mostly planners, municipal officials and associated decision makers so far.	
	Occasional media articles			
			Se aluvilla Coura eil Drief- 1	
Dykelands Infastructure Assessment-Tantramar/ Projet concernant les terres endiguées de Tantramar <u>http://atlanticadaptation.ca/node/82</u>	<ul><li>Study report includes:</li><li>Maps of dike assessment and infrastructure and risk assessment</li></ul>	To make informed decisions and apply solutions by concerned departments and sectors.	Sackville Council Briefed CN, CBC, Parks Canada and various provincial departments. Canadian Hydrographic Service	

ACAS Current Initiatives – New Brunswick Atlantic Climate Adaptation Solutions Knowledge Transfer Strategy Horizons Community Development Associates Inc.

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
	MSc thesis will be completed in 2012. The thesis title is: Flood, foods and farming: "Assessing		Stakeholders, planners and policy makers	
	the agricultural vulnerabilities to effects of sea-level rise in the Sackville, N.B." Memramcook, Pt Elgin, Cocagne			
	satellite projects TCH economic study – in process, UNB, 2-year, transportation focus, will be complete in 2013 Economic analysis of adaptation	Support and influence planning and decision making	Community engagement	Ongoing/ quarterly
	solutions and impacts, May-Jun 2012 Final project report added to ACASA website		All public can access from the ACASA website	
Grand Falls Erosion Assessment Project/ Projet de la Ville de Grand-Sault	<ul> <li>Study and report completed. Study shows:</li> <li>Areas at risk</li> <li>Contributing factors</li> <li>Infrastructure affected</li> <li>Detailed mapping</li> <li>Recommended actions</li> </ul>	To make informed decisions and apply solutions by concerned departments and sectors.	Stakeholders, planners and policy makers	Ongoing/ quarterly
http://atlanticadaptation.ca/node/80	Committee Meeting held in Jan 12, 2012	Engaging and working together with Committee members	Committee members	
	Project details posted on GNB	Support and influence		

ACAS Current Initiatives – New Brunswick Atlantic Climate Adaptation Solutions Knowledge Transfer Strategy Horizons Community Development Associates Inc.

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
	Department of Environment website and ACASA website	planning and decision making		
	<ul> <li>Study and report complete. Study shows:</li> <li>Contributing factors to flooding in city</li> <li>Infrastructure affected</li> <li>Detailed mapping</li> <li>Recommended actions</li> </ul>	To make informed decisions and apply solutions by concerned departments and sectors.	Stakeholders, planners and policy makers	Ongoing/ quarterly
Greater Moncton Project	Presented to Committee, October 2011	Engaging and working together with Committee members	Stakeholders and planners	
	Presented to Council, Feb 2012	Engaging and working together with Councils	Stakeholders and planners	
	Project details posted on GNB Department of Environment website and ACASA website	Support and influence planning and decision making		
		Ta influence le cal en l		
	2 Msc theses will be completed in 2012	To influence local and provincial policies Atlantic wide	Stakeholders, planners and policy makers	Ongoing/ quarterly
Town of Richibucto Salt Water Intrusion Project	Groundwater Model developed and tested	Support and influence planning and decision making		
	Project details posted on GNB Department of Environment website and ACASA website			

#### **Province:** Nova Scotia

Completed by: Will Green

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
Partnering Municipality Case Study Reports – Town and District of	Reports to NS Environment	Share lessons learned	NS Environment, Partners	Once – end of project
Yarmouth, District of Lunenburg, County of Kings, District of West Hants,	Community workshops		Policy makers	
Towns of Kentville, Wolfville, Windsor,	NS ACAS conference workshop			
Hantsport, Amherst, Oxford, County of Cumberland, HRM	perhaps ACASA website			
Partnering Provincial Government Case Study Reports – NS Environment,	Reports to NS Environment	Share lessons learned	NS Environment, Partners	Once – end of project
Agriculture, Emergency Management Office, Fisheries and Aquaculture, Natural Resources, Service NS and	NS ACAS conference workshop		Policy makers	
Municipal Relations, Transportation and Infrastructure Renewal	perhaps ACASA website			
Various research projects – reports, maps and other data	Report	Share results	Municipal and provincial government	Once – as projects are completed
	Community workshops	give partners an opportunity to interact with authors and build capacity	Decision-makers	
	ACASA website		Public	

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
Municipal Climate Change Action Plan 'Mentor' project	Provide a mentor to guide select municipalities in working through the MCCAP guide	Share process	Provincial and municipal government planners	Once – end of project
	Workshops	Share lessons learned	Provincial policy-makers	
Attitudinal survey on climate change	Survey, Project report	Share results	Government policy and decision-makers	Once – end of project
and emergency management in NS	Report available on website		General public	
Issue papers and Fact sheets – Infrastructure and Dykelands	Plain language Issue papers and fact sheets – website; printed for conference/events, within dept.	Inform, build capacity	Decision-makers	Once – end of project
	ACASA website		General public	
Case studies – written and video	Plain language written case studies	Inform, build capacity	Decision-makers	Once – end of project
	Multimedia case studies		General public	
		1		T
	Keynote addresses, presentations, workshops	Inform, build capacity	Government policy and decision-makers	Once – near end of project
NS ACAS Conference	Distribution through email, networks	Share results, lessons		
	Report and evaluation	Build capacity		
	Videotaping for ACAS website			

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
	Quarterly publication	Share information	Partners and stakeholders	Quarterly
NS ACAS Newsletters	ACASA website	Build capacity		
	Email distribution list			
ACASA website	Repository of all ACAS information and products	Share results	Stakeholders	Ongoing
RAC workspace	Reports	Share results	RAC adaptation practitioners	Ongoing
in te workspace	Events	Exchange information		
NS ACAS Steering Committee	Meeting	Early on SC helped develop workplan Now a venue for sharing results and updates	NS partners and stakeholders	At least once per year – more often earlier
ACASA Steering Committee	As above		Atlantic stakeholders	

#### **Province: Prince Edward Island**

#### Completed by: Erin Taylor

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
	Report on ACAS website, PEI government website		Government (local, provincial, federal)	available now
Development of Climate Change Scenarios for PEI and	Presentations	provides reasonable scenarios for the future upon which communities	Professionals (Engineers / Planners)	several per year
NS Communities		/ governments can plan	Watershed Groups	upon request
	Media Interviews		General Public	
		information on past events is used to provide context for future changes (i.e. 2050 storm surge scenarios is bigger than the storm in	Government (local, provincial, federal)	available now
Extreme Weather Events	Spreadsheet on ACAS website		Watershed Groups	
	Spreadsheet on ACAS website		General Public	
		mm/yy		
Measuring Extreme Flooding Events (High Water Marks)	Report on ACAS website	information on past events is used to provide context for future	Government (local, provincial, federal)	available now
	GPS data	changes (i.e. 2050 storm surge scenarios is bigger than the storm in	Watershed Groups	available now
		mm/yy	General Public	

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
Coastal Change at the	Report on ACAS website / PEI Government website	case study of coastal change, provide some context to how we can accommodate future coastal change	Local Government	available now
Summerside Rifle Range	Public Display		Historical Society	Summerside Boardwalk
	Presentation		General Public	once
Coastal Erosion and Shoreline Classification in the	Report on ACAS website / PEI Government website	case study of coastal change, coastal monitoring, provide some context to how the Town of Stratford can accommodate future coastal change	Local Government	available now
Town of Stratford			General Public	
			Academia	
	Report on ACAS website / PEI Government website	describes geology of our shoreline and how this affects our vulnerability to erosion and flooding	Government (local, provincial, federal)	available now
Shoreline Classification in Prince Edward Island	Maps (GIS)		Professionals (Engineers / Planners)	available now
	Presentation		Watershed Groups	several times
			General Public	

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
Erosion Mapping	Several Reports	rates of erosion were updated for the entire Island, information will be used in development and planning, assessing current and future vulnerability	Government (local, provincial, federal)	available soon
	Maps (GIS)		Professionals (Engineers / Planners)	upon request
	Aerial Images		Watershed Groups	upon request
	Presentation		General Public	several times
Coastal Flood Risk Mapping	Report	visualize climate change scenarios to enable community and provincial planning	Government (local, provincial, federal)	Summer – Fall 2012
	Maps (GIS)		Professionals (Engineers / Planners)	ongoing
	Presentation		Watershed Groups	several times
			General Public	
		1		
Stormwater Drainage and Flooding Assessment in the Town of Stratford	Report	case study of how climate change scenarios can be incorporated into stormwater management plan	Local Government	Winter 2012
			General Public	

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
Flood Risk Mapping in the Hillsborough River Watershed	Report	develop models and visualize flood risk to enable better provincial planning (maintenance of infrastructure, design standards, etc.)	Provincial Government	Winter 2012
	Maps (GIS)		Professionals (Engineers / Planners)	Winter 2012
	Presentation		Watershed Groups	Winter - Spring 2012
			General Public	
Updating Rainfall Intensity Duration (IDF) Frequency Curves	Report	provide up-to-date information on rainfall intensity in order to properly design infrastructure now and in the future	Government (local, provincial, federal)	Winter 2012
	Rainfall Statistics		Professionals (Engineers / Planners)	Winter 2012
Community Vulnerability Assessment	Report	case studies (4) detailing how communities can assess their vulnerability to climate change	Government (local, provincial)	Winter 2012
	Community Meetings		General Public	ongoing
	Presentation		Watershed Groups	ongoing
	Maps			ongoing

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
Saltwater Intrusion into Groundwater in Summerside and Lennox Island	Report	case studies (2) of how communities can assess vulnerability to saltwater intrusion	Government (local, provincial, federal)	Winter 2012
	Model / Maps (GIS)		Professionals (Engineers / Planners)	Winter 2012
	Presentation		Watershed Groups	ongoing
			General Public	
Issue Papers (Regional)	Summaries on Climate Change Issues (4)	provides readers with a basic understanding of coastal flooding, erosion, shoreline protection and saltwater intrusion	Government (local, provincial, federal)	Winter 2012
	Fact Sheets on Climate Change Issues (4)		Professionals (Engineers / Planners)	Winter 2012
			Watershed Groups	
			General Public	
PEI Conference	Presentations	share information gathered that could help decision makers adapt to climate change	Government (local, provincial, federal)	Spring 2012
			Professionals (Engineers / Planners)	
			Watershed Groups	
			General Public	

Project/Initiative	Current Knowledge Transfer or Communication Methods (how is information currently being shared e.g. report, conference, ACAS website, case study, media- articles/interviews, ACC Community of Practice, community meetings)	Purpose (why is the information being shared i.e. share results, share lessons learned, share process, build capacity/skills)	Target (who is the information being shared with e.g. stakeholders, partners, general public, policy makers)	Frequency or Timing
Municipal Training	Training Modules	share municipality specific information on assessing their vulnerability to climate change	Local Government	Spring 2012

### APPENDIX B

#### References

### References

- Birch Hill GeoSolutions. (2010). *Climate Change Adaptations for Land Use Planners*. Retrieved from Natural Resources Canada <u>http://www.nrcan.gc.ca/earth-sciences/projdb/index\_e.php?class=7</u>
- Institute for Work & Health (2012). From Research To Practice: A Knowledge Transfer Guide webinar. Retrieved from <u>http://www.chnet-</u> <u>works.ca/index.php?option=com\_phocadownload&view=category&id=20%3Afir</u> <u>eside-chat-presentations-2012&Itemid=13&lang=en&limitstart=20</u>

Marine Ecosystem Evolution in a Changing Environment (2009). MEECE Knowledge Transfer Strategy 2009. Retrieved from <u>www.**meece**.eu/kt/docs/KT</u> Strategy May10.pdf

Wheatley, M. (2007). Community of Practice Overview in Lusk E and Harris M. SHRTN Collaborative Community of Practice Orientation Guide. SHRTN Collaborative (a partnership between the Senior's Health Research Transfer Network, the Alzheimer Knowledge Exchange and the Ontario Research Coalition). Canada; 2010. Retrieved from http://beta.shrtn.on.ca/resources/244