Building Resilient Communities Workshop Report

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Abstract

The Building Resilient Communities Workshop, February 25-26, 2014 was hosted and organized by the Justice Institute of British Columbia (JIBC), with the support of the Emergency Management British Columbia (EMBC) and the Canadian Safety and Security Program (CSSP), Defence Research and Development Canada (DRDC) Centre for Security Science (CSS).

Thirty-four participants from multiple levels of government, senior practitioners, policy makers, academia, community members and a variety of agencies disseminated knowledge and developed concrete strategies and priority actions areas for supporting ongoing and emerging initiatives in community and disaster resilience planning. Participants also heard reports on CRHNet Aboriginal Resiliency Report Update and provided a forum for a Value Based Focus Group for the Community Resilience Community of Practice.

Identified strategies included development of an integrated national strategy and finding ongoing sustainability funding; increasing community engagement through information sharing, giving context specific examples of anticipated outcomes, and demonstrating return on investment; as well as the need to engage and support local champions and embedding disaster resilience within other processes. A key message was that communities should be encouraged to use ANY tool or process, rather than struggling to find the perfect. Any engagement with disaster resilience planning increases community resilience.

Significance for Defence and Security

The workshop contributed to the CSSP Outcome: Strong Communities: Canada's communities are prepared for and resilient to emergency events and violent extremism through risk and evidence based assessments, new technological capabilities, and sociological analyses. The project brought together experts and stakeholders to seek ways to extend and leverage existing and future disaster resilience planning projects and initiatives.

Résumé

Les 25 et 26 février 2014 a eu lieu l'atelier « Bâtir des communautés résilientes ». L'événement était tenu et organisé par la Justice Institute of British Columbia (JIBC) [l'Institut de justice de la Colombie-Britannique] en collaboration avec l'organisme Emergency Management British Columbia (EMBC) [Gestion des urgences Colombie-Britannique], le Programme canadien pour la sûreté et la sécurité (PCSS) et Recherche et développement pour la défense Canada – Centre des sciences pour la sécurité (RDDC CSS).

Trente-quatre participants – parmi eux des représentants de différents paliers de gouvernement, des spécialistes, des décideurs, des universitaires, des membres de la communauté et des représentants de diverses agences – se sont rencontrés pour échanger leurs connaissances et établir des stratégies concrètes et cerner les domaines d'action prioritaires afin d'appuyer les initiatives actuelles et nouvelles de planification de la résilience communautaire relativement aux catastrophes. Ils ont également entendu des comptes rendus de la mise à jour du rapport du RCERD sur la résilience des communautés autochtones. L'événement a aussi donné une tribune pour un groupe de discussion axé sur les valeurs pour la communauté de praticiens spécialisés dans la résilience communautaire.

Les participants se sont notamment entendus pour que soit élaborée une stratégie nationale intégrée et pour que l'on cherche à obtenir une source de financement durable. On cherchera à accroître l'engagement communautaire grâce à l'échange d'informations, en donnant des exemples contextuels des résultats anticipés et en démontrant le rendement du capital investi. On fera aussi valoir la nécessité de désigner et d'appuyer des champions locaux, et d'intégrer la résilience relativement aux catastrophes à d'autres processus. L'un des points importants ressortis des discussions est que l'on devrait encourager les communautés à employer tous les outils et les méthodes à leur portée plutôt que de chercher la solution parfaite. Toute mesure de résilience par rapport aux catastrophes concourt au renforcement de la résilience communautaire.

Importance pour la défense et la sécurité

Cet atelier a contribué à la poursuite de l'objectif du PCSS suivant : *Communautés solides : les communautés canadiennes sont préparées aux situations d'urgence et aux actes de violence causés par des extrémistes au moyen d'évaluations fondées sur les risques et les données probantes, de nouvelles capacités technologiques et d'analyses sociologiques*. Il a réuni des experts et des intervenants dans le but de chercher des moyens de tirer parti et de développer les initiatives actuelles et futures de planification de la résilience par rapport aux catastrophes.

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1 Introduction

1.1 Workshop Context and Background

Building disaster resilience across all phases of a disaster from planning, response to recovery is the cornerstone of effective emergency management (Murphy et al, 2014). Resilience allows for increased capacity to absorb a shock to the system (such as a disaster) without disrupting structure and function (Walker and Salt, 2006, xiii), requiring adequate preparation and planning prior to any disturbance. Community resilience is the "existence, development and engagement of community resources by community members to thrive in an environment characterized by change, uncertainty, unpredictability and surprise" (Magis, 2010, p. 401). Community strengths that appear to most contribute to resilience are: strong people-place connections; deep values and beliefs; continuously improving knowledge, skills and learning; extensive social networks; engaged, collaborative governance; a diverse and innovative economy; robust community infrastructure; active leadership; and a positive outlook that embraces readiness for change (Berkes & Ross, 2013).

A resilient community is able "to respond to unexpected and unwelcomed events in ways that enable groups and individuals to work together to minimize the adverse consequences of such crises" (Ozawa, 2012, p19). The process of building resilient communities requires the community to work together to identify community capacity (and people associated with strengths), and to foster a collaborative environment where community cohesion is strengthened while working collectively on practical and achievable projects to build on the communities strengths. "Planning for resilience is enhanced when local communities are empowered to be actively involved in the planning process and when broader structures and regulations contribute to, and support, resilience efforts" (Murphy et al., 2014). Through this process people with diverse skills and knowledge can "learn to recognize shared vulnerabilities and entrust each other to compose innovative responses together, using their differences in knowledge and experience as a resource" (Zellner et al., 2012, p. 44).

While disaster and community resilience planning is well established as important for maintaining economic viability and critical infrastructure in the face of natural and human-caused disasters, multiple initiatives have been undertaken to build community resilience, including the development of a variety of resources and tools. Despite ongoing activity, uptake is uneven. Stakeholders need to better understand what is available and what is in development with a need to identify potential partnerships, cooperation and synergy between projects.

1.2 Goal and Objectives

The overall goal of this workshop was to bring together key stakeholders to disseminate knowledge and develop concrete strategies and action for supporting ongoing and emerging initiatives in community and disaster resilience planning. The objectives were to:

- Discuss current and emerging trends affecting the uptake or engagement of Canadian communities in disaster resilience planning;
- Identify and provide an update on specific and potential resilience-related projects and initiatives;
- Identify enablers and constraints of existing and potential projects;
- Recommend strategies for engaging Canadian urban, rural, and Aboriginal communities in disaster resilience activities;
- Build synergy between groups and projects working on community resilience and disaster resilience.

1.3 Deliverables

The workshop deliverables, included in this report, were:

- Summary of selected disaster resilience projects and community experiences;
- List of enablers and constraints for these projects;
- List of "gaps" (constraints) on further engagement in disaster resilience planning by Canadian communities;
- Prioritized list of strategies for engaging Canadian communities in disaster resilience planning;
- Gaps and recommendations; and,
- Next steps.

2 Workshop structure and activities

The Building Community Resilience Workshop was held February 25-26th, 2014 at the Dr. Donald B. Rix Public Safety, Simulation Building, Justice Institute of British Columbia, New Westminster, BC. Thirty-four participants attended the Workshop from across Canada, many from British Columbia. Stakeholders included those from aboriginal, rural and urban communities, representatives from federal, provincial and regional government, and private industry. Participants attended from multiple levels of government, senior practitioners, policy makers, academia, community members and a variety of agencies. Please refer to Appendix A for complete list of workshop participants.

Participants in the Building Resilient Communities Workshop engaged in two days of interactive dialogue. Participants presented on and examined current practices and existing disaster resilience tools and identified enablers and constraints on community participation in disaster resilience planning. Overarching themes from this discussion were used to identify priorities and specific action areas for fostering awareness and encouraging uptake of existing and emerging projects. The results of the Workshop are documented in this report.

2.1 Agenda

The workshop was conducted over a two-day period. Please refer to Appendix B for the full workshop agenda.

Table 1: *Workshop Agenda.*

Agenda – Day One	Agenda – Day Two
• Welcome • Orientation and Expected Outcomes • Introductions • Developer and Community Presentations • Distill Discussion Themes Activity • Wrap Up • Value Based Focus Group for Community Resilience CoP	• Welcome • CHRNet Aboriginal Resiliency Report Update • Discussion of Day 1 Themes • Implications and Strategies to Increase Community Uptake • Prioritize and Validate Priority Areas • Discussion of OUR Next Steps

2.2 List of Projects and communities

The initial activity in the workshop consisted of a series of presentations from developers and communities who were involved in disaster resilience projects. Presentations were given by the following projects and communities:

Table 2: *Workshop presentations.*

Project and/or Tools	Communities
Community-Wide Hazard Risk Management Planning	Nanaimo, British Columbia
UN Getting My City Ready	Metchosin, British Columbia
Critical Infrastructure Assessment	Delta, British Columbia
Community Resilience Architectural Framework	Pemberton, British Columbia Squamish Lillooet Regional District, British Columbia
Hazus: A Loss Estimation Method for Disaster Risk Reduction in Canada	North Shore Vancouver, British Columbia District of North Vancouver, British Columbia
Land Use Planning Guide	
Rural Disaster Resiliency Project	Lion's Head, Ontario Whati, North West Territories

Please refer to Appendix C to review case studies based on the presentations.

2.3 Methods

The workshop process was designed to guide participants from an analysis of presentations through identification of trends and issues to the development of strategies for increasing community up take of disaster resilience planning. Participants worked in groups to identify enablers and constraints to disaster resilience planning in communities through a series of presentations from disaster resilience researcher and tool developers and community experience. The groups then reviewed, discussed, and distilled the enablers and constraints into a series of discussion themes. Participants next validated these themes, and then engaged in an exercise to identify implications and generate potential strategies for increasing uptake of disaster resilience planning at the community level. Participants prioritized the strategies that they felt would be most effective. The debriefing of this exercise was used to identify trends and themes in the strategies. The final activities were designed to review, validate, and extend the discussions and findings of the workshop. Participants reviewed summaries of the workshop activities and used this to identify next steps in developing a strategy for future activity.

The workshop consisted of a series of structured activities:

- Identification of Enablers and Constraints to Community Engagement in Disaster Resilience Planning
- Distillation of Discussion Themes
- Exploration of Implications and Strategies

- Strategy Prioritization
- Identification of Gaps and Articulation of the Next Steps

In addition, participants engaged in supplementary presentations on related topics:

- Value Based Focus Group for Community Resilience CoP (Please refer to Appendix I for more information.)
- CHRNet Aboriginal Resiliency Report Update. (Please refer to Appendix J for report executive summary.)

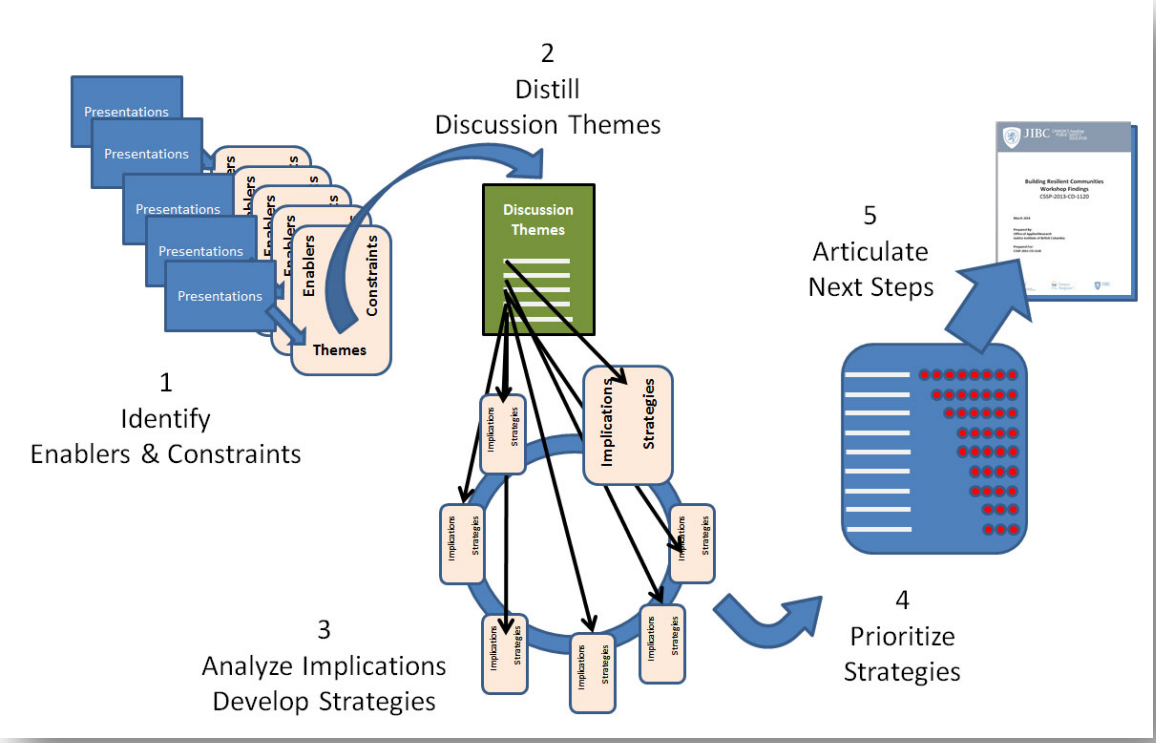

Figure 1: *Workshop process and activities.*

2.3.1 Activity 1: Presentations and identification of enablers and constraints

The goal of this activity was to identify enablers and constraints on community participation in disaster resilience planning activities. Each project represented at the workshop was allotted time for two presentations, one from the developers and one from the communities. Each presentation was based on a set of structured questions:

- What is your project?
- What communities would be most likely to use your tool?
- What is the status of your project (e.g. in progress, in development, complete)?

- What was supposed to happen?
- What actually happened?
- What went well and why?
- What can be improved and how?

The remaining participants worked in groups to review and analyze the presentations, then identify enablers, constraints, and discussion points. Participants then categorized the enablers and constraints for each project, then, finally, identified cross-cutting themes that emerged over all the presentations they viewed.

2.3.2 Activity 2: Inductive analysis to develop discussion themes

The workshop co-investigators then performed an inductive thematic analysis to identify a series of overarching themes that became the starting point for the next activity.

2.3.3 Activity 3: "Carousel" exercise to analyze implications and develop strategies

The workshop facilitator gave an overview and explanation on the series of overarching themes developed in Activity 1. Stations were created for each discussion theme with separate flip charts labelled "key points," "implications," and "strategies." New groups were formed and each group was assigned to start with a particular theme. The groups were asked to have a short discussion about the theme in relationship to increasing community uptake of disaster resilience planning, and then to identify, on the flip charts, any key discussion points, implications of the theme and strategies for increasing community uptake. The groups then rotated to the next theme, reviewed the previous group(s) contributions, and then added their own ideas. The groups continued to "carousel" in rotation through all themes in the activity.

2.3.4 Activity 4: "Dotmocracy" to prioritize strategies

The goal of this activity was to identify priorities for future action using a "dotmocracy" exercise. Each participant was given 12 "dots" or coloured stickers. The participants were encouraged to join with two people that they had not previously worked with in the workshop, review and discuss all of the strategies listed. After reviewing the strategies, participants identified the 12 priorities that they felt would have the most value in increasing uptake of community disaster resilience planning.

2.3.5 Activity 5: Next steps

The final activities in the workshop involved a large-group debrief of the prioritization activity, identification of gaps or missing discussion points, and next steps. These key concepts from these facilitated discussions were captured by the workshop recorder and analyzed post-workshop.

3 Results

The workshop generated a substantial amount of data which is summarized below and explored in the Analysis section. Summaries of the activities and their results are presented in this section, followed by definitions, discussion that emerged from these findings, and analysis obtained by relating the findings to the core objectives of the workshop. The goal of this analysis is a better understanding of how we can support the development of disaster resilience in Canadian communities.

Note that activities, and hence the presentation of findings in this workshop were designed to generate ideas and discussion which were then applied in subsequent analysis. The iterative and "building-block" nature of this format leads to some repetition of content and discussion. This repetition, however, both provides context and serves as the starting point for subsequent discussion.

3.1 Enablers, constraints, and overarching themes

The initial presentations and subsequent group activity identified lists of enablers and constraints for community engagement with the projects presented in this workshop. The participants then worked in groups to identify common themes across the various projects. The Workshop Co-Investigators then used an inductive process to identify 8 overarching themes from the data.

The goal of the first activities in the workshop was to have participants analyze each other's presentations and projects to identify common enablers and constraints of community-based initiatives. The participants' data was grouped together and inductively analyzed by the workshop co-investigators. The resulting "overarching themes" form a series of lenses through which to examine what factors encourage or impede communities in engaging in disaster resilience planning.

Please refer Appendix D to view specific enablers and constraints identified for each project.

The following is the list of Themes that emerged from exploration and discussion across all projects.

- Language and terminology: "What do you mean by that?"
- Engagement and buy-in: "Why should we get involved?"
- Resources, timing, and money
- The bigger picture and holistic thinking: "How does this fit in with Emergency Management planning and strategies?"
- Champions and experts
- Developing a common understanding: "What are we getting into?"
- Community context counts: "How would WE use this?"
- Sustainability and political will

The following sections explore participants' discussion of these themes.

3.1.1 Language and terminology: "What do you mean by that?"

Community participants across all projects identified language and terminology as a barrier to participation in disaster resilience activities. Participants frequently cited the need for Disaster Resilience personnel to use clear language, to define terms and jargon, and to be consistent in their use of language.

Inconsistent choice of terms and varying definitions across programs was raised as a challenge for communities entering into Disaster Resilience projects. Communities asked that projects use practical, user-friendly terminology and keep concepts and processes as simple and flexible as possible.

3.1.2 Engagement and buy-in: "Why should we get involved?"

Community engagement was noted as key to the success of disaster resilience planning projects. This engagement took several forms. Some communities talked about the difficulty in gaining and maintaining interest in a project. Others noted that successful projects were ones in which broad community buy-in were obtained. Other differentiated between the necessity to get buy in from key personnel in a community to initiate a project and the broader public engagement that the projects fostered. Another stream of conversation occurred around identifying and finding ways to identify and engage vulnerable and less visible populations within a community.

Successful projects were able to engage local and external stakeholders. Relationship building and the creation of partnerships between the community and various levels of government, project teams, and key stakeholders were identified as key tasks.

Another conversation centred on expectation management. Often communities and project teams had very different expectations of the potential outcomes of projects. Project teams noted the importance of exploring community needs and being upfront about what their projects and tools could and could not do for a community. Along with this, several participants noted the importance of being open and addressing the needs and interests of the community - to answer the "what's in it for me" question as a critical element of engaging and obtaining participation in projects.

3.1.3 Resources, timing, and money

The challenges of funding and finding resources were an ongoing thread of conversation throughout the workshop. Communities noted that most disaster resilience processes were complex and took far more time than the community participants had originally anticipated. This was compounded by the challenge of first engaging members of the community or from departments in larger municipalities, and then maintaining their interest and participation for the duration of the project. Several projects noted that community participation often changed during a project and that it was important to build in continuity planning and succession planning within a project.

Projects faced the challenge of balancing complexity and comprehensiveness. Several communities used the example of engaging with the 17 hazards and 44 specific hazards listed in the EMBC Hazard, Risk and Vulnerability Analysis Tool Kit as a daunting starting point for planning. Most communities tend to focus on a few hazards, often those that are associated with recent local events or those highlighted in the media. Project teams at the workshop noted the importance of having communities take a broader look at the range of potential hazards, and in particular, to consider low frequency, high impact events that a community may face. Community participants noted that many projects and processes require substantial amounts of information and that community members may lack the knowledge or capability to find and or generate this data. Others noted that rich data is available for many communities, but again the community teams may lack the awareness or ability to obtain the required information.

As noted above, many community teams found it difficult to recruit and maintain members and to generate interest in participating from the community at large. One community member cited the "STP phenomenon": it's the Same Ten People who are often engaged in a wide range of community initiatives and projects.

Many communities, particularly smaller and rural communities lack fiscal and infrastructure resources required to effectively engage in disaster resilience planning projects. Community participants noted that there are few requirements or incentives to participate in these activities. In addition, the outputs of many processes are lists of strategies and required activities that require further funding. Few of the projects and initiatives examined in the workshop have sustainability or ongoing funding associated with them.

The final resource constraint noted in the discussions involved the need for external subject matter experts (SMEs) to support community efforts. Few communities have personnel (outside community planning and emergency response) that have backgrounds or experience in disaster resilience planning. Project teams noted that, while they were often given the mandate of developing tools and processes that could be run by communities without outside expertise, this was a significant challenge, particularly for processes that also promoted comprehensiveness and adaptability to community context.

3.1.4 The Bigger picture and holistic thinking: "How does this fit in with Emergency Management planning and strategies?"

Several participants noted that communities face two challenges when they decide to engage in disaster resilience planning. Communities noted that the wide range of tools and processes available to choose from are often fragmented and non-complimentary. Project-based participants noted that most of the projects described at the workshop were designed to meet specific needs or address the needs of particular types of communities. Almost all participants noted the need to have a more holistic approach and to situate disaster resilience initiatives within a "bigger picture" of emergency planning. Participants noted that much of the literature and resources available to communities were response oriented and did not address the four Emergency Management (EM) pillars. In addition, the participation of many communities is spurred by emergent issues, such as climate change adaptation or flooding, rather than by more holistic approaches or intent.

There was a common call for projects to look for stronger links to existing processes, integrate with existing plans and systems, and develop strategies that included future growth and activity in the communities.

Participants again noted the importance of clearly identifying a project's scope and outcomes and looking for ways to situate work within a broader perspective. Similarly, projects were encouraged to be more multi-jurisdictional, to be multi-disciplinary in their approach, and to look for ways to enhance interoperability and integration with other EM and Disaster Resilience activities.

3.1.5 Champions and experts

Several project members noted that an explicit goal of their projects was to create processes that could be community-driven with minimal or no external expertise required. However, drawing on the comments above on the complexity and comprehensiveness of the projects along with the challenge of engaging and maintaining community participation, almost all presenters (both developer and community) noted the importance of external facilitators and/or subject matter experts. Many of the tools and processes require specific expertise or require some form of guidance. Community presenters noted that processes are always unfamiliar the first time the team starts to work with them. Thus, to be effective, the processes require either someone who is familiar with the process to facilitate or someone from the community to take the time to become comfortable with it.

A related factor is the need for a strong champion or leader to move the process forward. In some cases, champions emerged from the community who also took on leadership and facilitative roles. In other cases, the community teams required external support and champions. The champions not only kept the process moving, but were instrumental in engaging internal and external stakeholders. Participants in the

workshop also emphasized the champions' role in identifying and including all populations in the community.

3.1.6 Developing a common understanding: "What are we getting into?"

A strong theme in the workshop discussions centered on developing a common understanding of disaster resilience planning in general and the scope and expectations associated with a specific project in particular. As mentioned above, establishing the value proposition ("what's in it for me/us") is critical to engaging both communities and individuals. But the follow on question or "what am I getting into?" is almost as important. Several community groups noted that they had no idea of what was going to be expected of them in terms of time, depth of involvement, or breadth of information and data required. There was a common call to ensure that developers and project personnel were up front about what a tool or process could and couldn't do, and what the outcomes would be. This is particularly important in pilot or research-based projects where outcomes and emergent opportunities (or requirements) may not necessarily be known from the onset.

Similarly, communities commented the need to have project members take ownership of their components of the project, both in participating in the process and in taking away the results for implementation. This was echoed in noting the importance for projects to build relationships and partnerships during the project with the goal of facilitating implementation after the project. Finally, presenters noted that there was often a mismatch between the expectations of the community and the developers. Both developers and community presenters noted that individual projects are only one part of an overall disaster resilience process and that no community will ever achieve "complete resilience." The goal of both individual projects and overall emergency management activity is to have a community's resilience be better than at the start of the project.

3.1.7 Community context counts: "How would WE use this?"

An ongoing challenge for developers is finding the balance between generalizable processes and the need to address the specific needs and context of individual communities. Community context was seen as a critical element in engaging communities. In particular, developers and project teams were encouraged to look to the communities to identify specific needs and considerations and to identify at-risk and vulnerable populations. In addition, each community faces unique blends of hazards, risk, and resilience. Processes that are too generic may not address the individual needs of a community. Yet making a process flexible enough to acknowledge community context limited the overall usability and generalizability of the process without external expertise or facilitation.

Developers and project teams were encouraged to engage communities and find their common interests. As noted earlier, communities are often engaged in day-to-day activities and may lack the local awareness and expertise to recognize the need and importance of engaging in disaster resilience planning. As one developer noted: "don't expect communities to come to us – find a common interest to engage them."

3.1.8 Sustainability and political will

The final theme that emerged from the participant analysis of the presentations focused on sustainability and political will. The earlier discussion on engagement noted the importance and difficulty in getting local officials and the general community to engage in disaster resilience planning. There is often a lack of political will, at multiple levels from the community through provincial/territorial and federal stakeholders to engage in and maintain disaster resilience activities. All levels face resource limitations and, as noted earlier, there are few incentives and requirements for communities to participate in these processes. Indeed, the processes often highlight gaps in community capacity or identify the need to invest further scarce resources to implement recommendations. The cost and complexity of the processes and

the lack of follow on funding to implement strategies and recommendations from the processes present a significant barrier to both initial engagement and subsequent sustainability of disaster resilience planning efforts.

Developers noted the challenge they face through existing funding mechanisms that are project-based. This leads to the development of multiple, fragmented projects that have no mechanism or funding for implementation and sustainability.

3.2 Implications and strategies for increasing uptake of disaster resilience planning at the community level

The overarching themes generated in Activities 1 and 2 formed the basis for Activity 3. The goal of Activity 3 was to identify implications and strategies for increasing community uptake of disaster resilience planning. Participants first identified the implications of the overarching discussion themes on communities' engagement with disaster resilience activities, and then listed potential strategies related to these implications. Please refer to Appendix F for the complete list of implications and strategies generated for each theme.

Figure2: *Implications and strategies discussion.*

Throughout the workshop, the results of one activity became the "seed" or starting point for the next activity. The list of discussion themes presented in section 3.1 emerged from analysis of the participants' initial review of the project and community presentations. In this section, the discussion themes are organized chronologically from the perspective of a community becoming engaged in a disaster resilience planning process or project. The intent of organizing the discussion, and the presentation of the analysis in this section, was to encourage participants to build links between the individual topics and the overall experience of a community engaging in disaster resilience planning. The ensuing discussion had a holistic or integrative quality that built from initial engagement of a community with disaster resilience language (the first discussion at the base of the triangle in Figure 2) though participating in a project and identifying gaps and next steps in overall disaster resilience planning (the concluding discussions at the top of Figure 2). This integrative aspect of the discussion can be seen in the overlap between topics in the presentation below.

3.2.1 Terms and language

Participants noted that development teams must establish a common understanding and define a set of core terms and concepts at the start of each project. While a common "global" glossary will be useful, the participants noted that local context and language will often take precedence over external terminology. What's important is to translate "jargon" and technical language into the language of the users. As important, teams must articulate and record their discussions and definitions. There should be a key project document that states: "for the purposes of THIS project, we will use the term xxxx to mean…". Teams must also revisit these terms and concepts as the project unfolds to ensure that meaning does not change or that if the meaning has changed, to ensure that documentation is modified to adapt the new understandings.

Participants also noted that this works well for a project, but still leaves the question of how to reconcile terminology and conceptual understanding across projects and communities. They suggested the creation of a process to develop common operational definitions and a process to keep these current. The intent is to have a common source that can be used to inform community/project discussions. (Note the DHS Target Capabilities list is intended to accomplish this in the USA).

3.2.2 Developing a common understanding

Participants next discussed the importance of establishing a clear vision and well-articulated scope for the project.

One discussion theme was that disaster resilience planning, projects, and communities are all complex systems. It's important to understand that different activities will impact various groups and activities throughout a project. It is important to get the right people in the room at the beginning of a project – this both helps to build common understanding but also ensures that as key stakeholders and vulnerable/less visible groups are not left out of the process. Participants also emphasized that there will never be perfect solutions and complete agreement. Groups can get lost in defining and discussing a project – in defining problems rather than finding solutions. Teams have to figure out when to say "enough," and just get on with it. Sometimes, "being in the same book" is more important than "getting on the same page."

This process must involve managing expectations and recognizing the limitations on resources that are available. Teams should give concrete examples of anticipated outcomes to ensure that communities know what they are going to get out of a project. Teams should inform communities of what other communities have done and achieved to help crystalize the group's common vision. It's also important to ensure that there is lots of discussion and feedback and that one – or even a few – voices do not dominate the conversation.

3.2.3 The "Big Picture"

A key element of finding a common understanding is seeing the Big Picture. Projects can get too focused on their own process and outputs and lose sight of how the project fits within community and larger (e.g. regional/provincial) processes. The Big Picture can be a really big picture – teams need to help communities understand how to break down to the key indicators that define the big picture. Participants also warned to keep thing manageable – you don't have to measure everything; identify the risks and measure what defines the risk. The goal is to be, overall, more resilient, and thus projects should integrate and connect to the community's goals (e.g. Value Focused Metrics).

In defining a project and determining how things fit, it's important to realize that there are multiple perspectives, and that "facts" can be seen differently by different people or from groups that have different values or goals. There has to be more than one person's "big picture," and communication and

collaboration are key. Most communities can reach a common understanding of the big picture fairly quickly; several communities noted that it was easier to find consensus than they anticipated.

But it's also necessary to balance the big picture with the scope of *"this"* project. Teams must determine which piece of the overall picture will be the focus of each project and clearly articulate this. Some participants suggested the use of mind maps or other visual tools help to frame and position a project within the broader scope of a community's overall disaster resilience and other planning.

A final thread of discussion noted that there are multiple "big pictures." While it's important to situate a particular project within a community's overall disaster resilience and emergency planning processes, these processes are also embedded within the community's overall life, and that community is also part of larger systems.

3.2.4 Community context counts

Community context is critical to disaster resilience planning. The discussion on this topic focused around two aspects: buy in and support. Participants noted that projects must actively acknowledge and adapt to the community. Without tying a project to the community's background and needs, there is no relevance. Without relevance, there is no buy in from the community. Community context was seen as critical to obtaining buy in from communities. To get buy in, teams should seek broad collaborative engagement through purposeful consultation. A key element of this discussion is the inclusion of multiple perspectives through the identification of the many populations or sub-groups within a community.

The participants again noted the importance of identifying and bringing forward local leaders and experts who understand the community context. These leaders must present and represent the community's context and needs within the project and also help teams better understand the community.

Participants also noted that the community teams require ongoing support from both project personnel and the community. This support must be "more than just a letter" – communities must acknowledge that a holistic conception of support involves multiple facets and includes political, social, and economic engagement with disaster resilience planning. Similarly, project teams must ensure that the community teams and leaders are adequately supported by the project to ensure success.

3.2.5 Engagement

The concept of engagement was a recurring theme throughout the workshop and was identified as a key component of all the projects and initiatives discussed. The importance of fostering and maintaining engagement is paralleled by its challenge. As noted throughout this report, communities face multiple pressures, individuals are busy, and there are other competing priorities on people's time and resources. However, the importance of broad engagement cannot be overstated: those who participate drive the inputs and outcomes of any process. Who participates and how they engage has significant implications on the sustainability, accountability, and validity of any project or initiative.

Participants identified a series of strategies for increasing community engagement. A central principle is to be open: be transparent, clear, and concise on the nature of projects, the types of possible outcomes, and the type and amount of resources and support required to be successful. Other principles include the need to collaborate, coordinate, and communicate on an ongoing and broad basis. Several participants noted that projects often promote the advantages of participating – something that is always a difficult "sell" when dealing with hazard and risk planning; a parallel strategy is to articulate the impact of NOT being engaged. Other strategies included the use of social media and other marketing efforts, and deliberately building on windows of opportunity to raise disaster resilience issues.

An emergent theme that became increasingly voiced in the workshop was the strategy of linking disaster resilience planning to other, already successful processes and activities. Project teams were encouraged to see disaster resilience activities and opportunities as linked to other community needs and activities. Disaster resilience is not a discrete thing on its own, so "how do we build on that and spread that message?" This includes benefiting from existing activities and looking for opportunities to insert disaster resilience awareness and messages into other things. "How do we get [our message] to go viral?"

Participants suggested that disaster resilience processes are more likely to be successful if they are embedded in other community wide processes such as emergency management, land use planning, etc. They suggested a future "two-way" strategy of seeking opportunities for disaster planning personnel and ideas to contribute to other processes (e.g. ensuring that disaster resilience indicators are built into things like community beautification programs) and bringing other community projects into disaster resilience projects and planning.

3.2.6 Champions and experts

The discussion on these themes centred on two concepts: that expertise is both internal and external to a community and the need to build local and project succession planning into community planning projects. As noted several times throughout the workshop and this document, the processes involved in disaster resilience planning require expertise – whether that expertise is embedded in the project tools is provided by an external subject matter expert, or emerges from a community member. However, the concept of expertise also applies to those who know about a community. Community context counts (see section above), and all planning processes need some adaptation to local sensitivities, language, and context. As well, effective projects must *build* expertise within the community. For processes to have a life beyond their first use, they must involve the development of local knowledge and skill in their use. Projects involved shared, social ownership of the process, and all participants must be willing to "own" their part of the process.
The requirement for succession planning emerged through discussion of the importance of local champions. Local champions are crucial to project success, but can also put projects at risk when they leave a project. Often a small number of people in a community are involved in many projects, which further increases the challenge for a community when these people move or withdraw. Projects must build resilience into the project itself by have a continuity plan and developing succession planning

A final discussion in this theme involved conceiving projects as discontinuous, semi-chaotic and semi-structured, rather than as discrete, predictable environments. Project planning often has a presumption that the process is predictable and that changes are negative occurrences. One participant encouraged teams to look for the discontinuity inherent in any project. By seeking the challenges that are inherent to and within any project, teams are better prepared for adapting to change. One strategy for dealing with challenges was to "swarm" the problem, deal with its issues, then move on.

3.2.7 Resources

Resources – time, people, and money – remain a central challenge for disaster resilience planning. Several strategies were suggested, such as volunteer development to leverage resources within a community and plugging disaster resilience planning into other, ongoing activities (e.g. risk management planning). One participant noted that sustainability is a critical issue and that without a "line item in the budget" for sustained operations, projects were not likely to be successful.

Others noted that small communities will never have the funds to do larger projects and suggested that a model of having communities "help the community next door" may be one avenue to disseminating resources more efficiently. Another suggestion was to develop a "travelling road show" with experts who

emerge from communities to show other communities how to effectively use appropriate tools and processes.

Another suggestion was that projects and tools are not always the answer. Sometimes, what a community requires is not a tool but an analyst – someone who can come in to a community, analyze its context and needs and, from there, develop a plan to creatively and effectively shape the larger community response.

3.2.8 Sustainability

As with Resources, the need and challenges associated with sustainability of ongoing disaster resilience planning and activity were well examined in the workshop. Participants noted that sustainability is related to political will, which is often tied to fiscal benefits for a government or community. And the incentives for participating in disaster resilience activities are often reversed. Politicians realize little benefit from announcing planning processes. Yet there is a significant "bump" from attending recovery efforts after a disaster. This highlights the need to emphasize the costs of ***not*** being proactive. Another participant noted that in the current political climate, it's not just doing "more with less;" there is a growing realization that we may be asked to do "less with less." Thus, expectation management becomes even more important.

One suggestion for sustainability is to look for ways to embed resilience into ALL ministerial portfolios and enshrine disaster resilience planning into policy.

3.3 Prioritized strategies

Activity 4 consisted of a two-stage exercise to prioritize strategies for increasing the uptake of resilience planning activities by Canadian communities. In the first stage, participants worked individually to identify what they considered to be the top ten strategies from the list of implications and strategies generated in the previous Activity. In the second phase, the group as a whole reviewed the prioritized list to validate that that the most-selected strategies were, indeed, indicative of the group's intentions.

Please refer to Appendix G for the entire list of prioritized strategies.

The following is a list of strategies with the highest priority for each discussion theme:

Language and terminology:

- Use picture words for engagement and buy in

Engagement and buy-in:

- Link resilience building to existing processes that already have buy in
- Be completely open with information, data, knowledge, intent, rewards, beneficiaries

Resources, timing, and money

- Cost benefit analysis (i.e. return on investment)

The bigger picture and holistic thinking:

- Build relationships – laterally, vertically, horizontal – within organizations, agencies, with outside organizations agencies
- Develop common frameworks, approaches, or at least share and translate across various ways of understanding

Champions and experts:

- Succession planning – specifics include relationship, pass on knowledge, good will

Developing a common understanding:

- Give examples of anticipated outcomes, measures – paint the picture – context specific

Community context counts:

- Identify and support community champion to help discover context.
- Showcase examples of community resiliency
- Funding to sustain beyond project focus…creating options for sustained / maintained "home" for tools, support for communities to implement, maintain and sustain resilience planning
- All levels government resilience enshrined in policy
- Ministerial portfolio responsible

Sustainability and political will

- Funding to sustain beyond project focus…creating options for sustained / maintained "home" for tools, support for communities to implement, maintain and sustain resilience planning
- Showcase examples of community resiliency and successful projects to increase political "push"

Other bits and pieces

- National policies
- Encourage the use of any tool (used correctly)
- Engagement of youth

The following list identifies the ten most highly chosen strategies overall:

1. **Engagement and buy-in**: Be completely open with information, data, knowledge, intent, rewards, beneficiaries
2. **Common understanding**: Give examples of anticipated outcomes, measures – paint the picture – context specific
3. **Resources, time and money**: Cost benefit analysis (i.e. return on investment)
4. **Bits and pieces**: National policies
5. **Engagement and buy-in**: Link resilience building to existing process that already enjoy buy in
6. **Sustainability and political will**: Showcase examples of community resiliency
7. **Bits and pieces**: Encourage the use of any tool (used correctly)
8. **Community context counts**: Identify and support community champion to help discover context.
9. **Sustainability and political will**: Funding to sustain beyond project focus…creating options for sustained / maintained "home" for tools, support for communities to implement, maintain and sustain resilience planning
10. **Bits and pieces**: Engagement of youth

3.3.1 Prioritized Strategies Analysis

Interestingly, participants distributed their choices across all the discussion areas. No single area dominated in terms of priority setting. The priorities chosen were a mix of building on past accomplishments (e.g., Showcase examples of community resiliency and Identify and support community champion to help discover context) and potential future adaptations and new strategies (such as: Link resilience building to existing process that already enjoy buy in, and Engagement of youth).

Of the top ten priorities, only two were items that were not directly within the influence of communities, developers, and agencies at the workshop (National policy structure and finding ongoing sustainability funding). Three of the strategies involved increasing engagement of communities (through open sharing of information and expectations, giving context specific examples of anticipated outcomes, and demonstrating the return on investment for disaster resilience activities). Other strategies spoke to strategies to support success of projects in process, such as the need to engage and support local champions and embedding disaster resilience within other processes.

Finally, one of the key messages to emerge from the priority setting exercise that was loudly echoed in other discussions throughout the workshop was that communities should be encouraged to use ANY tool or process, rather than struggling to find the perfect tool. Any engagement with disaster resilience planning increases community resilience.

4 Synthesis

Section 3 presented findings and discussions that addressed several deliverables for this project. This section extends and synthesizes the workshop findings to address two workshop deliverables:

1. Factors limiting further engagement in disaster resilience planning by Canadian communities,
2. Gaps

The following discussions draw on the data, discussions, and analysis generated by the workshop and overall project.

4.1 Factors Limiting Community Uptake of Existing Tools and Processes

One of the driving questions for this workshop was how to further engage Canadian communities in taking up the existing disaster resilience processes and tools. Phrased differently, what are the barriers that are preventing other Canadian communities from making use of the outputs of the projects that were involved in this workshop? The following themes emerged from inductive analysis of the workshop presentations, data generated by participants, and discussion during the workshop.

4.1.1 Perceived need and political will

A central barrier to increased engagement of Canadian communities in disaster resilience planning is the absence of a value proposition. There are no requirements and few incentives for communities to engage in disaster resilience planning. And if communities do have an interest, there is little funding or support from local, provincial/territorial, or federal levels. In addition, there is little local expertise (other than community planners and emergency officials) so communities lack the ability to judge the value and need for resilience planning.

Communities are "busy with day-to-day activities" and may not see disaster resilience planning as either a necessity or as a priority. This is exacerbated by a general apathy in the general public towards any community activities. And when communities do decide to engage, it takes time and resources to build and maintain enough interest to get projects going.

Finally, many communities lack the political will to participate. Local elected officials may view "worst case scenarios" as bad news stories that they do not want distributed. Participants also noted that community officials may prefer to "not know" about potential hazards; "now that I know about this, I have to deal with it…".

4.1.2 Lack of expertise to define problem and make informed choices

Several participants noted that communities' lack of understanding and capacity in disaster resilience planning makes it difficult for communities to even define the problem, let alone meaningfully participate in disaster resilience activities. An inability to interpret academic and planning literature was also raised as a barrier; communities have difficulty finding information, then interpreting and applying it to their setting. This is compounded by the complexity of dealing with community-wide disaster resilience activities. The issues are complex, as are many of the tools, systems, and projects, which makes it difficult for communities to make informed choices about their needs and which processes might best meet those needs. This lack of knowledge can further lead to mismatches between the expectations of a community and the actual outputs or outcomes of many projects and tools.

4.1.3 Understanding choices and finding a fit

Once communities decide to engage in disaster resilience planning, they face choices between tools, processes, and systems. There is no central location for a community to go to in order to search for an appropriate approach. This is further exacerbated by projects which tend to be competitive rather than parallel in their literature and marketing. There is no objective, reliable source from which to obtain unbiased information, reconcile variations between systems, and match community needs to appropriate options. Many projects and systems tend to look at a particular aspect of overall disaster resilience planning and most are set within particular contexts (e.g. urban settings). Thus it may be difficult for communities to assess how various choices might "fit" and to find the best mix of resources for their needs. And there is little interoperability between tools, even when they involve overlapping processes.

4.1.4 Lack of expertise to effectively participate in planning processes

Communities are also challenged to participate in complex process with little support. Much of the data required for processes is technical and/or complex. While participants noted that much of the information communities need to participate in Disaster Resilience planning is available, many communities lack the expertise to know what information to get, how to obtain it, and how to use it.

These factors leave communities in the position of requiring external expertise and subject matter experts in order to engage in disaster resilience planning. Participants from projects that participated in this workshop noted that, although their intentions were to create systems that required little external or expert support, this was a difficult goal to achieve. One participant noted that the "more you put under the hood" (the more expertise you incorporate into the system or process), the more complex the process becomes and the less adaptability it has to varying contexts and communities. The more sophisticated the "tool" becomes, the more important is it that the inputs conform to the requirements of the process. This makes it more difficult for different communities to adapt the use of tools and processes to meet local conditions or requirements.

4.1.5 Resources

All participants in the workshop noted that time, cost, and resources are significant barriers to engaging, completing, and implementing disaster resilience planning and projects. As noted above, communities lack the capacity to make effective decisions and the expertise to engage in Disaster Resilience planning without external support. The communities themselves have limited resources, either in terms of people or funding. One community participant noted what he called the "STP phenomenon: it's always the Same Ten People" who are engaged in community projects. Participants from larger communities noted the difficulty in getting the right people from all municipal departments or stakeholders to engage or even meet. And, again, participants noted that even when projects are initiated, it takes ongoing energy and support to maintain interest and participation.

4.1.6 Output

The participants noted several factors related to project output that limit community participation. As noted earlier, there is often a disconnect between the expectations of communities and the actual outputs of projects and processes. A second outcome-related factor is the "piecemeal" nature of various projects, and communities' inability to "fit things together" from different processes.

Several community-based participants noted that a major impediment is that planning processes are rarely integrated with implementation phases. Communities develop lists of risks and hazards, prioritized actions, strategies for further action - all of which require further funding and participation from the community. Without an overarching framework, along with funding and resources to implement and

incorporate recommendations from Disaster Resilience planning activities, communities are left without the means to integrate and extend the work done on individual projects.

Project developers at the workshop noted that the project-based funding model exacerbates these challenges. Funding is available to develop and pilot tools and processes, but there is no funding available for sustainable operation and extension of their work.

4.2 Gaps – Moving Beyond the Tools

Another key goal of this workshop was identifying gaps that moved beyond the tools and projects. Participants were asked to identify missing elements of an overall approach to disaster resilience planning. Participants identified five areas in which major gaps exist:

1. Integrated Policy on Disaster Resilience Planning
2. Funding
3. Metrics and data
4. Engagement
5. Uncertainty management

4.2.1 Integrated Policy on Disaster Resilience Planning

Participants noted that a significant challenge for disaster resilience planning is the lack of national policy and the overlapping areas of jurisdiction related to disaster management. Planning and mitigation efforts often occur at the community level, yet the funding and policy control reside at multiple levels. As noted in previous discussions the political drivers are often different from the perceived needs of communities. In addition, communities must often deal with overlapping levels of government, or in the case of some remote and rural communities, little formal support.

4.2.2 Funding

Funding and finding resources remain a major impediment. The participants in the workshop recognize the fiscal challenges facing communities and governments, and they provided a number of suggestions for finding leverage within and among communities. However, disaster resilience planning, especially when done in a comprehensive and effective manner, requires knowledge, expertise, political will, data, and resources. Again, sustainability remains an issue as much of the funding in this area has been project and research-based, with little or no ongoing funding to implement recommendations or resilience strategies. To date, communities receive more funding and support for assessment, but little money for mitigation or sustainability.

4.2.3 Metrics and data

Participants noted that there is a significant need for metrics and data at multiple levels. Many participants noted that there are multiple processes, tools, and methods for engaging in disaster resilience planning, but no central repository or clearing house for these. Communities would benefit from a central site with lists of projects and tools, along with criteria that assess the best context for each, their strengths and weaknesses, etc. Participants also noted that the country lacks an overall picture on hazards, inventory, measurements, vulnerability, good mapping of exposure and vulnerabilities to hazards. One participant suggested a Hazard Scenario Library, Risk Scenario Library, and a national data base of vulnerability measures.

4.2.4 Engagement

Participants noted that Engagement remains a challenge. On the one hand, there are groups of people (such as youth) who we do not currently tap into as resources in the community. Alternatively, we have little information on which sub-populations and vulnerable groups are not being adequately represented and considered in existing disaster resilience planning. Several participants suggested that there need to be other, better incentives for both individuals and communities to engage with disaster resilience planning. Similarly there should be incentives and disincentives for implementing mitigation and planning recommendations. A discussion followed noting that the availability of insurance could be one way of incentivizing people to "do the right thing." Canada is the only G8 country that does not have overland flood insurance programs. Flood insurance rates in the US are set on the basis of risk assessments that are carried out at the community level. The flood hazard assessment process is administered through FEMA by Certified Floodplain Managers and Emergency Managers that have a capability to use tools like Hazus to model the impacts of riverine and coastal flooding (storm surge) on communities. Others suggested that the lack of a cost/benefit analysis or analysis of the cost of not being proactive in disaster resilience planning is a significant barrier to engagement.

4.2.5 Uncertainty management

Finally, the participants in the workshop returned to the theme of expectation management, particularly in relationship to uncertainty. Multiple presenters noted that we'll never know enough, and that absolute answers are not available. Nor is 100% resilience attainable. But – and this is the gap to be addressed – communities need to know that anything they do is better than not engaging in disaster resilience planning at all. As one participant noted, "pick a tool – ANY tool." The goal is to move closer to resilience – but also to realize that this is a process, not an end state. Again, the project-based mechanisms of current practice give an impression that resilience is something that can be achieved, not something that has to be nurtured and maintained.

4.3 Next Steps

The final discussion of the workshop was a visioning exercise to broadly discuss the question of "what to do next?"

Several participants noted that there already exists a variety of tools, processes, and expertise at multiple levels of community, academia, and government in relation to disaster resilience planning. One participant noted that we have the capability to conduct effective assessments and develop manageable plans for all Canadian communities. What is lacking is less around "gaps" or "new" knowledge or procedures, and more about collective will and integrating disparate activities. Another participant noted, earlier in the workshop, that sometimes communities need an analyst or catalyst more than they need a process. This speaks again to the need for an integrated framework for action and a consolidated source of validated and annotated information about existing processes and tools.

Participants suggested that a national framework and vision, not necessarily through government, is required to integrate and support disaster resilience activity. Several participants identified potential federal sponsors, while others indicated that NGOs might be another "home," and a third discussion centred on the creation of an informal community or network as options. There was a general consensus, however, that the awareness, endorsement, and active support by key organizations and groups such as the Federation of Canadian Municipalities and SOREM are critical to moving an integrated agenda forward.

The participants also discussed the need to remember the importance of context and discontinuity – that there are no "one size fits all" solutions. Thus, it is more important to have a framework that includes multiple options than to have an overarching program that is unlikely to meet diverse needs and expectations.

A final suggestion was the creation of a multi-level, multi-agency, multi-disciplinary "task team" with the mandate of identifying "windows of opportunity" in which collective action could make substantial and sustained progress. The role of the task team would be to note trends or opportunities, to mobilize relevant resources, "swarm," create change and then move on.

Please refer to Appendix H for full list of Next Steps.

5 Conclusion

The participants in this workshop noted that there are a variety of effective tools and processes available to Canadian communities who seek to engage in disaster resilience planning. However, these tools are generally not well used nor well known. Furthermore, existing projects and initiatives tend to be fragmented and overlapping, and opportunities for synergistic action are often not taken advantage of.

The primary recommendation emerging from this workshop is the need for a coordinated multi-disciplinary team or steering committee to act as an integrative force and national champion for disaster resilience activities. Participants noted that the group need not necessarily be a government entity, although substantive participation in the group is necessary from all levels of government, relevant agencies, and community stakeholders. The role of this group would include:

- Champion disaster resilience activities and initiatives from a national perspective
- Seek and foster ongoing support and sustainability for disaster resilience planning activities

The group would further act as an ongoing venue for those involved in disaster resilience planning to identify priority action areas (see, for example, this report); encourage the development of task forces or teams to engage with these priorities; and work with stakeholders to develop, implement, and monitor goals, strategies, and actions that address each area.

A second recommendation is the development of an integrated national consensus or policy framework for disaster resilience efforts in Canada. Such a framework would serve as a clearinghouse for various programs, projects, initiatives, and communities across Canada to share resources and expertise, build synergies, and better coordinate individual efforts.

Several questions emerge from these recommendations:

- How do existing programs and initiatives interact and support each other?
- Who (agency or individual) should or can take leadership to advance these recommendations?
- How can sustainable resources and funding be found and/or accessed?

References/Bibliography

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Appendix A: List of Workshop Participants

PARTICIPANT	COMMUNITY, AGENCY, OR PROJECT
Alisa Schryer	Public Safety Canada, Emergency Management Planning Division
Bert Struik	Natural Resources Canada
Bettina Falloon	Village of Pemberton
Brenda Murphy	Wilfred Laurier University - Faculty of Liberal Arts
Colleen Vaughan	JIBC School of Public Safety
Dan Sandink	Institute for Catastrophic Loss Reduction
Daniel Maxwell	KaDSci
Darren Blackburn	JIBC - Emergency Management Division
Dawn Ursuliak	JIBC - Centre for Applied Research
Dorit Mason	North Shore Emergency Mgmt. Office
Doug Smith	Sustainability Group, City of Vancouver
Eddie Oldfield	QUEST
Elysia Dempsey	Canadian Red Cross
Eric Bussey	Integrated Emergency Management Solutions Ltd.
Greg Anderson	JIBC Office of Applied Research and Graduate Studies
Heather Lyle	Emergency Management BC
Karen Lindsay	Nanaimo Fire Rescue
Karen Martin	BC Coalition of People with Disabilities
Kelli Kryzanowski	Emergency Management BC
Keltie Craig	Sustainability Group, City of Vancouver
Laurie Pearce	JIBC - Centre for Applied Research, SIMTEC
Lynne Genik	Defence Research & Development Canada - CSS
Marc D'Aquino	First Nations Emergency Services
Matt Godsoe	Emergency Management and Programs Branch, Public Safety Canada
Michelle Weston	District of North Vancouver
Murray Journeay	Natural Resources Canada
Pete Learoyd	JIBC - Emergency Management Division
Robin Cox	Royal Roads University, School of Humanitarian Studies
Ron Bowles	JIBC - Centre for Applied Research
Ron Robinson	City of Medicine Hat
Ryan Wainwright	Squamish Lillooet Regional District
Serge Corbeil	Insurance Bureau of Canada
Shannon Krilow	Emergency Management BC
Simona Verga	Defence Research & Development Canada - CSS
Stephanie Dunlop	Metchosin Fire Department
Tamsin Mills	Sustainability Group, City of Vancouver

Appendix B: Workshop Agenda

BUILDING RESILIENT COMMUNITIES WORKSHOP
Dr. Donald B. Rix Public Safety Simulation Building
Justice Institute of British Columbia, 715 McBride Boulevard, New Westminster, BC

START / END	AGENDA - DAY ONE FEBRUARY 25TH, 2014
0800 - 0830	**Registration and seating**
0830 - 0840	**Welcome** Greg Anderson, Dean, Office of Applied Research & Graduate Studies, JIBC Lynne Genik, Critical Infrastructure Portfolio Manager, Defence Research & Development Canada (DRDC) Centre for Security Science (CSS) Kelli Kryzanowski, Manager, Integrated Planning, EMBC
0840 - 0850	**Orientation and Expected Outcomes** Colleen Vaughan, Dean, School of Public Safety Ron Bowles, Assoc. Dean, Centre for Applied Research
0850 - 0920	**Introductions**
	Developer and Community Presentations
0920 – 10:00	**Community Resilience Architectural Framework** Ivan Deith, Principal Consultant, Strategic Programme Delivery & Assurance (SPDA) Service Line, Serco Consulting Bettina Falloon, Executive Assistant/Emergency Program Coordinator, Pemberton Ryan Wainwright, Emergency Program Manager, Squamish Lillooet Regional District
10:00 – 10:40	**UN Getting My City Ready** Laurie Pearce, JIBC Research Chair Stephanie Dunlop, Fire Chief / Emergency Program Coordinator, Metchosin Fire Department
1040 - 1100	**Health Break**
1100 - 1140	**Rural Disaster Resiliency Project** Ron Bowles, Associate Dean, Office of Applied Research, JIBC Brenda Murphy, Graduate Coordinator, Associate Professor, Society, Culture, and Environment and Geography Eric Bussey, Principal, Integrated Emergency Management Solutions Ltd., Yellowknife, NWT
1140 - 1220	**Critical Infrastructure Assessment** Lynne Genik, Critical Infrastructure Portfolio Manager, Defence Research & Development Canada (DRDC) Centre for Security Science (CSS) Heather Lyle, Director, Integrated Public safety, EMBC
1220 - 1320	**Lunch**
1320 – 1400	**Community-Wide Hazard Risk Management Planning** Daniel T. Maxwell, Ph.D., President, KaDSci, LLC Karen Lindsay, Emergency Program Manager, Nanaimo Fire Rescue
1400 - 1440	**Hazus: A Loss Estimation Method for Disaster Risk Reduction in Canada** Murray Journeay, Geologist with the Earth Science Sector of Natural Resources Canada Dorit Mason, Director, North Shore Emergency Mgmt. Office Michelle Weston, Public Safety Section Manager, District of North Vancouver
1440 -1500	**Land Use Planning Guide** Bert Struik, Natural Resources Canada
1500 - 1520	**Health Break**
1520 – 1630	**Open Discussion – Wrap Up**
1630 - 1730	**Value Based Focus Group for Community Resilience CoP** Developing an objectives model for the community resilience CoP Simona Verga, DRDC CSS Operations Research Scientist

START / END	AGENDA - DAY TWO FEBRUARY 26TH, 2014
0830 - 0845	**Welcome** **Orientation and Expectations to the Day**
0845 - 0915	**CRHNet Aboriginal Resiliency Report Update** Eric Bussey, President, Integrated Emergency Management Solutions Ltd., Yellowknife, NWT Brenda Murphy, Graduate Coordinator, Associate Professor, Society, Culture, and Environment and Geography Laurie Pearce, JIBC Research Chair
0915 – 0930	**Day 1 Discussion Themes**
0930-1045	**Implications and Strategies to Increase Community Uptake / Snack**
1045-1200	**Report out**
1200 - 1300	**Lunch**
1300 - 1330	**Prioritize and Validate Priority Areas**
1330 - 1430	**Next Steps**

Appendix C: Developer Tools / Projects and Community Presentations

The first activity of the two-day workshop was a series of presentations by representatives from selected projects and communities. A presenter from each project outlined the project, the tool(s) associated with the project and an overview of its outcome. The following presentation was given by one or more members of the community(ies) involved in the project who spoke on their experience.

Project and/or Tool	
Developer Presentation	Community Presentation
Community Resilience Architectural Framework	
• Ivan Deith, Principal Consultant, Strategic Programme Delivery & Assurance (SPDA) Service Line, Serco Consulting	• Bettina Falloon, Executive Assistant/Emergency Program Coordinator, Pemberton • Ryan Wainwright, Emergency Program Manager, Squamish Lillooet Regional District
UN Getting My City Ready	
• Laurie Pearce, JIBC Research Chair	• Stephanie Dunlop, Fire Chief / Emergency Program Coordinator, Metchosin Fire Department
Rural Disaster Resiliency Project	
• Ron Bowles, Associate Dean, Office of Applied Research, JIBC	• Brenda Murphy, Graduate Coordinator, Associate Professor, Society, Culture, and Environment and Geography • Eric Bussey, Principal, Integrated Emergency Management Solutions Ltd., Yellowknife, NWT
Critical Infrastructure Assessment	
• Lynne Genik, Critical Infrastructure Portfolio Manager, Defence Research & Development Canada (DRDC) Centre for Security Science (CSS)	• Heather Lyle, Director, Integrated Public safety, EMBC
Community-Wide Hazard Risk Management Planning	
• Daniel T. Maxwell, Ph.D., President, KaDSci, LLC	• Karen Lindsay, Emergency Program Manager, Nanaimo Fire Rescue
Hazus: A Loss Estimation Method for Disaster Risk Reduction in Canada	
• Murray Journeay, Geologist with the Earth Science Sector of Natural Resources Canada	• Dorit Mason, Director, North Shore Emergency Mgmt. Office • Michelle Weston, Public Safety Section Manager, District of North Vancouver
Land Use Planning Guide	
• Bert Struik, Natural Resources Canada	

C.1 Workshop Presentation Case Studies

A core component of this project was the presentation of selected disaster resilience projects by workshop participants. Each presentation followed a similar format:

- Overview
- What was supposed to happen?
- What actually happened?
- What went well and why?
- What could be improved and how?
- Recommendations

The following case studies are summaries of the presentation key points as given by the project developers and their participant communities. The case studies included in this appendix are:

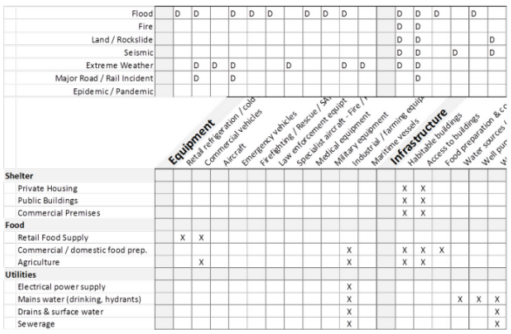
- Critical Resilience Architectural Framework
- UN Getting My City Ready
- Rural Disaster Resiliency Project
- Critical Infrastructure Assessment
- Community-Wide Hazard Risk Management Planning
- HAZUS: A Loss Estimation Method for Disaster Risk Reduction in Canada
- Land Use Planning Guide

Community Resilience Architectural Framework

Overview
A systematic approach to developing a picture of security and resilience in complex systems, involving:
Building a detailed, end-to-end enterprise architecture model of the system which enables stakeholders to see where gaps, overlaps and disparities exist
Mapping the 'whole system' capabilities required to provide a secure and resilient environment
Assessing the degree to which these are delivered by current arrangements – the *combined effect* of stakeholders' efforts
It enables stakeholders to:
See their contribution and that of others, in context
Identify opportunities to improve effectiveness, efficiency or both.

13

Hazard : Service Matrix



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Hazard : Service Matrix

What was supposed to happen?
Develop a set of plans, capabilities & resources strengthening a community's ability to withstand disruptive influences and enabling it to recover from crisis events

What actually happened?
Conducted 4 Workshops in October 2012:
Lil'wat Nation group
Pemberton Village 'community' group
Pemberton 'Business' group (+ SLRD workshop Nov 2012)
Emergency Responders Group
Five sessions in each:
What the Valley is known for / what it provides
Essential Services
Hazards to essential services
Consequences of disruption over 3 days / 3 weeks
Expectations of service restoration after disruption

What went well and why?
Sophistication of model
Ability to capture complexity
Consistency of view across the community / infrastructure (i.e. relationships never overlooked / forgotten)
Can extract generic model from specifics; reusable in other contexts
Build consistent bank of architectures over time – key benchmarking / best practice resource

What can be improved and how?
Complexity & skills requirement
Workload
Defining meta model
Loading / analysing content
Creating outputs
Cost of tools

Recommendations
Create Generic Plans
Pre-determined restoration priority guide
Community Resilience Team
Community Resilience & vulnerable persons logs
Provision of fall back generators
Maximise key resources held in valley

Community Resilience Architectural Framework

Case Study: Pemberton Valley, BC

Pemberton Valley is a diverse and dynamic community consisting of: First Nations, a mix of rural/urban, young families and a farming/agriculture community with varying social, economic factors. It is a recreational/seasonal community with a population of 6,600. Pemberton Valley has experience with risk management tools although limited, with more risk knowledge coming from personal/historical experiences.

What was supposed to happen?
Contribute to the application of the "architectural framework" for small communities.
Provide resources (background, documents, access to key stakeholders) in the development of a simple risk management tool: "The Matrix".
Community engagement, recommendations, and prioritization of "gaps".

What actually happened?
Site visits, workshops beneficial.
Discovered different risk perspectives in the Valley.
Good cross section of stakeholders.
Willingness to participate.
Provided a useful and simple tool for examining risk.
Final presentation of results to community forum - increased cross stakeholder engagement and a shared perception of risks.

What went well and why?
Validated assumed risk perceptions; as well as, highlighted gaps and disparities not only related to the study, but each of our emergency management programs.
Solicited involvement from a wider cross section of the community than is traditionally involved in EM.

What can be improved and how - community?
Highlighted the need for mitigation strategies (i.e.: funding for mitigation initiatives, policy frameworks).
Confirmation of the importance of communication, collaboration and coordination across jurisdictions and within organizations (i.e.: planning, development, etc.)
Further need for joint initiatives to establish networking, partnerships and coherency of resources.
Political support.
The need for outreach – public education, public awareness.

What can be improved and how - community?
As a pilot, the process was very smooth.
An initial and clear (simple) description of project goals and definitions/glossary would have been helpful.
Longer local lead-time and facilitator briefing to ensure larger community-wide engagement.

For more information:

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UN Getting My City Ready

A ten-point checklist and the building block for disaster risk reduction.

Guide Overview

A ten-point checklist and the building block for disaster risk reduction, developed in line with the five priorities of the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters.

Based on the success and stock-taking by partners and participating cities in the first phase (2010-2011) the campaign will continue and shift its focus to more implementation support, city-to-city learning and cooperation, local action planning and monitoring of progress in cities.

In addition, the campaign will continue to advocate widespread commitment by local governments to build resilience to disasters and increased support by national governments to cities for the purpose of strengthening local capacities. Develop global goals and targets that are applicable for all cities. Private sector partners will be targeted to support development of 'industry standards' and innovative urban risk reduction solutions

What was supposed to happen?

The provinces and territories were supposed to provide wide-spread support for the Campaign. Communities in Canada were supposed to sign up and join the campaign in substantial numbers. Canada's National Platform was supposed to get more traction & web site was supposed to be up and running

What actually happened?

Not many cities as hoped signed up. Cities include: District of North Vancouver, District of Oak Bay, District of Saanich, Township of View Royal, Regional District of Nanaimo, Township of Esquimalt, Colwood, Shirley, Otter Point, Jordan River, Juan de Fuca Regional District and Metchosin.

The website was slow to get operational and the provinces and territories were slow to get behind the Campaign.

What went well and why?

Those communities and students who engaged in the process benefited from the process. The communities all indicated that they overall benefited from the process – one of the universal findings was that undergoing the process brought together, for the first time, various staff and volunteers to discuss disaster risk reduction. These participants found that many of the activities that they were undertaking were being done under other "programs" or meeting other goals; and yet they ultimately led to improved disaster resiliency.

What can be improved and how?

The tool needs greater community buy-in and engagement with on-going support by Provinces and Territories. Presentations to Federation of Canadian Municipalities, greater media coverage for successful communities and federal funding support. The tool also needs a review for 2015 Hyogo Framework with a rural perspective. The interest by First Nations, Métis and Inuit people has been a very real positive outcome and the mini-poster carrying this focus will be an important step in getting buy-in from these communities.

Case Study: District of Metchosin, BC

Metchosin is a small rural community with a population of 5000. It is an agriculture / farming community with CAO/Staff, and Mayor and Council but mostly a volunteer based municipality.

What actually happened?

Community believes they will be fine and that someone else (military base close by) will look after them. Community also felt they were already prepared.

What went well and why?

The tool assisted with Municipal awareness (temporary). It was thought provoking and made people looked outside of box. It started a ripple in thinking around resiliency.

UN Getting My City Ready

What can be improved and how?

Education: barriers to adequate and accurate information and opinions.
Application of Tool: community size and infrastructure is very limited, commercial is non-existent – we cannot be 'scored' on what we do not have. We just don't have the capabilities.
Idea behind becoming resilient is to work with what you have.
Ground Level thinking – politics vs grass roots…what can Mrs. Smith do.
Sandbox – always working with the 'neighboring communities' – get involved, network – that doesn't always work

For more information:

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Stephanie Dunlop, Fire Chief / Emergency Program Coordinator, Metchosin Fire Department, firechief@metchosinfire.ca

Rural Disaster Resilience Project

Assessing risks and building resilience for disasters in rural, remote and coastal communities.
wp-rdrp-dev.jibc.ca/

Guide Overview
The guide is designed for rural, remote and coastal communities with few available personnel or resources. The RDRP guide strengthens community resilience and disaster management planning in rural, remote, and coastal communities.

The RDRP process includes a user-friendly guide to help you work through the various steps to increase resiliency in your community. Each step and associated activity outlined in the process diagram will guide you through planning; Getting Started, Assessing Your Resilience, Building a Resilience Plan and Plan Implementation.

The RDRP planning tool is complete and ready to be implemented. It requires a sustainable framework and resources to keep it updated. wp-rdrp-dev.jibc.ca/

What went well and why?
The RDRP process is user friendly and responds to varied community involvement and expertise. It is a simple process with 4 steps and 16 activities that can be accessed in any order.
What can be improved and how?
Tools/framework would benefit from ongoing review/adaptation to new contexts. Strengths are in community involvement and analysis. The tool is comprehensive and would benefit from a longer implementation phase.

Case Study: Lion's Head, Ontario
Lion's Head is part of the Municipality of Northern Bruce Peninsula. It has 550 people with an aging population, a tourist-based economy and good infrastructure. Lion's Head experiences Great Lakes coastal hazards. It had an experienced community-based team with experience in hazard assessment, and disaster response with strong community connections. This project was facilitated by strong relationships with, and endorsement from, the municipal government,

What was supposed to happen?
Lion's Head was to assess the planning tools, undertake the resilience planning exercise, get municipal buy in and involve the local community.
What actually happened?
Excellent feedback was provided to the project team on tools. A focused resilience plan was developed but it was less successful in involving the local community and the long-term impact of the plan unclear. The plan was reported to council but the team had no authority to implement.

What went well and why?
The community had a highly motivated and dedicated research team that was knowledgeable about the community and had access to municipal resources.

What can be improved and how?
It is important to have a targeted engagement plan to involve the broader community. For example: timing engagement activities when the community is most likely to be available, using social capital networks to increase visibility and engagement coinciding with emergency events that present "windows of opportunity".

Rural Disaster Resilience Project

Case Study: WHATI, NWT

Whati has a number of strengths that can enhance the community's level of resilience. A recently revised and updated Emergency Plan, the community is close-knit, families are strong, language and traditions are strong, Tłı̨chǫ Land Claims & Self-Government Agreement is a catalyst for positive change, and there is strong local leadership.

Whati undertook a Resilience Assessment project to improve capacity to cope with emergencies, shocks and other major changes affecting the community, address day-to-day community concerns and objectives, and prepare for the establishment of the Fortune Minerals NICO mining project.

What was supposed to happen?

Effective engagement of leaders and various community members to test relevance of RDRP tools in a small, remote Northern community for disaster risk reduction and resilience planning.
Synthesize results from application of RRI/HRI tools during the Pilot Project and consider feasible resilience strategies to produce a first draft of Community Resilience Plan.

What actually happened?

Two day workshop with Chief & Council to apply RRI/HRI tools and prepare initial community resilience strategies. Separate ½ day sessions to apply RRI tool and consider resilience strategies with Community Emergency Committee members, high school students, and unemployed middle-aged males. Individual interviews to apply RRI tool and consider resilience strategies with a respected elder, long-time resident adult educator, community nurse, and informed observer/ frequent visitor to Whati. Consideration of feedback from subsequent Pilot Project sessions and revision of Chief & Council's initial resilience strategies.

What went well and why?

RDRP used available knowledge and capabilities in a capacity building approach to enhance resilience in Whati. Strong community participation raised awareness of hazards & risk and helped foster local interest in enhancing resilience. Chief & Council are interested in testing the RDRP framework as an opportunity to engage local and regional partners in preparing to optimize positive effects of a potential mine development.

What went well and why?

RDRP framework was designed to be adaptable, comprehensive and based on locally-set priorities and perspectives. HRA and HRI tools represented an integrated strengths-based approach to risk assessment, designed to allow communities to assess their strengths, assets and vulnerabilities in the face of locally identified hazard-risk priorities. RRI tool was a comprehensive and evidence-based community assessment tool that allowed the community to make their own assessment of their community's resilience. Web-based tools generated an initial listing of potential resilience strategies.

What can be improved and how?

Parts of the RDRP tools were not well suited to the Northern environment and would require further refinement and revisions to make them more applicable, particularly in smaller communities.
The need for a project champion is highlighted in the RDRP guide. An external knowledgeable facilitator could introduce the RDRP tools, help facilitate the initial process, and provide additional resources that may be needed to support and sustain the ongoing resilience assessment and planning process.

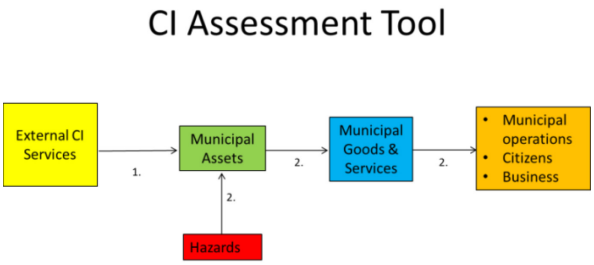
For more information:

Rural Disaster Resiliency Planning Guide: Ron Bowles; Associate Dean, Office of Applied Research, RBowles@jibc.ca
Lions's Head: Brenda Murphy, Graduate Coordinator, Associate Professor, Society, Culture, and Environment and Geography, bmurphy@wlu.ca
Whaiti, NWT: Eric Bussey, President, Integrated Emergency Management Solutions Ltd., Yellowknife, NWT, ericbussey@northwestel.net

Critical Infrastructure Assessment

Development and pilot of a Critical Infrastructure Assessment Tool for municipalities.

Overview
Development and pilot of a Critical Infrastructure (CI) Assessment Tool for municipalities
Modified dependency grids from Community Resilience Architecture Framework/ Pemberton Valley project provided the basis for tool
Tool to aid in understanding and planning, does not calculate risk or output a priority list
Pilot with Delta 14-15 January 2014



Two Excel worksheets:
1. "External CI dependencies"
2. "Municipal Goods & Services"

What was supposed to happen?
Use tool during workshop to assess CI dependencies for municipal CI
Primary objective: Assist Delta with identifying and assessing CI in the context of "all hazards" events
Secondary objective: Solicit feedback to determine if further development and deployment of the tool would be worthwhile

What actually happened?
Met with Delta stakeholders to discuss and assess municipal CI
Identified areas for further development of tool
Provided a summary document with recommended next steps following the workshop

What went well and why?
Balanced stakeholder representation allowed participants to speak to their areas of expertise and educate others
Completed assessment during workshop
Participants indicated that they found value in the exercise
Identified areas for improvement and further development

What can be improved and how?
As expected, tool requires further development in a number of areas
Structure
Definitions
Application
Educational material to support facilitation and implementation
Manage expectations and clearly articulate project scope
Community ownership of process and results
Customization of tool to fit community
Documentation of assumptions and discussion
Incorporation of results into municipal risk management / planning for CI and emergency management

This is a first step, not the last…

For more information:

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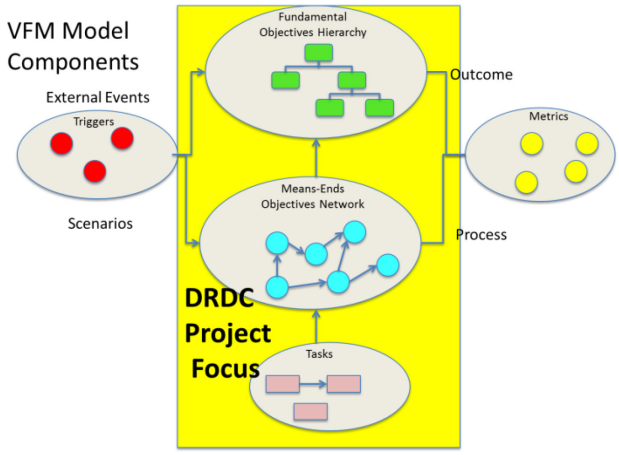
Community-Wide Hazard Risk Management Planning

Value Focused Metrics for Improving Emergency Planning

Overview
The goal was to execute a research project that assessed the utility of applying a mature modeling technique call "Value Focused Metrics (VFM)" to emergency planning. As currently implemented VFM tools appear most appropriate for areas with larger populations and dedicated planning staffs. The project with DRDC is complete. KaDSci continues to explore cost effective approaches for maturing the tools and techniques to be more broadly useful.



What was supposed to happen?
KaDSci was supposed to explore the feasibility of applying Value Focused Metrics to disaster related planning. The key questions were:

- Would emergency management personnel be able to construct and interpret VFM Models
- Could VFM Models be aggregated and / or synthesized somehow to support planning across hazards

What actually happened?
Emergency management personnel quickly demonstrated that they could build and use these models… with expert assistance
The effort migrated to an emphasis on providing the community participants insights that would help them with their planning.

What went well and why?

- Facilitated sessions drew out important means objectives, tasks, and cross organizational dependencies. This was due to three factors:
- The models highlighted relationships that were not intuitively obvious
- [The research team has a "trained ear" for identifying key issues that should be elaborated
- Most importantly – The participants represented multiple perspectives and constructively communicated those perspectives to other participants
- The research team was able to construct and synthesize models
- Because the modeling techniques appear to be a high value technology transfer from other complex operations
- The community participants were eager to fill in details as the research team identified gaps and requirements.

What can be improved and how?
Distributed collaboration for model development and analysis needs improvement.
More Robust elicitation and analysis software
Continued research on how to advance distributed collaboration – especially among multi-disciplinary groups

Case Study: Nanaimo, BC


"Nanaimo Habour Sunrise" by Roger Kufske

Community-Wide Hazard Risk Management Planning

Nanaimo

Nanaimo is the major port for central Vancouver Island, service centre (health, service, retail and transportation) for mid Vancouver Island with a population of

90,000and 140,000 in the region. It has an aging infrastructure - almost the whole of downtown sits on mine shafts which extend up into other residential areas (EQ issue).

City has completed HRVA in detail as part of their Emergency Response and Recovery Plan with top two hazards being Hazmat and Earthquake. 80% of hazmat to island comes through the Nanaimo Port.

What was supposed to happen?
Gathering of various sectors and public agencies, responder agencies to identify strengths, weaknesses and gaps for City of Nanaimo two high risk hazards, Earthquakes and Hazmat
Value Focused Thinking and Value Added Metrics to analyze each hazard
Outcome anticipated initially was to utilize software that could support community and other communities in future HRVA assessment, emergency planning and a detailed understanding of how strengths/gaps in these tow hazards.
Modeling was to be utilized to see how changing tasks or decisions based on the scenarios would alter outcomes.

What actually happened?
Mission to Task Analysis/Value Focused Thinking
Working from goals back to tasks – Fundamental and Means Objectives
Exercises – very tiring for participants
Results – Heavy emphasis on Response in both scenarios
Gathered input from Subject Matter Experts in detail
Validated areas of weakness in planning
Provided some insight into potential planning areas.
Good tool for supporting planning initiatives to support goals of program and potentially solicit support and funding.

What went well and why?
Community Partnerships
Identified areas that need focus in four pillars
Tool for future development of other hazards – challenge cannot do alone using this model
Baseline established in four pillars of Emergency Management that can be measured against in re-evaluation of two hazards

What can be improved and how?
Time – Somehow condense meetings as commitment was too much for some.
Need method to utilize modeling - require user interface – so that communities can look at how decision making changes results and complete analysis
Task is onerous in the Fundamental and Means Objectives portions – how can it be streamlined.

For more information:

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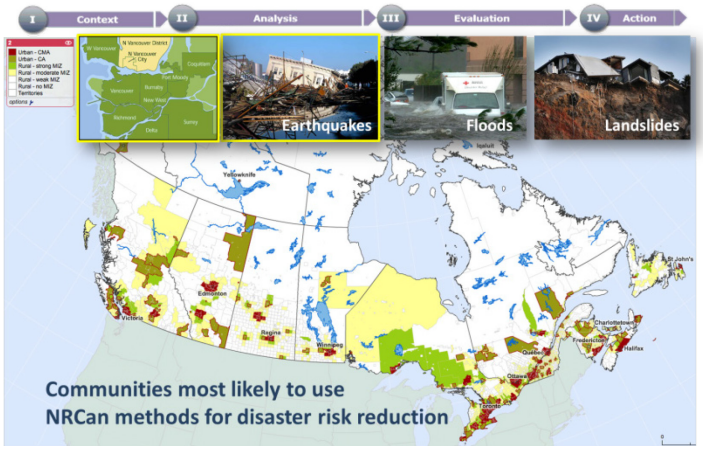
Karen Lindsay, Emergency Program Manager, Nanaimo Fire Rescue - Karen.Lindsay@nanaimo.ca

HAZUS: A Loss Estimation Method for Disaster Risk Reduction in Canada

Methods for Disaster Risk Reduction

Overview



What was supposed to happen?
Bridge the gap between knowledge & action.
Policy Considerations:

- Risk Tolerance
- Emergency Plans
- Land Use Policy
- Mitigation
- Adaptation

What actually happened?
Step 1: Establish Context

- Establish study region & assess available information/knowledge assets
- Appraisal of existing/emerging threats, vulnerabilities and capabilities
- Establish policy goals and assessment criteria that will inform planning & decision making

Step 2: Develop Asset Inventory

- Compile available information on people & characteristics of the built environment
- Perform a gap analysis and collect additional local data as needed
- Develop Hazus inventories for aggregate & site-level analysis of vulnerability (Level 1 & 2)

Step 3: Hazard Assessment

- Develop probabilistic & deterministic ground shaking models (PGA, PGV, Sa0.3s & Sa1.0s)
- Assess effects of local site amplification for portfolio of ground shaking models (Shakemap)
- Assess permanent ground deformation parameters for liquefaction & landslides

Step 4: Risk Analysis

- Use Hazus model to assess impacts & consequences for portfolio of earthquake scenarios
- Use SoVI model to assess intrinsic social vulnerability of community
- Assess risk indicators for vulnerability, public safety, economic security & system resilience

Step 5: Risk Evaluation

- Use indicators to assess thresholds of risk tolerance
- Select earthquake risk scenario(s) for planning & policy development
- Explore strategies for risk reduction & disaster resilience

What went well and why?
Shakeout scenarios: a storyline of what to expect.

- Target Indicators
- Seismic Hazards: 20 seconds of shaking, liquefaction & landslides
- Buildings: ~300 with significant damage & 850 damaged beyond repair
- People: ~2,300 injured; ~165 fatalities
- Lifelines: ~14,000 homes without water & ~7000 without power @ 7 days
- Economic Loss: ~$2.3B in building-related losses & ~$4.4M/day lost revenue
- Return on Investment: 3:1

What can be improved and how?

- Focus on methods of risk assessment – not tools
- Match analytic scale and risk measures with specific needs and policy goals of the community – not scientific capabilities
- Base risk decisions on impacts & consequences – not hazards
- Provide financial incentives for community-based risk assessment – not legislative requirements
- Increase capability for risk-based planning through outreach & professional training– support communities of practice
- Explore public-private partnerships for ongoing development of risk assessment capabilities – optimize efficiencies

HAZUS: A Loss Estimation Method for Disaster Risk Reduction in Canada

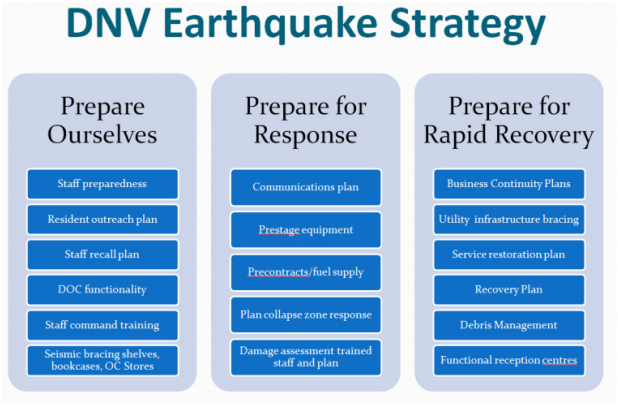
City of North Vancouver, BC
District of North Vancouver, BC
District of West Vancouver, BC

Like all local authorities, the North Shore (City of North Vancouver, District of Vancouver and District of Vancouver) has legislated responsibility for Emergency Management. It has a population of 160,000 residents in a 31X13 km region.

The North Shore has partnerships with Research Institutions – NRCan, UBC Earthquake Engineering, Justice Institute of BC and Simon Fraser University. It uses Risk Management Tools – Emergency Management BC Risk and Vulnerability on-line assessment tool as well as HAZUS.

What was supposed to happen?
Analysis of earthquake hazards using the Hazus methodology. NRCan utilized the District of North Vancouver as a pilot community.

What actually happened?
Extensive analysis occurred for District of North Vancouver. A more limited project is being conducted by UBC for the City of North Vancouver and the District of West Vancouver and as resources are not dedicated, this part of the project is taking longer.
NRCan created a new surficial geology map for the District of North Vancouver, then using the Hazus data created ShakeOut stories on how the earthquake would impact citizens. Information was presented to the District's Natural Hazard Taskforce and input provided on scenarios.



What went well and why?
NRCan conducting an in-depth Hazus analysis. ShakeOut scenarios have been developed and these will form the basis for communicating to the public. Information has been shared with the community planning department and will influence the official community plan thereby strengthening community resiliency

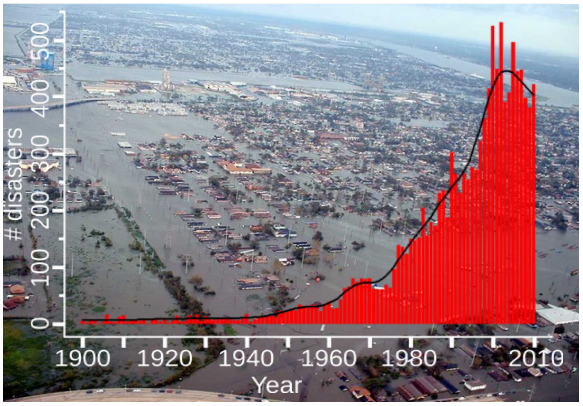
What can be improved and how?
All research needs to be practical. Any tools that are created from research must be easy and inexpensive to use, especially for communities that do not have resources to undertake the analysis. Outcomes should have two purposes: 1) for municipal use to inform their community developments, 2) information for the public. Public Information should be simple and understandable and provide enough detail to create preparedness/mitigation action but not too much that it becomes overwhelming and results in citizen inaction.

For more information:

- Murray Journeay, Geologist with the Earth Science Sector of Natural Resources Canada - Murray.Journeay@NRCan-RNCan.gc.ca
- Dorit Mason, Director, North Shore Emergency Mgmt. Office - dmason@cnv.org
- Michelle Weston, Public Safety Section Manager, District of Vancouver - westonm@dnv.org

Land Use Planning Guide

A Canadian guide for municipalities to consider land-use options to increase disaster resilience

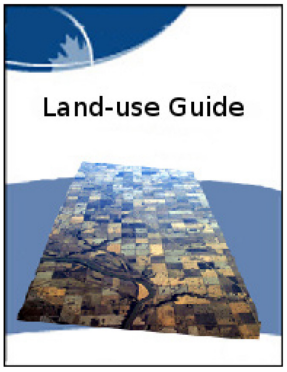


(EM-DAT http://www.emdat.be/natural-disasters-trends)

Guide Objectives and Overview
1) A guide for municipalities to consider land-use options to increase disaster resilience
2) Build a tool to learn effective risk-based land-use evaluation
3) Network with mitigators

The guide is for municipal staff and those who work for municipal staff. They have significant influence with city council and can make land-use recommendations that have an acceptable hazard risk.

The Guide integrates risk management principles and techniques into the municipal land-use recommendation process. It shows how existing municipal instruments and risk assessment tools can be used to recommend land-use that has acceptable risk from hazards.



Phases and status of the Tool

Phase 1: Guide for land use planners and permitting officers of Metro Vancouver municipalities. Guide is nearly complete and would be useful for the 100 largest communities in Canada.

Phase 2: Template for a national risk-based land-use guide by March 2015.

Phase 3: Guides for land-use planners and hazard risk managers of a cluster of Canadian municipalities and other communities. Start pilots in other communities starting April 2015 and 10 years from now incorporated communities and reserves in Canada.

What went well and why?
Stakeholders provided the concept and core material for the guide through workshops and exercises. Their cross-disciplinary and multi-agency engagement permitted integration of municipal instrument and risk management and built a common language for risk mitigation. It engages stakeholders from disparate disciplines and sectors in risk-based land-use issues to learn more about risk management concepts and the potential of application to local land-use recommendations. It establishes potential additions to local risk management tool boxes.

What can be improved and how?
Version 1.0 needs to be completed and made available. It will be short, readable, understandable, practical, just enough and applicable. It will need support for versioning and updating over time, and for creation in other places.

What actually happened?
Interest of originally engaged members of municipalities has fallen off because of length of time since workshops and exercises.

For more information:

www.sfu.ca/cnhr/workshops/index4.html
Bert Struik bert.struik@nrcan.gc.ca

Appendix D: Enablers and Constraints Identified in Project/Community Presentations

The first activity in the workshop consisted of presentations and analysis of selected disaster resilience projects. Project developers and community representatives gave structured presentations outlining their project and the experience of the communities who were involved in them. Participants worked in small groups to analyze the information provided in the presentations. The groups were asked to identify those factors that enabled or constrained the success of the projects. The following tables are a compilation of the group work, organized by project. The middle column, labelled "Both" represents factors which ***both*** enabled ***and*** constrained success.

Community Resilience Architectural Framework: Enablers and Constraints		
Enablers	**Both**	**Constraints**
Community engagement fostered	Reason for keep the conversation going	Community social vulnerability data – is this supported by HRVA?
Process begins to build grassroots support and buy-in, allowing for necessary redundancy in people / resources able to respond.	How does the tool address interconnections of interdependency of systems?	Service matrix slid – doesn't show health and community social services
The community members come together and create a common focus on understanding and actions needed to reach resiliency	Does it quantify across participating cities	Critical hazards that could cause the greatest impact to community must already be identified
Existing HRVA framework in BC	Damage functions: +/- go/no go	Knowledge of what questions to ask if you don't do full architecture
Summary Matrix of hazards, services impacts and priorities		Cost of consultant: when not supported by EMBC how wider application would be funded?
Outreach tools: this is great, but will people actually care? It helps when there are emergencies/disasters		Complex structure
Consistent date and methodology		Focus on essential services. Response oriented?
Like whole systems approach		Great to see huge outreach efforts but wonder if conversations were siloed because each workshop focused on particular stakeholder group, rather than mixing them (e.g. Business and first needs and community members in same dialogue.)
Framing the conversation		Where does emotional psychological support fin in as a category? Essential services? High stress situation
Identify/validate of differences – risk perception, and disparity between community expectations and capabilities of responders		What were the practical outcomes of application or the tool? What programs, strategies, were developed as a result of the assessment? How were they applied?

Community Resilience Architectural Framework: Enablers and Constraints		
Enablers	**Both**	**Constraints**
3rd party facilitator – to engage community – very important		Disconnect/unrealistic expectations of community members and local emergency service providers – very common at all levels of govt
Engaged emergency planning coordinators		Money
Social implications of CI failure		Expectations and system fragility
Consistency in model/matrix – easy to compare to others		Tool does not include risk/hazard assessment based on probability and/consequence
Matrix information valuable/useable		Insight into privacy – CI
Simplified, but still complex and valuable; too much information becomes overwhelming		Regular process vs one-off project
Engaged community participants		Expertise required to conduct architecture construction / analysis
Engaged local facilitators and participants		Potential stigmatization of vulnerable populations or services.
Local knowledge is essential		Minimizes social variables of resilience (social/capital, positive outcome expectancy, trust..)
Community engagement led to ongoing relationships		As it is labor? intermarried? how do you ensure it is kept up to date? This could be a constraint to long term planning.
Pre-completed risk assessment helpful		Community links required – need to know the right contacts.
Realization of value of resources existing in community		Only know about your resiliencies less about others
Generic Modeling tool. Could be broadly applicable.		Clear and common understanding of resilience
Community Engagement		What does resilience look like? How is this expressed to community
Enables the identification of interdependencies and gaps amongst different communities.		Cost
Acceptable to achieve a 75% solution. Ensure parameters are identified in advance. Identify what you are not going to discuss / achieve.		Understanding of research process, key terms, purpose, not always demonstrated in way that makes sense.
Local knowledge contributes to more resilient of preparedness and response – e.g. Hunting and fishing.		No match between community expectations and EM professional capacity
Value of local knowledge through engaging the right participants.		Even if have good plans, need the resources to follow through e.g. $ for structural mitigation
Community centric resilience programs start from grass roots. Public encouragement to validate interdependencies..		Standardized model for HIRA – FRVA lack of clear model by which communities are assessed leaves gaps for EM readership

Community Resilience Architectural Framework: Enablers and Constraints		
Enablers	**Both**	**Constraints**
Standardization of accessing community hazards/vulnerability. Risks are critical to identify pieces of the architectural framework by which resilience is realized.		Interoperability – multi jurisdictional, multi-discipline management systems – common language. Lack of admin support at senior level
Being available before during and after demonstrates a good understanding of needs and response to community needs / resilience.		Architectural designed from western points of view. What works, doesn't work in aboriginal context. Applications of premade frameworks.
Use key people, networks to initiate project. Need project champions. Move beyond STP (same ten people)		Time required – technical knowledge to use tool
Outside facilitator can enable increased understanding of risk and resilience. Includes use of tools		Complete plans too expensive for communities – don't address unknown unknowns
Political support from legitimacy of facilitated project		Cost
Seeing communities as system of systems.		
Consultant Guide		
Power of the Community influenced. Resilience Team.		
Structure and Contents could provide template for others IF made easier to use		
Reporting back on what Ivan heard from community and what next steps looked like. Framework matrix demonstrated there are resources)mitigation / collaboration)		
Benefits of matrix and use by other stakeholders		

Critical Infrastructure Assessment: Enablers and Constraints		
Enablers	**Both**	**Constraints**
What is good enough? 80:20 rule. If you have most of the information is that enough?	Terminology – may need to use other terminology CI is confusing doesn't mean easy to understand for others not with this EM field.	How far down do you go for the assessment? What is enough? What is not detailed enough?
Tying CI to replacement value (vulnerability, consequence of loss) financial asset management plans- i.e. that if you replace then recover will be less.	Customization of the tool re: language	Education and Engagement is most valuable. Question -do those participants then communicate it back to the others within their area?
Looks at who is impacted if goods and services lost	Builds strong understanding of municipal CI only	Consistency of people involved in process – continuity.
Used information from previous pilot project to inform the tool used in Delate		What about community services representatives at the table. Community groups often get left out of process but they know the population impacted.
Used matrix tool		Tool may not be one that is / can be driven by community. This needs to be for is only used at government or private industry
Use social media to id CI geographically		Means to get CI fails to ID assets
Multiple User Applicable		Geographical impact – does it tell us who is impacted and where?
Clarity around expectations		Common language
Balanced representation: experts in relevant areas of expertise engaged		Further fragments EM / Resiliency/ Sustainability/Climate Change Adaption
Capacity to customize tools to meet local need.		Constrained sharing of CI information
Clear definitions of key understanding of terms		Unrealistic expectations in community.
Engagement itself is one of the most valuable pieces of process.		Willingness / capacity of community to participate actively and in advance.
Discussion during the process – good valuable		Rushed – project deadlines constraints.
What if we could anticipate and visualize the consequences of disaster event before it occurred? Would the knowledge & understanding lead to actions on the ground that have a potential to reduce vulnerabilities and increase resilience		Security of information product. Data Ownership / proprietary information.
Bridge assessment management to tool		Knowledge of CI dependencies and interdependencies is limited
Consistent team		Change in staffing – quality of data, being provided
Establish benchmarks		How to get one community to take ownership
		Anticipate the project scope – better time to prepare
		Clear terminology and language – bring people beforehand
		No CI legislation

UN Getting My City Ready: Enablers and Constraints		
Enablers	**Both**	**Constraints**
Pointed at overlap between sustainability parts, recreation, social services, etc… that are also great for disaster risk reduction resilience		Buy-In takes time - how many times do they need exposure to the topic before they hear it?
Participation of citizens groups		Need strong local government buy-in to be effective
Holistic approach		Lack of buy-in and collaboration on project awareness and promotion. How was concept and project approved?
Great way to engage students – model at other post-secondary schools?		What guidance is provided to Cities/Communities to achieve the 10 essentials
Methods for communities to compare progress (e.g. Website providing information, progress, participation.)		Hand for small communities to understand exactly how their realities fit into the 10 essentials.
Very simple evaluation (milestones, half way there – etc.)		Local resources
Adaptable to smaller communities		Not enough national/ provincial / territorial support
Comprehensive, prioritized framework that is very easy to understand		Assumptions that people understand why it is important to do DRR work. If they don't understand they won't be motivated to do it.
Municipal leaders helping other municipal leaders		Online tools only work if people go online and use them. And this is a challenge to get people to do it.
Student facilitators (having students to do work as project)		Unfortunately, information and education is generally not enough to change behavior. Need face to face, humour, fun, prompts, learning what barriers are for communities to sign up. Community based social marketing.
Good baseline assessment that can inform future mitigation strat3gies		Scope unclear and actual outcomes of project hard to articulate
National profile and "shiny tool." To motivate and reward		Link sustainability to resiliency. But realize it doesn't replace triple bottom line should be quadruple bottom line: social, environmental, financial and resiliency.
Website has tools and allows comparison with other communities		Terminology: doesn't help if it is at higher level words. Needs to be local level communication level.
Bring people together for self-analysis		Competition with other tools – ICLEI/BARL program
Continuity of community self-analysis – put in Prov law for O.C. plan		Need champions in the communities to make this happen.
Simple generic process		Need support (at least in principal) from

UN Getting My City Ready: Enablers and Constraints		
Enablers	**Both**	**Constraints**
		prov/territorial Emergency Management and Public Safety
Transparency		Support – then what? How validate? How compare?
More of a policy framework that could allow other specific tools to be used		For smaller communities, some of the 10 essentials are not applicable, not available, or not biggest concerns of the community
Facilitates breaking silos		UN vs Canadian
Regional collaboration through resources sharing agreements provincial grant		Level of resources available to commit to assessment and planning/risk mitigation, may be lacking in small communities (personnel, time, budget)
Regional collaboration – provincial funds, resources sharing MOA		Constraints articulated in terms of $ and time but value is not articulated in this way
National Disaster Mitigation Strategy		Critical infrastructure is labelled a national security issue and is therefore classified
Provincial – level support crucial training and resources		Without a strong leadership (bit it individual or organizational) it seems that work does not proceed. Challenge is thus to keep enthusiasm e.g. there involved and recruit more broadly
Use university based research and energy of students to facilitate research.		Ongoing community education
10 essentials – minor understanding of no regrets and mainstreaming within climate change adaptation		Siloing of initiatives e.g. Sustainability vs disaster resilience. Parallel tracks rather than mutually informing.
Cost		Framework is great but you need buy in and support.
Facilitators with subject expertise		Small rural community – lack of resources, small budget and volunteer based.
Theme: Common understanding		Tool box might not be user friendly for rural and might not be applicable.
Helps build a common understanding of principles and goals of resilience planning		Can create awareness about motivating change, engagement and activity more challenging.
Investment and maintenance in CI that reduces risk		Communities are busy doing day to day activities. Why should they bother?
		Guide through process.
		Subject Evaluation in rating essentials.
		Defining Hyogo Essential services is missing. This must be part of every community's achievement planning for EM preparedness.

UN Getting My City Ready: Enablers and Constraints		
Enablers	**Both**	**Constraints**
		Conflicting demands on people's time.
		Theme: Ownership
		Shift to introduce rural perspective
		Absence of federal leadership in DRR – visibility/priority
		Lack of incentives for uptake and use of UNISDR strategy at local scale
		Comparable communities for validation
		Confusing in terminology and language
		Obtaining buy in
		A budget for disaster reduction

HAZUS: Enablers and Constraints		
Enablers	**Both**	**Constraints**
Supports 4 EM pillars		Availability of data and protection of data
Supports communities of practice		Need resources to exercise plan. i.e. . . . $$
Social vulnerability assessment done		Cost
Looking at who is vulnerable and why		Works to convince key personnel
Asset inventory		Public apathy
HAZUS, NRCan research provided specific usable results		EQ vision awareness is high. Not the same for most hazards (see Calgary's flood vision.)
Focus on methods not tool		Pre-position supplies, training targets
Different approaches for different audiences		Research has to be practical and applied
Consequence visualization – repeatable		Amount of scientific and technical data needed
Comprehensive map layers showing buildings, economic loss, people, lifelines		How did you come up with 3:1 ROI, what lit gives 4:1
Scenario and impact analysis – targets for planning		Resources need for completed detailed information for seismic hazard analysis
Use estimate of loss and type of loss to help inform businesses re: opportunities to captivate on disaster to improve planning for post-disaster service		$ to input data to assess damage – location/type of buildings, demographic shifts by time of day, etc.
Pre-identified areas of concern		Managing expectations
Explicit interactive design and analysis		Need experts / trained analysts to run the tools
Broad engagement		Limited range of hazards
Risk Scenarios can inform policy		Significant data requirements for hazard scenarios
Considers risk tolerance levels. Not just objective assessments / priorities.		Looks at one specific scenario only. This requires a need to keep eyes on the big picture
Continual engagement with stakeholders to develop lessons learned.		Some communities (at elected level) don't want to share information about worst case scenarios.
Detailed Process		Need knowledge translation for each audience. Public won't understand academic language.
Robust methods "hard" evidence to inform policy and planning		Bureaucratic foot design.
Use in small or large communities. Adapt to fit.		Apathy responders will look after us.
Good Implementation Process (clear)		See risk information as bad story – Don't want to share this with citizens.
Managing expectations		Lack of disaster experience.
Focus on methods (standardized of risk assessment – not tools. Don't tools help generate a common		Citizens don't necessarily want to know e.g. Effort on land values.

HAZUS: Enablers and Constraints		
Enablers	**Both**	**Constraints**
language and assessment matrix.?		
Expectations are unrealistic given earthquake of Rapid restoration of services. Suggests expectations management campaign effort.		Public expectations
Rebuilding after disaster. Plan to “build back better” opportunity for mitigation.		
Scenarios can tell a compelling story to underpin awareness and plan development.		
Coordinate planning for disasters with other local planning process.		
Knowledge of who/when/where helps pinpoint and focus plans.		
Bring research to the practical realm		
Partnership with research institutions – develop, enhance		
Change the story – change the frame of reference		
Be open – give citizens the info and what they want to know		
Outreach to planners to incorporate to OCP		
Presentation of realistic scenarios – not overwhelming		
Encouraging preparedness in a meaningful way		

Land Use Planning Guide: Enablers and Constraints		
Enablers	**Both**	**Constraints**
Provides a method to integrate risk reduction in OCPs		No buy-in by planning departments. Short sighted build to get taxes – don't want destiny. Impact of the metro growth plan – 1 million more people coming
Brings planning community into disaster engagement conversation		Planning highly political economic to us efficiency. Maybe resistance to risk reduction guide applications
Part of strategic planning		Political
Integration into all of a municipalities across departments		Doesn't take all hazards – focused on national disasters.
Work with what you already have in place		Tools designed for cities in 1st phase.
Exercises for learning risk management		
Open source		
Not prescriptive, allows communities to develop land use plans which consider risk reduction.		
Points to municipal tools/processes where risk mitigation can be inserted		
Workshop/exercises enable communication – get people to learn and work together		
Sharing info across local government services		
Leverage existing tools		
Maintains relevance		
Utilizes social and technical aspects		
Use symbols		
Build on strengths and work already completed		
Develop common language and definitions		
Thought: community well-being planning assessment has many similarities to many of these tools.		
Understanding framework of communities		
Relationship building		
Tolerance for losses in each area/category		

Rural Disaster Resiliency Project: Enablers and Constraints		
Enablers	**Both**	**Constraints**
Web based tools as well	Measurement proxies to simplify analysis	Applicability to a larger jurisdiction?
Web as supporting complement rather than central focus – e.g. Still need lots of face to face	Move beyond disasters into broader planning issues	Is lion's head a representative case study? E.g. – very good infrastructure compared to most <1000 communities. Plus access to Owen Sound, hospital, etc.
Diverse delivery methods	Is the tool a good size? # exercises, #presentations – too much or just right?	Limited resources
Strong social networks in rural community – possibly compared to the large urban suburban communities.	Implementation	Hard to sustain this level of facilitation (or get it in the first place)
Looked at social structure of community – this is often left out		Lion's Head no authority to implement
NWT – local leadership		Lion's Head relied on people coming to the events, rather than going to them- e.g. Go to the beach, the pub etc. existing groups at their meetings
Comprehensive group or stakeholders who were involved in whati, nwt – including marginalized populations		Need to adopt for diverse groups – aboriginal communities
Bottom up approach rather than top down		NWT – marginalized groups in community
Strengths based approach		Resistance to engagement of municipalities.
Community based understanding / definition of resilience – how relate to it.		National support program or provincial support trigger RR analysis follow up and results
Northern Bruce Peninsula signed off on municipal buy-in		General public and community apathy
Use of social/networks to engage community		Extensive list of T/H too focused on detail, prescriptive
RDRP provides evidence for community engagement		Perhaps a bit too prescriptive need to make it more flexible and adaptable
Ground up		Sustainability in terms of resources engagement
Pilot phase with Canadian communities		The tendency to rely on / believe others are taking care of ensuring a community is protected. Lack of personal ownership towards building resiliency.
Ease of use of online and adaptable to fit community's particular needs		Leadership must support champions otherwise doesn't move forward.
Linking resilience to disaster to economic development		Flexible Bottom up approach
Require disaster resilience assessments as part of development approvals		One more thing to do – need champion
HRA, HRI, RRI useful – similar to		Ongoing funding to keep up tool and upgrade

Rural Disaster Resiliency Project: Enablers and Constraints		
Enablers	**Both**	**Constraints**
Sense of legitimacy and consistency of RR system through web tool		Online access increase access but need awareness need broadband
Flexible tools		Need for facilitation – time constraints
Strong champions -		Time and support
Address need to balance – comprehensive, robust, easy to use.		Support and time
Good comprehensive (HRA, HRI, DRI) looks across social and physical factors		Time of year for data collection
Paris identification and resiliency strategy		Requires community champion
Written in easily understandable language		Lack of community engagement
Structured approach that is flexible		S/O mentality when it came to implementation – how to overcome jurisdictional issues
Trusted community members		Usability – paper to web
Resilience – more than being prepared for disaster events		Stronger implementation phase
Diverse community engagement		
Leadership / Champions		
Table Top – scenario specific: include schools community leaders – mock exercise – community involvement		
Can use existing information to blend with tools HIRA		
Pre-existing strengths can serve as basis		
Disasters windows of opportunity		
Theme: Plan and strategies		
Prepared messaging		
Need to champion project		
Looking forward to upcoming de3vleopments – which could impact communities		
Implementation plan and strategies		
Tools provide were flexible and structured		
Theme: Buy-in		
Municipal buy in – resolution passed by council		
External facilitator or champion required		
Good cross-section of participants		
Good understanding/buy in		

Community-Wide Hazard Risk Management Planning: Enablers and Constraints		
Enablers	**Both**	**Constraints**
Apply to 4 EM pillars	Research suggest proxies that approx. 75% solution	Emergency managers are the facilitators of relationships
Linking fundamental objectives to principles for response, mitigation, recovery, and preparedness	Software needs to do more under the hood to make it simpler for end users	Community partners involved needs to be broader (more inclusive)
Potential relationships identified	But developer should stay involved for facilitate user understanding and maintain use of the tool	Multiple stakeholders
Facilitator	All tools need to do better at identifying value/value proposition and return on investment or cost benefit analysis	Needs expert assistance
Understand why do I care, why important, implications to contextualize tasks and make relevant		Fundamentals Objective Hierarchy (value based) value judgments often exclude marginalized populations of society
Adaptable		Is it reproducible/repeatable
Flexible		Is it simple and/or inexpensive enough?
For future use: all hazard approach		Need to know the community to start with – what are the challenges
Strategies and inventory of resources for engagement of communities		Timeframe required to complete complex analysis
Theme: Outreach		Challenge to link to guide deliverables to an onerous process to get buy in
Outreach and presence in communities		Limits consideration of unknown or generic risks / resilience elements
Highlights of what's important to community members		Complex adaptive systems are by definition unknowable is a logic model about fit for such systems.
Validation for community – engagement groups – built by community		High number of assumptions
		Model seems more appropriate for top down approach. Might miss out on broader community stakeholders input.
		Complex application
		Software limitations
		People want quick answers and easy solutions. Need to manage expectations
		Easy interfaces need more software and pre-development.

Community-Wide Hazard Risk Management Planning: Enablers and Constraints		
Enablers	**Both**	**Constraints**
		Tools often need facilitation
		Cost
		Manage expectations
		Need for planning related to vulnerable population
		Diverse community considerations influence on architecture framework
		Lack of resources

Appendix E: Discussion Themes

The discussion themes emerge from participants' review of the enablers and constraints associated with project and community presentations. Working in small groups, participants reviewed the entire list of enablers and constraints and looked for cross-cutting themes associated with enabling and constraining community participation in disaster resilience planning. The project team then used an inductive analysis to group these themes into a series of discussion topics that formed the basis of the Day Two activities. The lists below are the individual themes identified by the participants, grouped into Discussion Themes by project team.

Theme 1: Language and Terminology	Theme 2: Engagement and Buy-in	Theme 3: Resources	Theme 4: Holistic Approach/The Big Picture
Clear terminology	Buy in	Cost and complexity	Asset Vulnerability
Consistency	Community buy in	Lack of resources	Clear project scope and outcomes
Discussion	Community engagement	Limited resources	Community needs/considerations – e.g. vulnerable populations
Lack of common language	Diverse community engagement	Resource Limitations	Comprehensive
Practical, user friendly flexible	engagement	Resources	Defining resilience
Simplification through proxy measures – addresses limited resources	Expectations	Resources – cost, time,$$, expertise	Difficult to engage planners
Terminology	Expectations Management	Resources (enabler/constraint)	Drawing on existing networks
Visual tools	Expectations Management – upfront about tool can / can't do	Time and Support	Drawing on exiting plans
	Importance of internal and external stakeholder engagement use of SME's address all population (vulnerability)		Existing systems
	Lack of community buy in		Fragments / EM sustainability / climate change adaptation
	Looking for NM-hazard goals – go to the community; don't expect them to come to us. Find common interest		Future growth strategy
	Open Outreach		Impacts
	Outreach (open)		Missing network mapping
	Partnerships		Multi – Jurisdictional, Consistent, Enables interoperability, Multi-disciplinary
	Public buy in		Pairing risk resilience assessment with treatment
	Public expectations		Plans and strategies
	Relationship building and partnerships		Response oriented
	Sustainability (resource and engagement)		Scope

Theme 1: Language and Terminology	Theme 2: Engagement and Buy-in	Theme 3: Resources	Theme 4: Holistic Approach/The Big Picture
	What's in it for me? Why is this my problem – visual, due diligence – not wanting to know		Supports 4 EM pillars

Theme 5: Champions and Subject Matter Experts	Theme 6: Common Understanding	Theme 7: Community Context Counts	Theme 8: Sustainability and Political Will
Engagement and champions	Accessing the right data	Accessing the right data	Challenges with implementation
Expert required	Clear project scope and outcomes	Community engagement	Cost and complexity
Facilitation – Person or Tool	Defining resilience	Community needs/considerations – e.g. vulnerable populations	Open Outreach
Importance of internal and external stakeholder engagement use of SME's address all population (vulnerability)	Don't' expect them to come to use	Don't' expect them to come to use	Outreach (open)
Leadership / Champion	Evaluation	Find common interests	Ownership
Reliance on external experts	Evaluation of tool, Usability, Technical foundation	Importance of internal and external stakeholder engagement use of SME's address all population (vulnerability)	Political will
Resources – cost, time,$$, expertise	Expectations Management	Local relevant Transfer Knowledge, bottom up, context specific	Resource Limitations
SME	Expectations Management – upfront about tool can / can't do	Looking for NM-hazard goals – go to the community; don't expect them to come to us. Find common interest	Sustainability
Specific process – provides guidance	Impacts	Needs and Community	Sustainability (resource and engagement)
	Influence of Tool	Relationship building and partnerships	
	Local relevant Transfer Knowledge, bottom up, context specific	Specific process – provides guidance	
	Multi – Jurisdictional, Consistent, Enables interoperability, Multi-disciplinary		
	Ownership		
	Public expectations		
	Relationship building and partnerships		
	Satisfied with not being perfect		
	Scope		
	What's in it for me? Why is this my problem – visual, due diligence – not wanting to know		

Appendix F: Implications and Strategies

Participants worked in small groups to review the discussion themes generated in Day One. Groups were asked to identify key ideas associated with each theme, then discuss the implications of the theme in relationship to community participation in disaster resilience planning, and then develop strategies to encourage increased uptake by communities.

Discussion Theme 1: Language and Terminology		
Key Ideas	**Implications**	**Strategies**
How do you keep with the language evolution	Lead to misunderstanding. Implement "wrong" agreement.	Dialect dictionary – don't try to change use different sectors
Discussions and process important but a final single definition very well could be impossible	Build Dictionary and not put in practice – just intellectual exercise.	Incorporate into the relationship building
Examine language – gender neutral	Cultural imbedded difference.	Show outcomes to explain meaning
Principles and values reflect language. Embed the principles within the definition. Hierarchy and evolution in terms of fundamental values.	Spend too much time/emphasis trying to define terms, rather than solve problems.	Accept that we won't all agree – get over it and move on.
"Role Order Model". Repeat back what you heard. Opportunity to correct.	Often educational component – e.g... Not everyone knows what "CI?? Is/means	Being able to articulate meaning (simple language) and adapt a meaning for "this" purpose
Two way communication.	Same words mean different things to different people. E.g. "Intelligence" (in terms of information)	Encourage the process of negotiation meaning within an operational context / group, rather than trying to standardize
	Awareness – language and terminology may be different, but we can work with that if we are aware of it.	Acknowledge cultural context
		Focus on concept as compared to specific terms, play down the term
		Need an interpreter to translate – understand the language.
		Use picture words for engagement and buy in
		Agree on norms up front
		Agree to disagree
		Consensus based decision making
		Use examples from real events
		Keep the conversation going – engage and encourage dynamic conversation to build awareness instead of standard definitions.
		Use of interdisciplinary language

Discussion Theme 2: Common Understanding

Key Ideas	Implications	Strategies
Depends on defining terms (theme 1) and community context (theme 7)	If done right, you get a positive outcome	Get all stakeholders together
Understanding of needs	Efficient use of valuable resources	Create vision and mission – refine it
Build relationships / networks	Product or outcomes more useful (applicable)	Clear about limitations, manage expectations
Cost Benefit – what you get out of it what you put in.	Chasing common understanding is a potential red herring for progress or solving problems. Keep focused on mission.	Open dialogue – everyone gets a voice
Strengths based approach – communities think this will point out deficiencies instead of strengths.	Keep conversation going	Dynamic – goes back and forth
Change HRVA to HRRCA (resilience) (capacity) stop talking about vulnerabilities. Keep thinking positive	Moving from positions to interests	Guiding principles
Who cares – see common language and terminology	Heisenberg Uncertainty Principle	Give examples of anticipated outcomes, measures – paint the picture – context specific
		Budget time to develop
		Look for areas where common understanding exists – build on that
		Recognize that a common understanding only exists in a fleeting specific context. No universally common understanding
		Needs a final outcomes document – move specific than mission, etc. – comes after consultation

Discussion Theme 3: Big Picture / Holistic Thinking

Key Ideas	Implications	Strategies
Facts, Unbiased, Transparent,	Factually unbiased	Build relationships – laterally, vertically, horizontal – within organizations, agencies, with outside organizations agencies
Change word of systems – consider words holistic, integrated thinking	Manage the message / media control	Develop common frameworks, approaches, or at least share and translate across various ways of understanding
This is a big pie – which piece are we working on today?	Pictures sends the message	Use common indicators – e.g. TBL with metrics

Discussion Theme 3: Big Picture / Holistic Thinking

Key Ideas	Implications	Strategies
Everyone has a part to play in resilience from individual to all levels of government, private, sector, NGS.etc.	Managing to hold the big picture while focusing on a smaller part and being able to communicate to all partners	Adopt Vancouver's approach – centralized sustainability planning in Cities managers' office, city municipality wide strategies like Vancouver 2020.
	Overarching idea is healthier, more sustainable, and resilient; communities – Implication – disaster resilience needs to be connected to other community goals – integrated, inclusive. Make it relevant	Start with big picture but focus on small pictures for action – helps define small scale actions and metrics
		Take time to find the right proxies that represent the big picture (think actuary)
		Focus on a national role-out that preserves content dependence
		Integrate and connect to existing community goals
		Identify the key influential elements of the big picture
		Understand its measures
		Define the picture for the context

Discussion Theme 4: Community Context Counts

Key Ideas	Implications	Strategies
Overlap with outcomes and terminology	Without context community won't buy in.	Engagement methods (i.e. how you engage is important). Round table rather than adversarial public meetings
Legislation unique to each community	Without context may focus on wrong priorities.	Use community examples good bad and ugly
Governance is unique	Not tool is totally generalizable – depends on context	Identifying engaging the right participants – may be identified by vulnerability assessments – who is vulnerable is how to engage these people?
Physical / Environmental	Context leads to better applicability and outcomes	Community champion helps with engagement
People disconnected from what they do with who they are – they (DM staff) are members of the community as well	Legislatively unique	Community Champion – needs good supported context to get buy in for good outcomes
Why would we do this?	Physical environment	Dynamic surveys to collect and validate context
	Governance	Value based approaches
	Can't parachute in – or can parachute in but must identify be sensitive to context	History based – (how can we also appreciate the future? Its context also about where people are planning to go?)
	Without clear context (i.e. government, hazards, history, geography culture etc.) there is no relevance	Community built through facilitation.
	Without relevance there is no buy-in	Broad collaborative engagement (two way knowledge exchange)
		Inclusive of perspectives
		Outreach to vulnerable groups to listen / hear perspectives
		Identify and support community champion to help discover context.

Discussion Theme 5: Engagement and Buy In

Key Ideas	Implications	Strategies
Increasingly crowded / competitive market place for people's attention time and engagement.	Buy-in – Increased use in tools creating more visibility	RRU/EMBC – Getting Ready Campaign meeting of past recipients
Measurable outcomes of not developing sustainable resilience as a priority	Reduced buy-in decreases prospect of sustainability	RRU/EMBC - Post engagement review and sharing session of findings, results etc.
360degree accountability – GOUT R ate Payer (Industry / Business / Citizen groups)	Frame what is already being done by community in context of the resilience program	Clear and concise with the message (goal objective, plan language)
	Accountability	Educate EMBC staff. Regional managers so they can promote throughout BC @ regional meetings
	Complicates –mandates, capability, capacity, time, differs across partners	Provide / create cooperative /(carrot) and coercive (financial sticks) incentives for resiliency building
	Takes time and resources	Link resilience building to existing process that already enjoy buy in
	Engagement increase relevance, uptake	Broaden resiliency building to be as inclusive as possible to make it meaningful for many as possible
	Resilience – assumptions embedding need to be unpacked, examined, and in some cases challenged. (growing critiques of concept)	Demonstrate the value – informing community of value of process
	Marketing social and other – social marketing and market research	Three C's collaboration, coordination and communication (facilitation) and bring snacks
	Take advantage of timing – i.e. world events	Public education and awareness campaigns (ongoing)
		Financial incentives / motivation
		Simple and simply understood achievable goals.
		Output – brochure how to sign up who is in already
		Public education and awareness campaigns (ongoing)
		Bottom up approach – build on strengths understandings and defining resilience in a relevant contextual way
		Be ready to engage during windows of opportunity (well publicized disaster, etc..)
		Be completely open with information, data, knowledge, intent, rewards, beneficiaries
		Integrate initiatives into existing engagements – Generally through community groups

Discussion Theme 6: Champions and Experts		
Key Ideas	**Implications**	**Strategies**
Experts does not just mean SME but everyone's knowledge, input, backyard/ historical	Relationships building is essential, takes tie	Creating within EM job descriptions with space for building relationships – endorse it, time, provide resources, sustained commitment
Research and funding of projects / pilots needs to consider time to build relationships – and how do relationships live beyond the project	Multiple sectors / areas – EM needs to be imbedded in other area – planning mainstreaming health	Succession planning – specific include relationship, pass on knowledge good will
Champion has power to decide and implement or strongly influence those	How do you find / identify them	Ownership
Trusted people	How do you engage them	Define roles / responsibilities of what we need / want from champion / expert
Helps if champion is knowledgeable in project area	Knowledge exchange / information	Listen before answer
	Partnerships buildings	Time to build context
	Do they have your agenda	Champion needs to have trust of stakeholders and social capital
	Have to have them champions, Trusted people	Cultivate both and with differentiate people as each and maintain
	Need to find the common goal	Build trust between you and champion and expert

Discussion Theme 7: Resources, Time, and Money		
Key Ideas	**Implications**	**Strategies**
	Competing priorities limits engagement	Financial planning builds resiliency (multi-level)
	Limit buy-in	Creating relevancy by using local tools (ties into buy-in). Identify local resilience champion
	EM and resilience plans and resources need to be included in forecasting, budgeting and strategic planning (during municipal planning)	Volunteer recruitment, training and retention – assign responsibilities.
	Need to be able to articulate costs of not doing resilience plan	Bound the problem / focus
	Long term culture of resilience versus short term outcomes	Line item – budget – sustained funding and process
		Link existing projects and activities to resilience planning activities/ projects to maximize resources time and money
		Educate / inform others areas/sectors/granting bodies re: how dist. Resilience is relevant to them (ie health community development education/business)
		Process rather than project mentality
		Develop good business case with very clear outcomes BLAs, etc) ot just $$ TBL thinking.
		Could be quantified in terms of $ if required – understand true economic impacts of disasters
		Needs continuity plans for projects related to linking to existing resources, structures etc where possible
		Cost benefit analysis (ie return on investment)

Discussion Theme 8: Sustainability and Political Will		
Key Ideas	**Implications**	**Strategies**
Are there alternative ways to building political will / sustainability (ie crowd sourcing/ social financing etc)	Political will helps increase allocation of resources for initial implementation and long term sustainability	Provide supporting evidence in terms that are compatible / valued by political class
Do these process need to be independently sustainable?	Self-governing – reducing the need for expertise	Link resilience building to existing / sustainable process (e.g. Community planning)
Political will tied to fiscal benefits	Accountability to develop resilience as government priority	GOUT reputation management responsible to motivate / $$
Will never get 100% support but must still move forward	Knowledge information ties to risk .. risk aversion / fear suggest not knowing	Inform community on concepts of resilience and how it relates to sustainability
Show decision makers actual events	No political will to be transparent about local risks/hazards	Educating public / council – sustainable resilience – need to increase transparency in public
Speak truth to power events (scream into wind)	Political will tied to fiscal benefits	Resilience performance indicators in every ministerial portfolio
	No actions – life safety	Upper tier public government endorsement of DR – its importance, its relevance > prioritizing
	Cost to not being proactive	Funding to sustain beyond project focus…creating options for sustained / maintained “home” for tools, support for communities to implement, maintain and sustain resilience planning
		$$ for monitoring and evaluation built into all granting
		Dedicated resources to support sustainable initiatives
		Targets / goals enshrined in policy
		Showcase examples of community resiliency
		Ministerial portfolio responsible
		All levels government resilience enshrined in policy
		Identify costs of being proactive

Discussion Theme 9: Bits and Pieces (Gaps and Things not Discussed Elsewhere)		
Key Ideas	**Gaps**	**Strategies**
National policies making connections – ie resiliency and NDMP	National policies	Encourage the use of any tool (used correctly
How do we connect, over-lap, assist each other, bring NDMP beyond CI to community and people	Engagement of youth	Short term – build culture of communities that think about resilience and broad engagement
Research funding – CSP – COP resiliency what funding that isn't CI	Uncertainty management	Longer term: refine tools and raise level of standardization
Reputation management	Measure, metrics and data	On tool does not solve all problems – education is important
Engagement of youth – building resiliency from youth up – ground up and youth up – youth armies chch and Japan.	Funding research implementation sustaining etc…	Professional development
Volunteers – Where do they fit? North van hazards task force, Oregon resilience study – professionals	All had lots of colour	Open badges – digital recognition of skills obtained
Dealing with uncertainty	Similar strategies in multiple themes	MOOC (online courses)
Consistent foundation date	Multiple hats – so many here wear multiple hats / broad perspectives	OK with 75% success
Measures and metrics		Accessible common parking lot for tools and process frameworks
Dealing with unknown unknown		Funding for training education for community members, municipal workers ect.
Not one shoe fits all – but all people wear shoes		Database Index (shoe store analogy)
		Professional Development and training and education / accessibility (MOOC)
		Open badges scouts method volunteers
		Tools – encourage use of any – no one right
		Parking lot – accessible common place to go to access or shoe store with knowledge sales force – tools and frameworks – needs some facilitation to help community decide which shoe fits and the foot and the task and will last
		100 % is not the target

Appendix G: Strategic Priorities Voting Results

Theme	Strategy	"Votes"
Language and Terminology		
	Keep the conversation going – engage and encourage dynamic conversation to build awareness instead of standard definitions.	8
	Use picture words for engagement and buy in	5
	Focus on concept as compared to specific terms, play down the term	4
	Awareness – language and terminology may be different, but we can work with that if we are aware of it.	1
	Show outcomes to explain meaning	1
	Need an interpreter to translate – understand the language.	1
	Use examples from real events	1
	Dialect dictionary – don't try to change use different sectors	0
	Incorporate into the relationship building	0
	Accept that we won't all agree – get over it and move on.	0
	Being able to articulate meaning (simple language) and adapt a meaning for "this" purpose	0
	Encourage the process of negotiation meaning within an operational context / group, rather than trying to standardize	0
	Acknowledge cultural context	0
	Agree on norms up front	0
	Agree to disagree	0
	Consensus based decision making	0
	Use of interdisciplinary language	0

Theme	Strategy	"Votes"
Common Understanding		
	Give examples of anticipated outcomes, measures – paint the picture – context specific	11
	Strengths based approach – communities think this will point out deficiencies instead of strengths.	5
	Open dialogue – everyone gets a voice	3
	Dynamic – goes back and forth	3
	Build relationships / networks	3
	Create vision and mission – refine it	2
	Guiding principles	1
	Change HRVA to HRRCA (resilience) (capacity) stop talking about vulnerabilities. Keep thinking positive	1
	Get all stakeholders together	0
	Clear about limitations, manage expectations	0
	Budget time to develop	0
	Look for areas where common understanding exists – build on that	0
	Recognize that a common understanding only exists in a fleeting specific context. No universally common understanding	0
	Needs a final outcomes document – move specific than mission, ect – comes after consultation	0

Theme	Strategy	"Votes"
Big Picture / Holistic Thinking		
	Build relationships – laterally, vertically, horizontal – within organizations, agencies, with outside organizations agencies	8
	Develop common frameworks, approaches, or at least share and translate across various ways of understanding	6
	Integrate and connect to existing community goals	5
	Take time to find the right proxies that represent the big picture (think actuary)	1
	Use common indicators – e.g. TBL with metrics	0
	Adopt Vancouver's approach – centralized sustainability planning in Cities managers office, city municipality wide strategies like Vancouver 2020.	0
	Start with big picture but focus on small pictures for action – helps define small scale actions and metrics	0
	Focus on a national role out that preserves content dependence	0
	Identify the key influential elements of the big picture	0
	Understand its measures	0
	Define the picture for the context	0

Theme	Strategy	"Votes"
Community Context Counts		
	Identify and support community champion to help discover context.	7
	Use community examples good bad and ugly	4
	Value based approaches	4
	Broad collaborative engagement (two way knowledge exchange)	3
	Engagement methods (ie how you engage is important). Round table rather than adversarial public meetings	0
	Identifying engaging the right participants – may be identified by vulnerability assessments – who is vulnerable is how to engage these people?	0
	Community champion helps with engagement	0
	Community Champion – needs good supported context to get buy in for good outcomes	0
	Dynamic surveys to collect and validate context	0
	History based – (how can we also appreciate the future? Its context also about where people are planning to go?)	0
	Community built through facilitation.	0
	Inclusive of perspectives	0
	Outreach to vulnerable groups to listen / hear perspectives	0

Theme	Strategy	"Votes"
Engagement and Buy In		
	Be completely open with information, data, knowledge, intent, rewards, beneficiaries	15
	Link resilience building to existing process that already enjoy buy in	9
	Bottom up approach – build on strengths understandings and defining resilience in a relevant contextual way	5
	Measurable outcomes of not developing sustainable resilience as a priority	2
	Take advantage of timing – ie world events	1
	Demonstrate the value – informing community of value of process	1
	Public education and awareness campaigns (ongoing)	1
	Clear and concise with the message (goal objective, plan language)	1
	RRU/EMBC – Getting Ready Campaign meeting of past recipients	0
	RRU/EMBC - Post engagement review and sharing session of findings, results etc.	0
	Output – brochure how to sign up who is in already	0
	Educate EMBC staff. Regional managers so they can promote throughout BC @ regional meetings	0
	Provide / create cooperative /(carrot) and coercive (financial sticks) incentives for resiliency building	0
	Broaden resiliency building to be as inclusive as possible to make it meaningful for many as possible	0
	Public education and awareness campaigns (ongoing)	0
	Financial incentives / motivation	0
	Simple and simply understood achievable goals.	0
	Three C's collaboration, coordination and communication (facilitation) and bring snacks	0
	Be ready to engage during windows of opportunity (well publicized disaster, etc..)	0
	Integrate initiatives into existing engagements – Generally through community groups	0

Theme	Strategy	"Votes"
Champions and Experts		
	Succession planning – specific include relationship, pass on knowledge good will	7
	Champion needs to have trust of stakeholders and social capital	4
	Experts does not just mean SME but everyone's knowledge, input, backyard/ historical	1
	Define roles / responsibilities of what we need / want from champion / expert	1
	Listen before answer	1
	Creating within EM job descriptions with space for building relationships – endorse it, time, provide resources, sustained commitment	0
	Ownership	0
	Time to build context	0
	Cultivate both and with differentiate people as each and maintain	0
	Build trust between you and champion and expert	0

Theme	Strategy	"Votes"
Resources Time and Money		
	Cost benefit analysis (ie return on investment)	10
	Volunteer recruitment, training and retention – assign responsibilities.	5
	Creating relevancy by using local tools (ties into buy-in). Identify local resilience champion	3
	Link existing projects and activities to resilience planning activities/ projects to maximize resources time and money	2
	Financial planning builds resiliency (multi-level)	0
	Bound the problem / focus	0
	Line item – budget – sustained funding and process	0
	Educate / inform others areas/sectors/granting bodies re: how dist. Resilience is relevant to them (ie health community development education/business)	0
	Process rather than project mentality	0
	Develop good business case with very clear outcomes BLAs, etc) ot just $$ TBL thinking.	0
	Could be quantified in terms of $ if required – understand true economic impacts of disasters	0
	Needs continuity plans for projects related to linking to existing resources, structures etc where possible	0
		0

Theme	Strategy	"Votes"
Sustainability and Political Will		
	Showcase examples of community resiliency	8
	Funding to sustain beyond project focus…creating options for sustained / maintained "home" for tools, support for communities to implement, maintain and sustain resilience planning	6
	Ministerial portfolio responsible	6
	All levels government resilience enshrined in policy	6
	Provide supporting evidence in terms that are compatible / valued by political class	4
	Show decision makers actual events	2
	Targets / goals enshrined in policy	2
	Speak truth to power events (scream into wind)	1
	Link resilience building to existing / sustainable process (e.g. Community planning)	0
	GOUT reputation management responsible to motivate / $$	0
	Inform community on concepts of resilience and how it relates to sustainability	0
	Educating public / council – sustainable resilience – need to increase transparency in public	0
	Resilience performance indicators in every ministerial portfolio	0
	Upper tier public government endorsement of DR – its importance, its relevance > prioritizing	0
	$$ for monitoring and evaluation built into all granting	0
	Dedicated resources to support sustainable initiatives	0
	Identify costs of being proactive	0

Theme	Strategy	"Votes"
Bits and Pieces		
	National policies	9
	Encourage the use of any tool (used correctly	8
	Engagement of youth	6
	Open badges – digital recognition of skills obtained	4
	OK with 75% success	4
	Database Index (shoe store analogy)	4
	Open badges scouts method volunteers	3
	Measure, metrics and data	3
	Longer term: refine tools and raise level of standardization	2
	Accessible common parking lot for tools and process frameworks	1
	Funding for training education for community members, municipal workers ect.	1
	Parking lot – accessible common place to go to access or shoe store with knowledge sales force – tools and frameworks – needs some facilitation to help community decide which shoe fits and the foot and the task and will last	1
	Uncertainty management	1
	Short term – build culture of communities that think about resilience and broad engagement	0
	On tool does not solve all problems – education is important	0
	Professional development	0
	MOOC (online courses)	0
	Professional Development and training and education / accessibility (MOOC)	0
	Tools – encourage use of any – no one right	0
	100 % is not the target	0
	Funding research implementation sustaining etc…	0

Appendix H: Next Steps

Debrief Notes and Next Steps Discussion

Overall Impressions	Next Steps
All had lots of colour	Transition – the catchy idea
Similar strategies in multiple themes	Invent nuggets to insert pulling together
Multiple hats – so many here wear multiple hats / broad perspectives	Build Vcop
	Value based
	More than enough resources / K
	Volunteer – RCSG/DRR/?
	Set sights high
	Land use planning guide
	Industry – municipal / provincial / federal crowd funding – needs to be funded
	Crowd sources – funding – will people give to government
	Matching donations – who gets the money
	Create task force – can it be done outside of government – ngos, red cross
	Timeline hx disaster multi-disciplinary
	Endorsement from various agencies departments fed / prov/mun
	Use the media – windows of opportunity
	Project pieces there need to packaged
	Spores and fungus
	Show store overarching framework

Appendix I: CHRNet Aboriginal Resiliency Report Update

Executive Summary

Promoting Canadian Aboriginal Disaster Resilience in First Nations, Métis and Inuit Communities

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March 2014

This report is an initiative of the Aboriginal Resilience Sub-Working Group (AR). In 2013, the AR was struck within the Resilient Communities Working Group (RCWG). The RCWG is one of the four national working groups established under Canada's Platform for Disaster Risk Reduction. This report was prepared on behalf of the Canada Risks and Hazards Network for Aboriginal Affairs and Northern Development Canada.

The paper summarizes the key themes about Aboriginal disaster resilience that arose from two events held in November 2013 in Regina, Saskatchewan: the Canadian Platform's annual meeting and the Canadian Risks and Hazards (CRHNet) annual symposium. It also references key literature about resilience to contextualize the discussion.

A resilience approach is often portrayed as one that builds on current strengths, effectively manages and creatively adapts to all types of change, including disasters. Resilience requires knowledge about local hazards and vulnerabilities as well as information about what resources are available. While there is overlap between the disaster resilience issues facing rural/urban non-Aboriginal populations and Aboriginal communities, information about disaster resilience in Aboriginal contexts is quite slim.

The concept of Aboriginal resilience is linked to the idea of community resilience since each community has its own history, culture, traditions, language, family ties, and relationships to its landscape. In a Canadian context, Aboriginal resilience also needs to be differentiated and understood within First Nations, Métis and Inuit traditions. A key advantage of community resilience is that it fosters a proactive rather than a reactive approach to emergency management. Many Aboriginal communities have a history of self-reliance and resilience upon which to draw. Aboriginal resilience is tied to Traditional Knowledge such as local knowledge about hunting and country foods, natural resources, travel routes, and weather, snow and ice conditions. The capacity of each Aboriginal community is often dependent on the level of resources and/or economic development within that community. To become more disaster resilient, communities need access to formal networks, systems and arrangements and local, informal arrangements to deal with immediate community needs after a disaster. Strong cultural traditions and close relations between family and neighbours were noted strengths of small First Nations, Inuit and Métis communities. Communities also need support from higher levels of government, non-government organizations and private corporations to bolster resilience.

Based on the discussions and presentations which were a part of the 2013 Platform and Symposium, several important themes emerged:

Enhancing Aboriginal Disaster Resilience
Since the scholarly literature and Aboriginal perspectives on the tenets of disaster resilience are quite slim, it is critical to consider the unique circumstances of First Nations, Métis and Inuit communities and to engage Aboriginal knowledge holders to further define the resilience concept. Support from higher levels of government, non-government organizations and private corporations is critical for supporting and developing local-level resilience.

Connections to the Resilience Literature
Comprehensive definitions of community disaster resilience are increasingly common where disaster resilience refers to a community's ability not only to survive and absorb a disruption but also to anticipate risk and creatively adapt to the changes and losses that result from disasters and other catastrophic change. Traditional Knowledge will be a cornerstone of Aboriginal disaster resilience concepts and approaches.

Private Sector and Insurance
Disaster risk reduction is not solely a government responsibility; the private sector also plays an important role and has a social responsibility to support community resilience and recovery after a disaster.

Engaging with First Nations, Métis and Inuit Communities
The RCWG and the AR are examples of opportunities for engaging Aboriginal communities in disaster risk reduction. A common theme from Aboriginal community leaders is that it is important for them to engage external stakeholders as well as local individuals and groups in resilience enhancement work.

Importance of Social Capital in First Nations, Inuit and Metis Communities
Disaster resilient communities are communities with strong linkages and communications between its members, as well as local and mutual support networks. Vibrant local connections with broader webs of resources and support are essential to the development of community resilience.

Risk and Climate Change
As risk is localized, disaster risk reduction efforts need to be a pillar of community planning. Risk reduction efforts are even more urgent when considering that the severity and frequency of extreme weather events seems to be increasing through the effects of climate change, and that smaller events causing damage, injury and/or death can occur at any time. It is clear that we need to mitigate risk better, but we also need to make communities more resilient without significantly impacting the economy and people.