



Infrastructure, Adaptation and Risk Management

2019 Technical Session of the
Chignecto Climate Change Collaborative

February 12, 2019 (February 14 storm date)
Tantramar Veterans Memorial Centre
182 Main St. Sackville, NB

Workshop Report
By EOS Eco-Energy
February 14th, 2019

Background

This year the working group of the Tantramar Climate Change Adaptation Collaborative decided to change the Collaborative's name to better reflect the region that it covers which is from Cumberland County to Memramcook, or the Chignecto Isthmus area. Thus, we are now called the Chignecto Climate Change Collaborative (CCCC).

EOS Eco-Energy coordinates the Chignecto Climate Change Collaborative. This is the 7th annual workshop for the Collaborative. The Collaborative is a network of over 90 people working on adaptation issues and projects in the Chignecto area. Its main role is to (1) provide networking opportunities, (2) education for members and the wider public and (3) to advance a regional adaptation plan first created by the Collaborative in 2012-2013.

The working group began planning this year's workshop in summer 2018. There was a desire to focus on local research, new infrastructure projects in the region and risk management challenges including managed coastal retreat. An internal discussion among experts in the network would enable us to start to wrap our heads around the opportunities and challenges that come with retreat or relocation and to begin to understand how we could talk to the public about these issues. Appropriate speakers were lined up and a discussion on retreat and relocation was designed. The workshop took place Tuesday, February 12th, 2019 at the Tantramar Civic Centre in Sackville, NB. Funding for the workshop was provided by the New Brunswick Environmental Trust Fund and the venue was provided by the Town of Sackville.

Welcome and Introductions

Collaborative working group member, Andrew Fisher with the Town of Amherst was the master of ceremonies for the workshop. He began by pausing to acknowledge that the workshop was taking place on the traditional and unceded territory of the Mi'kmaq people. Round table introductions were made. Forty-two people participated and represented a wide variety of organizations including local non-profits, municipal governments in the border region, provincial governments (environment, agriculture), First Nations organizations, local service districts, Parks Canada, emergency measures organizations, planners and local service commissions, and universities including Mount Allison, UPEI, and U de Moncton. The full list of participants is included at the end of this workshop report.

Presentations

Presentations focused on provincial updates with regards to adaptation activities, flood emergency response, local infrastructure and risk reduction projects, the dykes and public education related to retreat/relocation.

New Brunswick Climate Adaptation Updates (Rob Capozzi, GNB)

Information shared included updates on the provincial climate action plan called *Transitioning to a Low Carbon Economy*. The role of the NB Climate Change Secretariat was explained and includes supporting non-profits in adaptation efforts, municipal adaptation plans and connecting to national efforts such as setting up regional climate change centres. The provincial government is focusing on creating a natural infrastructure community of practice, building capacity for private woodlot owners, and engineering professionals. It was also reported that inland flood hazard mapping will be completed by 2020.

NS Climate Change Adaptation Progress Update (Jen Graham, GNS)

The Nova Scotia update included information on their Climate Adaptation Leadership program for government departments and some external stakeholders such as hospitals, the wine industry, First Nations, Parks Canada, etc. Their climate action plan was created in 2009. Information was also provided on some of the government's adaptation projects including the Truro-Onslow dyke re-alignment project, grape and wine suitability maps, dyke standards tools, Nova Scotia coastal Protection legislation, and NS flood map guidelines project.

Spring 2018 Saint John River Freshet Recovery Program (Roger Pitre, NB EMO)

Experiences and lessons learned from the flood on the Saint John River were shared. It was explained that recovery plans are focused on safely returning people to their homes. Complimentary services provided to homeowners during a food response include: reconnecting electrical, electrical permits, well water testing, pick up of flood debris, etc. The Disaster Financial Assistance (DFA) program was explained. For the Saint John flood there were nearly 5000 houses impacted by the flooding, 2228 cottages, 1250 other buildings. 1183 disaster financial assistance applications were made. And most stunning of all perhaps is that 6352 tonnes of debris was taken to the landfills. It was also explained that when a damage assessment is more than 80% of the assessed value of a building, a buyout is offered. It was also interesting to note that the cost for the DFA program is increasing. In 1990-1998 \$27.3 million was spent on disaster recovery activities. In 2000-2009 it was \$50 million and in 2010-2018 it was \$196,000. Mitigation activities are well worth the cost and include things such as elevating buildings, elevating or eliminating oil furnaces, elevating hot water heaters and electrical panels, installing weeping tiles, sump pumps, backflow valves, etc.



Roger Pitre with NB EMO explains the facts of the spring 2018 Saint John River flood recovery. Photo: A. Marlin

Town of Sackville: Taking Climate Change Seriously (Jamie Burke & Dwayne Acton, Town of Sackville)

Town of Sackville staff spoke about their highway closure procedures. The Trans-Canada Highway goes by Sackville and due to the high winds and winter storms that occur in the open marshes, there is the need to safely and securely close the highway and direct people into town. Solar signs are on the highway that will announce closures. People are then directed to the Tantramar Civic Centre as it is the town's warming centre. It however, does not have a backup generator. Money is being budgeted for one to be installed by 2020-2021. It is estimated to cost \$500,000. The Town is also adapting to flooding with a stormwater mitigation project in the Lorne St. area. Phase one of the project involved new culverts, sewer pipes and drainage ditches. Phase two has begun and includes a stormwater retention pond and a ditch to a new aboiteau. This project is still only a short-term option. Additional longer-term options include creating a retention pond higher up in the watershed in the former town quarry and additional aboiteau and dyke work.

Strategic Dyke Management Plans are Needed – and the Clock is Ticking (Jeff Ollerhead, Mount Allison)

It was stressed that our dykes need constant maintenance. There are various options including widening and raising dykes, shortening or realigning them, removing dykes and restoring salt marshes. Salt marshes have many benefits including absorbing wave action, and sequestering carbon. The “do nothing” option will be far more expensive than the “do something” option. Salt marsh restoration projects have been done in the area by Fort Beausejour. The old dyke has completely disappeared in 10 years. Dykes require constant and costly maintenance. Local organizations including Mount Allison University have been looking at these issues for many years. A study and workshop from 2006 on sea level rise and adaptation was noted.

Lessons Learned from Sea Level Rise Education in Advocate Harbour, NS (Mike Johnson, Cumberland County EMO)

A short history of Advocate was given. The community has a population of 200 permanent residents and is focused on fishing and tourism. The Advocate flood risk study was summarized. It was found that retreating and moving buildings would cost less than raising the dykes. And that retreating now would cost less than in the future with additional sea level rise. But cost is not the only factor. There needs to be political willingness and the public needs to be supportive. When the information was presented, there was an emotional backlash from the community. The public reacted strongly and negatively to the shocking information and the prospect of moving from their homes. People do not want to move. So recommendations for next steps include: public education, implementing a water level measuring device, engaging the government, NGOs and community to talk about risks, and implementing an early warning flood advisory system. In the short-term one option is to raise the dykes but it is not a long-term solution. The long-term solution remains retreating from the coast.



Participants discuss how they are feeling about retreat and relocation. Photo: A. Marlin

Discussion

The discussion was led by Raissa Marks of the New Brunswick Environmental Network. It flowed from the morning's presentations focusing on risk management and coastal retreat. The discussion included five questions.

1. How are you feeling about retreat/relocation?

Participants shared their feelings. Here is what some of the said:

- *I know the risks and I am still preparing to build my dream house on the coast. We have brought in 300 loads of fill to build it on a raised area. It will be able to be lifted in the future if needed. I've worked all my life to be able to build this dream house on the beach. I will fight to the death to be able to do it.*
- *I am curious about things like doing a land swap where people get to move to higher ground but can still use their property until it is permanently flooded.*
- *I live on a coastal road that floods. We live on my husband's property that has been the family home place for 150 years. There won't be enough money to get him to leave.*
- *It's an affair of the heart. My family has lived in our house for 6 generations. It's an emotional thing.*
- *On the tax payer side, it is and will cost us money to respond to flood events, to rescue people, to clean up, etc. Why are people allowed to build in known flood areas?*
- *I lived in New Orleans and now I live in another flood prone town. I can't bring myself to get attached to my home. I feel I am lacking richness in my life, but I can't bring myself to get attached anymore.*
- *I know about Indian Island in Prince Edward Island. They have built a dyke around their community, but the road out gets flooded. They are trapped.*
- *I am really pissed off that the government allows development in flood areas still.*
- *I know that expropriation is not a good way to do things.*

2. What are the challenges involved with coastal retreat?

Participants discussed challenges in small groups and reported:

- Whose responsibility is it to pay for retreat? Who will actually pay for it? Individually or collectively?
- Retreat will be costly; money will be a challenge.
- Social acceptability is a huge challenge. Education is needed.
- Political buy-in at all levels.
- Bureaucrats need to pressure government more.
- Politicians have a hard time thinking about more than four years, which is not enough time.
- Challenges with moving infrastructure (Trans-Canada Highway, etc).
- Sewage lagoons need to be in lower lying areas so that sewage can flow down hill.
- Land availability to move to. Some municipalities have a small land area. Jurisdictional issues.
- What will happen to abandoned buildings?
- We need to change our vocabulary. There are no permanent solutions but rather different approaches to reduce risk.
- CN is a challenge.
- Will need to rehabilitate the vacant properties and return them to nature.
- Emotional reactions.
- Lack of public awareness of the risks associated with climate change.
- Disaster relief funding is sending the wrong message.
- Lack of a plan or road map on how to move forward with retreat. How do we retreat?

3. What are the opportunities that could come with retreat?

This question was harder to answer but participants said:

- Carbon sinks could be created from reclaimed land, could lead to carbon credits.
- Increase natural areas and conservation areas and value their ecological services.
- We may rethink how we value rural and urban lands and rethink attachment to land.
- We will be able to plan communities better and be proactive.
- There could be economic benefits and cost savings to be had if we relocate sooner than later.
- Opportunities in construction and demolition and infrastructure jobs.
- Our location on the Chignecto Isthmus has national significance so hopefully that will bring attention and funding.
- There is also piece of mind knowing my family will be safe from flooding if we relocate inland.

- Opportunities for new recreational /natural spaces and amenities along the coast.
- Value of higher land may increase, could be a selling opportunity for landowners.
- Safer communities and increased quality of life.
- Retreating needs to go hand in hand with emission reduction actions (plan more eco friendly communities).
- Requires long-term thinking.
- Demographic shifts present opportunities for relocating.

4. What is the role of the Collaborative in the retreat process?

This was a discussion with all participants. Ideas included:

- Education for collaborative members so we are all using the same language (retreat or relocation, short term options and long-term solutions, or approaches to reduce risk, etc.).
- Public education.
- Help communities go through the stages of grief associated with relocating.
- Be a group that champions approaches that reduce risk.
- Include social scientists like Kate Sherren (Dalhousie University) to help educate the collaborative on issues of attachment to land and the grief process and how to approach communities.
- Include counsellors and mental health experts in the Collaborative.
- The Collaborative needs to use its network to demand action from the government.
- Municipal staff need to push their councils to act.
- We need to influence a stop to development in flood risk areas.
- The role of the Collaborative can be to link groups with local experts (for research, expertise, presentations, etc).
- Some professionals within the Collaborative also have ethical responsibilities to provide information such as planners, municipal councilors and engineers.
- Understand approaches from other places.
- The Collaborative could work toward getting provincial statements of interest regarding climate change.
- Help municipal councilors approach the topic.
- Rules are too soft and not uniform across the region and provinces.
- We have a coastal policy in New Brunswick but it has never become legislation.
- What legal tools exist and what is still needed?

5. What are the next steps for the Collaborative?

- The working group will look at all the ideas and actions and decide how to move forward.
- Perhaps create some subcommittees such as a legislative committee, an advocacy committee.
- Due to the funding through EOS, the Collaborative cannot advocate but individuals and certain member organizations can. We could use our network to allow partners to advocate when needed.
-



Workshop discussion on challenges and opportunities for retreat. Photo: A. Marlin

Wrap up

Sabine Dietz with Aster Group and a member of the Collaborative's working group provided a wrap up and final comments on the day. She summarized the workshops and the discussion. Some of the main take-aways were that New Brunswick has some great climate adaptation tools but needs more teeth in its legislation; Nova Scotia is using a different approach to adaptation than New Brunswick; adaptation is costly; we need a plan for the dykes; it was great to have an honest discussion of the challenges and experiences in Advocate; it's really important to talk about things like retreat and relocation; we're still building in flood zones; and things are complicated but there is a lot that the Collaborative can do.

Evaluations

Forty-two people participated in the workshop and 21 filled in an evaluation form. Nineteen rated the event as a 4 or 5 out of 5 overall and two rated it a 3/5 overall. Thirteen said they now knew more about adaptation and risk management than before attending the workshop. And four said they were now more likely to engage in adaptation projects but the rest were already highly engaged to begin with. Some of the things that participants found most interesting about the workshop were:

- The retreat discussion
- The Advocate Harbour presentation and the community engagement process
- The amount of information shared and all that is being done
- Statistics on the Saint John River flood
- Provincial agencies availability to guide projects
- Discussion on impacts
- The appetite for all to advocate for regulations is refreshing
- The stormwater project
- The cost of relocation versus staying

Participants planned to use what they learned in various ways including:

- Ways to include adaptation in my work
- Educating others and incorporate appropriate language and ideas
- To build relationships and future projects
- I will talk to fellow councilors
- Encourage conversation to lobby for more legislation
- To enhance planning
- Push for laws about not building in flood plains
- Talk about relocation and research it
- Find ways to influence policy
- Talk to DTI regarding the dykes
- Keep making improvements

This year EOS had a focus on mental health related to climate change impacts. The evaluation forms asked if participants felt more or less at ease after participating in the workshop. Four people said they were more at ease. Some of the reasons were because they got to see everything that is being done, because of the information shared, and all the people that are engaged. Seven people said they feel the same still. One reason given is because they already knew a lot about the issues. One person said that despite still feeling the same level of stress he/she liked being in a room full of "doers". Three people said they now feel less at ease. One person said it is because of realizing how challenging it will be to instill change and to move away from vulnerable areas. One person also that he/she feels a bit of both – more and less at ease because the reality is stark, but I know I can talk about it and get help. Six people did not answer the question.

Participants were also asked what other sorts of programs and events they would like EOS (and the Collaborative) to offer:

- More Collaborative meetings to keep the progress moving forward
- More about the values of forests and marshlands; perhaps with CFI
- Social science expertise and agriculture planning
- Workshops for the community
- Climate change grief/stress/anxiety workshops
- Workshop on communications skills for dealing with the public and their grief
- Rain gardens, 72 hour kits, draft-proofing parties, etc. (more of the same)
- More on risk management
- More networking opportunities
- More on infrastructure

Participants

Adam	Cheeseman	Nature NB
Adam	Campbell	DUC
Alice	Cotton	GNB (MLA's office)
Amanda	Marlin	EOS Eco-Energy
Andrew	Fisher	Town of Amherst
Bill	Evans	Town of Sackville
Bob	Robichaud	Environment Canada
Cheryl	Ward	Spokesperson, Sackville Parish LSD Committee
Craig	Bowser	Sackville EMO
Dan	Matthews	Dorchester EMO
Don	Fletcher	Cumberland County
Dwayne	Acton	Sackville
Émilie	Godbout-Beaulieu	Chaire K.-C.-Irving en sciences de l'environnement et développement durable, Univ de Monton
Eric	Tremblay	Parks Canada
Gary	Gilbert	Nova Scotia Government, aboiteau superintendent, Nappan
Jackie	Johnson	Member, Sackville Parish LSD Committee
James	Bornemann	RSC
Jamie	Burke	Sackville
Jeff	Ollerhead	MTA
Jen	Graham	Nova Scotia Government
Karel	Allard	Environment Canada
Kelli-Nicole	Croucher	EOS Eco-Energy
Maurice	Landry	Parks Canada
Megan	Mitton	MLA for Memramcook-Tantramar
Mike	LeBlanc	GNB
Mike	Johnson	Cumberland County EMO
Nic	McLellan	DUC
Phil	Fontaine	NBEMO

Raissa	Marks	NBEN
Rob	Capozi	GNB
Roger	Pitre	NB EMO
Roger	Gouchie	Chair, Sackville Parish LSD Committee
Roland	Chiasson	Aster Group
Ron	Aiken	Town of Sackville
Sabine	Dietz	Aster Group
Sasha	Wood	GNB
Stephanie	Arnold	UPEI/ CLIVE
Stuart	Gliby	MTI
Surabhi	Sheth	NBEN
Terry	Murphy	Port Elgin EMO
Tracey	Wade	RSC
Zaheera	Denath	NBEN