

**Public engagements in *forward looking* recovery efforts
following the 2013 floods in High River and Calgary**

Eva Bogdan*, Amber Bennett**, and Lilia Yumagulova***

*University of Alberta

**Royal Roads University

*** University of British Columbia

Cite as:

Bogdan, E., Bennett, A., & Yumagulova, L. (2018). Public engagements in forward looking recovery efforts following the 2013 floods in High River and Calgary. In G. Marsh et al. (Eds.), *Community engagement in post-disaster recovery* (pp. 37–55). New York, NY: Routledge.

Abstract

Community responses to disasters are shaped by the format of public engagement and opportunities for dialogue and relationship building. Drawing on two case studies in Southern Alberta, Canada we found that despite governments' objectives for transformative change, community engagement processes did not provide spaces for deeper exploration and connection to collectively address root causes and systemic issues that led to the 2013 flood disaster. As such, a critical opportunity was missed for residents to gain a greater understanding of risk apportionment, for facilitating a cultural shift, and for building the social capacity needed for actions that lead to long-term reduction in overall flood risk.

Keywords: forward looking recovery, public engagement format, cultural shift, collective action

Introduction

The 2013 flood in the Province of Alberta displaced 100,000 people and became Canada's costliest natural disaster at the time (at CAD\$6 billion). All levels of government responded by creating goals relating to transformative change and community resiliency. Natural disasters are not unpredictable acts-of-nature, but rather a consequence of how society is organized (Freudenburg et al., 2009; Mileti, 1999; Perry, 2007; Tierney, 2012). As such, changes at the civic and institutional levels, rather than technical innovations, are required to alter aspects of society that increase vulnerability to risks.

Creating intentional changes at the societal level is a monumental challenge and even more so in the aftermath of a disaster amidst upheaval in neighbourhoods, institutions, and infrastructure. Yet, post-disaster chaos may be the most opportune time for re-ordering and re-structuring a community, a society, and a nation. We ask, did public engagements on the 2013 flood promote *forward looking* recovery rather than a bouncing back to "normalcy" in ways that retain vulnerability to the same hazards? To what extent was this disaster used as an opportunity to shift public engagement strategies towards empowering citizens for facilitating change? The purpose of this chapter is to give voice to participants' experiences and interpretations of public engagement in these recovery efforts and their concerns over root causes and systemic issues related to flood disasters.

In Alberta, public involvement in natural resource management issues has tended to lag behind other provinces (Sinclair and Diduck, 2001). By examining community engagement in the Alberta context, we seek to contribute to the dearth of literature on the social dimensions of flood

management in Alberta (Bogdan, n.d.) and disaster scholarship addressing recovery, community resiliency, and place (Cox and Perry, 2011). We begin with a brief background of the 2013 Alberta flood. Next, we review literature on disasters, recovery, and resilience; public engagement timing and format; and flood management in Alberta. A description of the Town of High River (ToHR) and City of Calgary (CoC) contexts and research methods follow. Next, using evidence from each of the two case studies, we discuss public engagement during 2013-2015 recovery phase. We conclude by suggesting improvements for public engagement.

Background

In June 2013, Southern Alberta experienced the most damaging flood in recent history. An intense 72-hour-period of rain measuring in excess of 300 mm fell on the headwaters of Highwood River, Elbow River, and Kananaskis River (Pomeroy et al., 2016) – impacting rivers that flow through the City of Calgary and the Town of High River (see Figure 1). The impact of the flooding was unprecedented in Alberta and resulted in the first-ever declared state of provincial emergency (Auditor General, 2015). The flood damage was extensive: affecting 55,000 square kilometres, impacting more than 100,000 people in over 30 communities, damaging 14,500 homes, resulting in five deaths, and costing CAD\$6 billion in property and infrastructure damage (Ibid). While the 2013 flood was remarkable in its scale, floods in Alberta occur regularly. In fact, there have been twelve large floods in the past 135 years in the region where the two municipalities are located (Ibid), providing multiple opportunities to develop and refine disaster and emergency management plans.

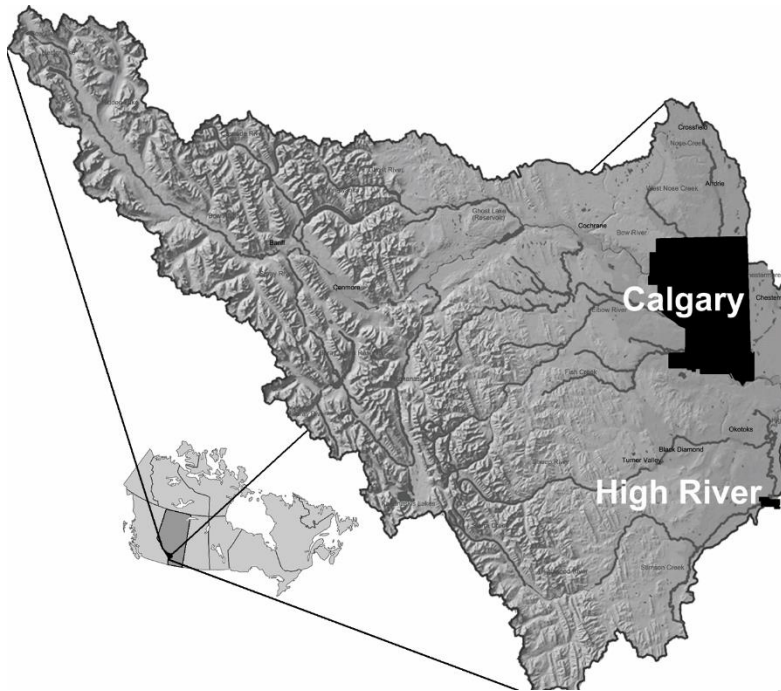


Figure 1. Map of Alberta showing the Bow River basin watershed and the municipalities of Calgary and High River (aggregated and adapted from multiple images)

The flood devastated the Town of High River resulting in the most extensive damage per capita. High River has a population of 12,715 (Statistics Canada, 2014). Flowing through the town is the Highwood River, which has also flooded ten times in the past century. The Highwood River flowed at more than thirty times its normal flow for the time of year. Over 13,000 residents were evacuated from the town and rural areas. Fifty-nine per cent of the land was inundated by water, 70 percent of homes were moderately to severely damaged, and 79 out of 83 town buildings experienced significant damage (ToHR, 2015a).

Calgary is located 37 kilometres north of High River and is Alberta's largest city with a population of 1,195,194 (CoC, 2014a). Calgary incurred the most expensive damage during the flood. Approximately 6,000 homes sustained water damage from overland flooding, seepage or sewer

backups and 4,000 businesses were impacted by the flooding, evacuations or power loss (Arthurs, 2015). Approximately 75,000 people had to leave at the height of the crisis.

Literature Review

There is a body of literature on the importance of post-disaster public engagement, its advantages and challenges (see Vallance, 2011). There are fewer studies examining the different formats of public engagement post-disaster. Furthermore, there is a dearth of disaster scholarship addressing recovery, community resiliency, and place (Cox and Perry, 2011). We aim to address these gaps in the literature by examining public engagements following the 2013 Alberta floods and whether they promoted “forward looking recovery” by creating deliberative spaces that allow for inclusion of, and collaboration among, key stakeholders to build resilient communities.

Disasters, recovery and resiliency

According to social constructivists, a natural disaster, while triggered by a hazard, is ultimately a social phenomenon (Perry, 2007). These disasters are “manifestations of failures in environmental governance and sustainability” (Tierney, 2012, p. 358); thus, solutions require changes in the social order and social activities (e.g. not building in floodways). In contrast, structural functionalist approaches focus on physical agents and hazards, and view disaster events as disrupting the social structure (Webb, 2007); thus, solutions involve controlling the hazard and managing the event (e.g. building dams). These differing philosophical perspectives shape how a disaster is framed and influences the choice of civic actions during recovery.

The disaster management process consists of four (non-linear) components: preparedness, response, recovery, and mitigation/prevention. Recovery is the least understood component of the disaster management cycle (Smith and Wegner, 2007; Olshansky and Chang, 2009). A key tension during the recovery period is balancing swift action and the speed of rebuilding while carefully considering alternatives and involving a wide range of stakeholders through an appropriate level of engagement (Kim and Olshanky, 2014). The majority of resources are often spent on quick fixes to provide immediate assistance and protection.

However, a hasty return to “normal” can reinforce vulnerabilities (Pelling, 2003), shortening and closing the post-disaster window for an in-depth examination of the extent of damage, of root causes, and opportunities for future disaster risk reduction transformation at the community level. Echoing a social constructivist approach, Public Safety Canada (PSC) states disaster risk reduction can be achieved through the following:

Systematic efforts to analyze and manage the causal factors of disasters, including through the mitigation and prevention of exposure to hazards, decreasing vulnerability of individuals and society, strategic management of land and the environment, improved preparedness for disaster risks, coordinated response and planning and *forward looking* recovery measures (PSC, 2011, p. 14 italics added).

These efforts not only enable communities to recover “from recent disaster events, but also to build back better in order to help overcome past vulnerabilities” (PSC, 2011, p. 5).

Resilience is often discussed in the context of recovery and has been interpreted as *bouncing back* (Alexander, 2013), i.e. returning to and restoring the status quo ante. More recently however,

resilience has been interpreted by some scholars as *bouncing forward* to achieve positive gains (Ibid), which is more in line with *forward looking* recovery measures. According to Public Safety Canada, “resilient capacity is built through a process of *empowering* citizens, responders, organizations, communities, governments, systems and society to *share the responsibility* to keep hazards from becoming disasters” (PSC, 2011, p. 8 italics added). We investigate whether these notions of forward looking recovery, empowerment, and shared responsibility, were reflected in our participants’ experiences.

Meaningful public engagement – timing and format

Academic research emphasizes the importance of community consultation and local participation throughout the recovery process (Kreimer, 1978; Rubin, 1985; Berke, Kartez and Wenger 1993; Kim and Olshansky, 2014). *Canada’s National Disaster Mitigation Strategy* echoes this: “Disaster mitigation is most effective when activities engage the community. Therefore, public awareness and education initiatives should be a priority” and should “promote a *culture* of mitigation... to affirm disaster risk reduction as a *way of life* for all Canadians” (PSC 2016, p. 3, italics added). Similarly, Shrubsole (2013) found that in Canada, improving flood management requires not technical innovations, but rather “a change in the *culture* and the *institutional arrangements* for flood management at all levels” (p. 117, italics added). However, engaging the public in meaningful¹ ways during post-disaster chaos (and more broadly, in environmental issues which may lead to disasters) is complicated by capacity, diversity, and place.

¹ A review of 15 years of research on learning for sustainability by Sinclair, Diduck and Fitzpatrick (2008) concluded that characteristics of meaningful engagement include: early and inclusive involvement that creates opportunities for identifying and resolving conflicts over diverse norms, values and aspirations; deliberative involvement that stimulates dialogue and development of collaborative relations; and empowerment that fuels sense of agency and socio-political action.

Effective public engagement post-disaster is seen as a challenge given the need to design engagement processes that would address decisions that are complex, replete with technical uncertainties, and characterized by perplexing value trade-offs (Dorcey and McDaniels 1999 in Pearce 2003). While authorities are often under immense pressure to start community engagement recovery processes immediately, research indicates that involving communities in complex decision-making processes immediately after a disaster event can be problematic because those most impacted may have the least capacity (in terms of time, energy, finances, emotional reserves) to participate in constructive ongoing dialogue about long-term solutions (Ward et al., 2008, Gordon, 2008, Spee, 2008). People need space and time to move through the different psychological phases of disaster response (see Figure 2). Thus the types of engagement formats and tools used, and when, should be given special consideration (Ward et al., 2008).

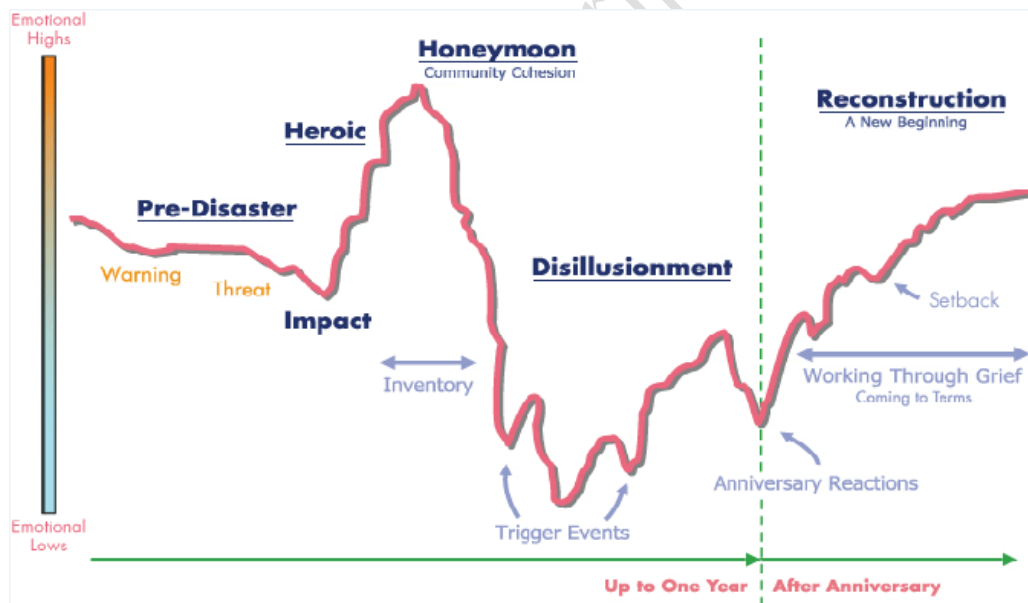


Figure 2. Phases of psychological reactions to disasters (permission from SAMHSA for reprinting). Adapted from Zunin & Myers as cited in DeWolfe (2000).

Participatory processes can range from passive public involvement in order to inform or “decide-announce-defend” through formats such as open houses, public hearings, written comments and registry systems. On the other end of the spectrum is active participatory engagement involving interaction and dialogue more common in formats such as workshops, site visits and working groups (Diduck and Mitchell, 2003; Sinclair, Diduck and Fitzpatrick, 2008). For environmental land-use planning under non-disaster conditions, interactive and dialogical activities are critical during the normative (what *should* be done) and strategic (what *can* be done) stages when learning is most likely to occur, rather than during operational stage of planning (what *will* be done) which is when it typically occurs (Sinclair, Diduck and Fitzpatrick, 2008).

Following a disaster “there may be benefits to delaying community input into long-term solutions until a later date when normal cognitive and social processes have been re-established” (Ward et al., 2008, p. 18). However, delaying some aspects of the recovery may not be an option if critical infrastructure, necessary for the daily functioning of a community (such as roads and utilities) or to protect from damages from an imminent reoccurring disaster event, must be restored or built. Consequently, in such cases decisions for designing and planning major infrastructure for the long-term (and to possibly build-back-better) cannot wait. When there are options to delay some aspects of recovery during the immediate stages following a disaster (but within the 24-month window of opportunity for change), public meetings that provide information and resources as well as spaces for discussions may be more important (than asking for input on major decisions) as they help people to understand and make meaning of the event (Johnston et al., 2012).

Once communities move into reconstruction and participatory processes, engagement approaches must support them to ‘come to terms’ with what the future may hold. Moser (2012) argues that such engagement requires navigating terrain that is “political on the surface and personal – psychological, spiritual and cultural—deep underneath” (p. 4). Literature points to the critical need to be safe and supported during this stage of engagement so that people can notice their conflicts, fears, apathy and loyalties, and feel the pain of grief without being overwhelmed by the anxieties it generates. This typically involves two key practices: 1. creating a connection to others and feelings of support; and 2. creating a ‘safe space’—be it a physical space or the atmosphere of how we communicate about the issues (Randall, 2009; Mnguni, 2010; Nichol森, 2003; Weintrobe, 2013; Lertzman, 2014; Macy and Johnstone, 2012). Listening, dialogue and conversation are well suited to this sort of engagement. Weintrobe (2013) also argues that it is critically important that people feel supported by those responsible for leading and shaping the communities in which they live.

Spaces of support, safety, and connection are also conducive for social learning.² Social learning is critical in complex natural resource management issues involving diverse interests. Through participation, an individual is able to reconcile their individual desires with those of others and in the process “learn to be a public as well as a private citizen” (Pateman, 1970 in Hoverman et al., 2011, p. 31). Studies have found that by exploring others’ interests and seeking common ground, shared subjectivity can arise, transcending pursuit of individual interests. Participatory experiences

² Social learning is characterized by an iterative process, reflective practice, utilisation of diversity, shared understanding and experimentation (Rodela, Cundill and Wals, 2012).

increase the sense of integration into the wider community and society and can shift values towards the social and the environment (Craig, 1990; Hoverman, Ross, Chan and Powell, 2011).

A place-based context is also an essential consideration in post-disaster recovery because communities are in closest proximity to hazards and thus can be change agents by reducing their vulnerability to hazards through land-use regulation and enforcement of building codes (Henstra and McBean, 2005). Public involvement and dialogue in parts of Canada (Manitoba and Ontario), as well as a collective learning approaches in Europe (UK and Netherlands), have been deemed successful to reconcile diverse views and demands and to develop shared understandings of problems and potential solutions in flood management (Ashley et al., 2012; Haque et al., 2002; Hayward, Diduck, and Mitchell, 2007; McCarthy et al., 2011; van Herk, Zevenbergen, Ashley, and Rijke, 2011). In Alberta, public involvement in natural resource management issues in general has tended to lag behind other provinces when assessing for early involvement, learning opportunities, access to registry, adequacy of public notice, consideration of need and alternatives for a given project, and engaging diverse rather than just directly affected public (Sinclair and Diduck, 2001). We examine the degree to which our participants felt public engagement in Alberta empowered citizens and facilitated change following the 2013 flood.

Flood management in Alberta

Historically, the Government of Alberta (GoA) has failed to pass laws to limit development in floodplains (Auditor General, 2015). Flood mapping identified 60 cities and towns across Alberta with an inundation hazard (IBI, 2015) but only twenty of those were designated as flood hazard areas (Auditor General, 2015). For example, an area of High River was identified in 1992 through

the provincial mapping program as flood-prone, but was not designated as such; it was later developed and sustained heavy damage in 2013 floods. The lack of designation often reflects both lack of community support and GoA's reluctance to impose designation, leading to inconsistent approach to managing development in flood hazards areas (Ibid) and ultimately, resulting in a majority of citizens paying an increase in taxes and insurance at the municipal, provincial, and/or federal levels for flood damages to property and buyouts impacting only a minority of residents in the affected locations

Following the 2013 flood, extensive structural measures (e.g. berms, dikes) and non-structural measures (e.g. updated emergency plans) were implemented in High River and Calgary, as well as removal of two neighbourhoods in High River. GoA also enacted the *Flood Recovery and Reconstruction Act, Bill 27* (December 2013) to amend the *Municipal Government Act*, thereby restricting development in floodways to ensure rebuilding occurs in ways that limit future flood risk. To date, the regulations have not been promulgated, therefore “municipalities still retain building decisions on their floodplains” (Alberta Municipal Affairs, 2015, p. 13).

GoA also developed a new Provincial Recovery Framework to promote a coordinated provincial approach to flood recovery, mitigate the risk of future floods, and to serve as a template for recovery efforts from future disasters (GoA, 2013a). The Framework consists of four essential elements of recovery — environment, social, infrastructure, and economic — and describes how GoA will support local communities in their recovery efforts during the various stages. In this model, the local community is identified as the lead. While numerous public engagement events

were held at the municipal and provincial levels³, our analysis shows that the degree to which community members felt engagement was meaningful varied in the two case studies.

Methods

In this chapter, we examine public engagement during recovery from the 2013 Alberta flood through two different case studies. We chose Calgary and High River because these municipalities sustained the most damage and thus provide rich comparative potential: they are close in proximity (both in Southern Alberta where flooding is most frequent), yet their approaches to disaster recovery differed, as have the outcomes.

Both case studies draw on in-depth, semi-structured qualitative interviews ranging from one to four hours, as well as researchers' observations through attendance of community engagement events and staff presentations, analysis of media, and historical and current documents and reports. We draw on interviews with 41 participants: High River (n=35) and Calgary (n=6). In addition to residents, the High River case study (HR-CS) captures interviews with decision-makers and those in advisory roles who are representatives of governments, organizations, scientific institutions, media, and private sector, involved in flood management at the municipal, regional, provincial and federal levels. Interviews of the Calgary case study (C-CS) were conducted in spring 2014 and High River interviews were conducted in spring 2015; both within the 24-month critical window of opportunity after the flood event.

Findings and Discussion

³ GoA's stakeholder engagement summaries for various river basin studies can be found at <http://www.alberta.ca/flood-mitigation-studies.cfm>.

In the face of the unprecedented disaster, both Calgary and High River have recovered relatively well with assistance from provincial and federal governments. Calgary and High River have worked tirelessly to reach their current stage of recovery; we provide only brief descriptions of their efforts. Both municipalities' recovery efforts aimed for resiliency and civic involvement. The following discussion compares and contrasts the extent to which the two municipalities achieved these aims.

Disaster Recovery Overview

The damage and the scope of recovery varied in the two cases: Calgary suffered only partial inundation while High River experienced town-wide inundation. The difference in the return of residents to their homes and businesses created further significant differences in recovery of the two municipalities. On June 20, 2013, Mandatory Evacuation Orders were announced for some neighbourhoods in Calgary and for all residents of High River. Though controversial at the time due to safety concerns, Calgarians were given permission by Mayor Naheed Nenshi to return to their homes and businesses within three days of the flood event.

In contrast, High River residents were not allowed to return for two weeks or more, causing them to be on the “verge of some very major civil disobedience” (Richards and Howell, 2013, para. 11). The time difference in returning to one's home and business is significant for three reasons: 1) flood damage requires quick clean up to minimize damage and to reduce mould growth; 2) businesses provide jobs which in turn provide financial resources critical for rebuilding and recovery; and 3) community participation and taking action reduces anxiety and trauma and empowers people by increasing sense of control (Johnston, Becker and Paton, 2012).

The City of Calgary convened a Task Force to oversee municipal recovery efforts. Calgary municipal planners identified “the rebuilding timeframe is a critical window of opportunity where citizens feel a *sense of belonging* and are keen to make the future better through *collective action*” (Arthurs 2015, para. 22 italics added). In addition, the City recognized that “community recovery must not only address the vitality of the built, economic, natural, and social environments but also reduce the risk of future disaster events in order to build a more *disaster-resilient community*” (CoC 2016, para. 8 italics added). To achieve this goal, the City would need to explore ways to “develop and sustain *long-term resiliency*” (Ibid, para. 8, italics added) and to use “a *holistic, community-based approach*” (Ibid, para. 9, italics added).

In the Town of High River, a Renew Committee was developed to create a long-term recovery team to get people back into damaged homes. The Town’s vision was “High River is a people first community on the Highwood River where we live, work and play” (ToHR 2015b, p. 5), where the community is connected, including through “*active community engagement*” (Ibid., p. 9).

Public engagement for supporting status quo ante or long-term sustainability?

Numerous stakeholder engagement sessions on flood mitigation were held between 2013 and 2015. Community leaders and decision-makers, such as mayors and councillors, industry, and NGOs were involved extensively in regional recovery coordination and community flood mitigation planning. However, feedback from the general public was mostly limited to three formats: 1) open house-type design to inform or decide-announce-defend with props such as

posters and maps where officials or experts answered specific questions from residents; 2) feedback on reports via websites; and 3) feedback via social media.

Largely, community engagement about flooding did not create *a sense of belonging* or *collective action* for our research participants. Community engagement events either focused on individual, short-term flood preparedness and supporting individual resilience through information sessions with government experts (e.g. Provincial flood information sessions, September 23-24, 2013) or they were platforms for expert presentations (e.g. Provincial Flood Symposium, 4 October 2013) with controlled question and answer periods. Although presented as an event that would bring “together experts, community representatives and Albertans to discuss ideas and best practices for flood mitigation,” (GoA, 2013b) “the symposium was not a symposium at all...little dialogue was encouraged, and when it was permitted it was constrained in a way that did not countenance penetrating questions of differing points of view” (Sandford and Freek 2014, p. 50). The description of this event matches our participants’ experiences of public engagements regarding the flood.

Calgary

Numerous community meetings and open houses were held in Calgary and were attended by more than 6,000 residents in the first year (CoC, 2014b). However, the public venues for engagement were sometimes bleak, utilitarian and focused almost exclusively on individual flood relief and prevention. In one case, during Alberta's Watershed Management Symposium: Flood and Drought Mitigation (April 29, 2014), residents were literally left to sit in the dark and their only engagement opportunity was to tweet their questions to a revolving roster of scientific experts or speak one-

on-one with representatives in the back of the room. Controversial flood mitigation options for the Calgary region - Springbank off-stream storage, McLean Creek dry dam, and diversion tunnel - were presented in an open house format because of the range of conflicting views and opinions of residents and property owners from various areas around the region.

While supporting residents to return to daily functioning, the focus on individual resilience and expert solutions diminished discussions of community action from flood recovery. Interview participants either did not feel they belonged at the engagement events or were disappointed by the process. For example:

They weren't answering people's questions. They were pussyfooting around the topic. And... the questions they [the public] were asking were intelligent questions. They wanted intelligent responses. And they didn't get that from the City people, or the Provincial people, or some expert on flooding, and stuff like that. They just didn't get it. And it turned into... very upsetting for some people I think. (C-CS, 2014)

One Calgary resident felt the only way to provide input was to write letters: “to the Premier of Alberta, the Mayor of Calgary and my Allstate Insurance agent regarding the failure of provincial, city, insurance and banking authorities to keep development out of the flood plain” (HR-CS, 2015).

Frustrations were expressed about attending public engagement events if other attendees had lifestyles or made choices that conflicted with sustainability:

Even, I think there's all these meetings, flood prep, and flood mitigation, flood disaster and... I don't want to hear people crying and bitching, like from their glass houses. I don't mean to sound insensitive [...] And they want answers. And people want to talk about it...

But other people don't want to talk about it. And I do want to talk about it, like I said I hope they fix the sewers this time. And to live in a flood plain and not expect it to ever flood, are you freaking kidding me? (C-CS, 2014)

This participant's observation exemplifies the problems when public engagement turns into an unproductive, time consuming and costly process that overemphasizes special interests and lacks representation. For example, the Calgary River Communities Action Group (CRCAG) was formed by residents in neighbourhoods located in flood hazard areas and one of their mandates (No. 5) is to "advocate against policy, legislative and regulatory changes that are prejudicial to and negatively impact property owners in flood impacted communities" (CRCAG 2015, para. 13). In other words, they are resisting provincial government's plans to relocate homes via the provincial floodway buyout program and are fighting for extensive flood mitigation infrastructure to protect their homes, which would be paid by taxpayers. Many participants do not feel this arrangement of risk apportionment is fair, as expressed here:

You get these claims coming in for reimbursement by the province and the insurance companies. My house insurance goes up by a factor of two roughly. Why am I paying insurance for someone to live in a nice location?...Most of the people in Calgary should complain about the flood mitigation stuff going on because they're paying for a few people to be looked after...But why should everybody pay for that? (HR-CS, 2015)

Those disappointed by the municipal and provincial engagement processes proposed alternate options for engagement to be more inclusive, integrating, participatory, and *forward looking*:

And I just don't know what sandbags are gonna do, you know? Is it just that we build this huge fortress of sandbags, does that mean all our neighbours are gonna get hammered by

it? I don't know. So to get, to become more active in the community and join the Community Association and get to understanding of what, what we can do as the community, as a city, to prevent this from happening again. (C-CS, 2014)

It is important to note that these interviews took place nine months following the flood event. While participants were still surfacing and dealing with the trauma they had experienced, they were also nonetheless looking for opportunities to use their experience for greater engagement and social change.

High River

The State of Local Emergency was not lifted until about three months after the flood and consultation was limited during the early stages. Due to flood damage, the Town's municipal infrastructure and facilities were not functioning, creating safety concerns and limiting the availability of public spaces to gather. Since residents were scattered throughout the province and home and business renovations were delayed, many people did not have the emotional and physical capacity to attend public consultation in the immediate aftermath. The Town administration, mayor, and some councillors began using traditional and social media to communicate with residents near and far. Their Facebook page is still used extensively by residents to provide negative and positive feedback. While a communication platform in its own right, it cannot replace the face-to-face community dialogue with targeted discussion on re-visioning the future and collective action.

Once the town was functional again, town hall meetings were set up to engage the public in flood recovery process. These meetings became a venue for furious residents to vent about not being

allowed back to their properties for weeks, about the unlawful seizure of secured firearms by police (Government of Canada, 2015) and forceful entry of homes by knocking down doors and leaving properties vulnerable to theft and further damage (Weismiller, 2013). Public engagement in High River “was basically anger management sessions” (HR – CS, 2015).

Given the emotional intensity of town hall meetings, public engagements thereafter were designed as open houses, which as discussed earlier, do not provide opportunities for meaningful participation or dialogue and for visioning collective action and alternate futures. A participant assessed the purpose of open houses in the following way:

I think the open houses were more to educate them [the public] and make them feel a part of the process, so they understood what was happening. Different than other open houses, where you’re looking for feedback and looking at options, etc... I think the plans that were put in place were so obvious that they needed to be done.... It wasn’t a debatable issue. It wasn’t going to cause harm to our local residents. It was going to protect them (HR – CS, 2015).

Residents were asked for feedback regarding some projects, such as new design ideas for downtown, but not projects requiring technical expertise such as dike systems. An interviewee explained:

Our goal wasn’t so much to get feedback from people about where dikes should go and where they should be built, as it was to say, ‘Look. Here’s what we’re building and we want to give you an opportunity to speak to people.’ Because it’s kind of like you going

and giving advice to your mechanic, in some ways, right? Would you give advice to your mechanic? (HR - CS, 2015).

While some decisions require expert knowledge, lay knowledge can also provide valuable input. Moreover, learning from one another can lead to “creating or agreeing on a new understanding of the world that incorporates new perspectives” (Hoverman et al., 2011, p. 29) and can facilitate collective action towards sustainability goals.

From the perspective of those organizing public engagements, providing opportunities for citizens’ voices was not necessarily seen as constructive or representative:

Open houses, you only get the people that have a gripe about what you were doing. Regardless, of what you were doing...We had those type of people and they’re the ones that became very vocal in the community, it was a small minority over the majority (HR-CS, 2015).

Open house formats are not welcoming (especially for those who have been disappointed in the past) and do not allow for two-way, in-depth dialogue that are more common in workshops and working groups. The challenge of engaging citizens and prompting participation from a range of stakeholders and a majority rather than a minority, noted in the quote above, is a common theme raised by governments in Canada and elsewhere regarding issues beyond disasters. Some jurisdictions in Canada and Europe have found approaches that are successful (see Literature Review section). Other types of public engagement formats were designed to “engage and provide opportunities for residents to get together” (ToHR 2015a, p. 13) at events such as teas, luncheons, flood anniversary gatherings, parades, shows, carnivals etc. These types of social events create spaces for dialogue between residents and play an important function; however, they should not

be used as substitutes for public engagement events that facilitate dialogue between and among residents and decision-makers in ways that enhance social learning on complex flood risk management issues and joint decision-making. .

In summary, the type of engagement opportunities in our case studies either focused on individual, short-term flood preparedness and individual resilience, or were platforms for expert presentations. Despite municipal and provincial government objectives to support resiliency and involve residents, these formats prevented public dialogue on broader issues that case study participants raised: lack of in-depth, two-way dialogue; lack of fairness and apportionment of responsibility for inappropriate land-use and development; lack of provincial regulations or enforcement of development in flood prone areas in the past; and over-representation of particular interests. While many of the structural and non-structural measures implemented since the 2013 flood were designed to minimize or prevent future flood damage, our data provides evidence of residents expressing interest in more extensive engagement, exploration of issues, and empowerment.

Our findings indicate that in the early stages of recovery, authorities were not well prepared to deal with the highly charged emotional atmosphere of community events. To do so, would have required formats other than large open houses and a variety of engagement tools. In the face of inevitable loss and change, planners and resource managers often struggle to find effective approaches to engaging their communities and sometimes shy away from collective community visioning due to concerns about stakeholders' responses (Moser 2012). In post-disaster contexts, the stakes and tensions are high, the decision timeframes are short, and public and political pressures call for quick decisions, solutions and investments in returning back to "normal." While

these conditions create formidable challenges, more meaningful public engagement around flood management issues in Alberta – including during recovery – is needed and possible, as exemplified in other jurisdictions in Canada and around the world.

Conclusion

Since many disasters originate from social processes of unsustainable practices, risks need to be socially negotiated. Meaningful public engagements enable people to create collective understanding of risks and vulnerabilities and to shift from individual interests to more civic-minded approaches to addressing complex socio-environmental issues. Based on our findings, the format of public engagements in Calgary and High River following the 2013 floods was mostly limited to one-way information dissemination. Such formats minimized participatory processes and opportunities for dialogue about causal factors (such as building in flood hazard areas) and also did not create a sense of belonging and collective action. While community authorities may have been aware of the psychological phases of disaster response, in practicality, our findings suggest that they were not incorporated into the timing or approaches to community consultation. In the future, a variety of approaches that create safe spaces for dialogue and social learning and that are supportive and reflective of the emotional phases of recovery would be advantageous as part of pre-disaster recovery planning process.

The 2013 changes in the Alberta *Municipal Government Act* (Bill 27) enables regulation making powers to limit floodway development. Currently, the regulations and bylaws have yet to be promulgated meaning there has, in effect, been no regulatory change since 2013. Further, political motivations respond to powerful interests. In the absence of substantive transformative change at

the societal level, vested interests may seek to undo the regulatory and legislative changes enacted in the aftermath of the flood. The public engagement strategies described in this chapter did not achieve the full potential for *forward looking* recovery following the 2013 Alberta floods. Therefore, these strategies inhibited a *cultural shift* to “disaster risk reduction as a *way of life*” (PSC 2016, p. 3, italics added) and limited opportunities for building “resilient capacity” which necessitates a process that would *empower* all members of society to *share responsibility* for reducing vulnerability and keeping hazards from becoming disasters (PSC, 2011).

Two of the limitations of this study are the small number of participants (n=41) and that participants and we, the researchers, did not participate in all of the public engagement events after the flood. As such, our evaluation of public engagement is limited to those events we, or our participants, attended and those described in reports and the media. Despite these limitations, our research provides sufficient evidence to highlight opportunities for improvement in public engagement during post-disaster recovery in Alberta where public involvement in natural resource management issues has tended to lag behind other jurisdictions.

This research contributes to an improved understanding of place-based disaster recovery and input into the development of recovery policies and practices that achieve transformative change and community resiliency. Some of our recommendations include the following: 1) further examine case studies in other jurisdictions with a general culture of more collaborative in-depth community engagement and their lessons learned for flood risk management; 2) when designing community engagement formats, create conditions that lead to meaningful engagement and create a multi-faceted strategy that considers various psychological phases; 3) seek opportunities during the

recovery stage to build resilient capacity and collective action for disaster risk reduction. In moving to more meaningful engagement, Albertans in general would gain a greater understanding of individual and collective risk apportionment, thereby facilitating a cultural shift and building the social capacity needed for actions that lead to long-term reduction in overall flood risk.

Accepted Manuscript (Pre-Production)

References

Alberta Municipal Affairs. (2015). Overview of Bill 27, Floodway Development Regulation Consultation. Edmonton: Government of Alberta. Available at: <http://www.municipalaffairs.alberta.ca/1934> [Accessed 16 Sep. 2015].

Alexander, D. E. (2013). Resilience and Disaster Risk Reduction: An Etymological Journey. *Natural Hazards and Earth System Science*, 13(11), pp. 2707-2716.

Arthurs, C. (2015, February 20). Recover, Repair, Prepare: Calgary After the 2013 Flood. [Blog] World Conference on Disaster Management (WCDM) Connect. Available at: www.wcdm.org/blog/recover-repair-prepare-calgary-after-the-2013-flood.html [Accessed 28 Feb. 2016].

Ashley, R. M., Blanskby, J., Newman, R., Gersonius, B., Poole, A., Lindley, G., Smith, S., Ogden, S., and Nowell, R. (2012). Learning and Action Alliances to Build Capacity for Flood Resilience. *Journal of Flood Risk Management*, 5(1), pp. 14-22.

Auditor General. (2015, March). Report of the Auditor General of Alberta. Edmonton: Government of Alberta. Available at: www.oag.ab.ca/webfiles/reports/OAG%20March%202015%20Report.pdf [Accessed 22 February, 2016].

Berke, P.R., Kartez, J. and Wenger, D. (1993). Recovery After Disaster: Achieving Sustainable Development, Mitigation and Equity. *Disasters*, 17(2), pp. 93-109.

Bogdan, E.A. (unpublished). *Flooding Discourse: Perceptions and Practices of Flood Management in High River, Alberta*. PhD student. University of Alberta.

Calgary River Communities Action Group [CRCAG]. (2015, December 9). AGM Summary and Board Comments. Available at: <http://protectcalgary.com/agm-summary-and-board-comments/> [Accessed 20 Feb. 2016].

City of Calgary. (2014a). Civic Census Results. Available at: <http://www.calgary.ca/CA/city-clerks/Documents/Election-and-information-services/Census2014/Final%202014%20Census%20Results%20book.pdf> [Accessed 5 Sep. 2016].

City of Calgary. (2014b). Calgary Recovers Building for Resiliency. Available at: <http://www.calgary.ca/General/flood-recovery/Pages/Calgary-flood-2013-infographic-recap.aspx> [Accessed 5 Sep. 2016].

City of Calgary. (2016). Flood Recovery. Available at: <http://www.calgary.ca/general/flood-recovery/Pages/FloodRecoveryHome.aspx> [Accessed 5 Sep. 2016].

Cox, R. S. and Perry, K. M. E. (2011). Like A Fish Out of Water: Reconsidering Disaster Recovery and The Role of Place and Social Capital in Community Disaster Resilience. *American Journal of Community Psychology*, 48(3-4), pp. 395-411.

Craig, D. (1990). Social Impact Assessment: Politically Oriented Approaches and Applications. *Environmental Impact Assessment Review*, 10, pp. 37-54.

DeWolfe, D. J. (2000). *Training manual for mental health and human service workers in major disasters* (2nd ed., HHS Publication No. ADM 90-538). Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services.

Diduck, A. and Mitchell, B. (2003). Learning, Public Involvement and Environmental Assessment: A Canadian Case Study. *Journal of Environmental Assessment Policy and Management*, 5(3), pp. 339-364.

Freudenburg, W. R., Gramling, R. B., Laska, S. and Erikson, K. (2009). *Catastrophe in the making: The engineering of Katrina and the disasters of tomorrow*. Washington, DC: Island Press.

Gordon, R. (2008 February). A "Social Biopsy" of Social Process and Personal Responses in Recovery from Natural Disaster. GNS Science Report 2008/09. Institute of Geological and Nuclear Sciences Ltd.

Government of Alberta [GoA]. (2013a, July). *Southern Alberta 2013 Floods: The Provincial Recovery Framework*. Available at: [http://alberta.ca/albertacode/images/Flood-Recovery - Framework.pdf](http://alberta.ca/albertacode/images/Flood-Recovery-Framework.pdf) [Accessed 8 Jul. 2016].

Government of Alberta [GoA]. (2013b). *The Alberta Flood Mitigation Symposium*. Available at: <http://www.alberta.ca/flood-symposium.cfm>. [Accessed 12 Feb. 2016].

Government of Canada. (2015). *Chair-Initiated Complaint and Public Interest Investigation into the RCMP's Response to the 2013 Flood in High River, Alberta*. Available at: <https://www.ccc-cctep.gc.ca/en/chair-initiated-complaint-and-public-interest-investigation-rcmps-response-2013-flood-high-river> [Accessed 12 Feb. 2016].

Haque, C. E., Kolba, M., Morton, P., and Quinn, N. P. (2002). Public Involvement in The Red River Basin Management Decisions and Preparedness for the Next Flood. *Global Environmental Change Part B: Environmental Hazards*, 4(4), pp. 87-104.

Hayward, G., Diduck, A., and Mitchell, B. (2007). Social Learning Outcomes in the Red River Floodway Environmental Assessment. *Environmental Practice*, 9(4), pp. 239–250.

Henstra, D. and McBean, G. (2005). Canadian Disaster Management Policy: Moving Toward a Paradigm Shift? *Canadian Public Policy*, 31(3), pp. 303–318.

Hoverman, S., H. Ross, T. Chan and B. Powell. (2011). Social Learning Through Participatory Integrated Catchment Risk Assessment in the Solomon Islands. *Ecology and Society*, [online] Volume 16(2), pp. 17-39. Available at: <http://www.ecologyandsociety.org/vol16/iss2/art17/> [Accessed 28 Feb. 2016].

IBI Group. (2015). Provincial Flood Damage Assessment Study. <http://aep.alberta.ca/water/programs-and-services/flood-mitigation/documents/pfdas-alberta-main.pdf> [ACoCessed 14 Feb. 2016].

Johnston, D., Becker, J. and Paton, D. (2012). Multi-Agency Community Engagement During Disaster Recovery: Lessons from Two New Zealand Earthquake Events. *Disaster Prevention and Management: An International Journal*, 21(2), pp. 252-268.

Kim, K. and Olshansky, R. (2014). The Theory and Practice of Building Back Better. *Journal of the American Planning Association*, [online] Volume 80(4), p. 289-292. Available at <http://www.tandfonline.com/doi/abs/10.1080/01944363.2014.988597> [Accessed 28 Feb. 2016].

Kreimer, A. (1978). Post-disaster Reconstruction Planning: The cases of Nicaragua and Guatemala. *Mass Emergencies*, 3(1), pp.23–40.

Lertzman, R. (2014). Psychosocial contributions to climate sciences communications research and practice. Available at: http://www.ucl.ac.uk/public-policy/policy_commissions/Communication-climate-science/Communication-climate-science-report/psychosocial_final.pdf [Accessed 1 Apr. 2016].

Macy, J. and Johnstone, C. (2012). *Active hope*. Novato, CA: New World Library.

McCarthy, D. D., Crandall, D. D., Whitelaw, G. S., General, Z. and Tsuji, L. J. (2011). A Critical Systems Approach to Social Learning: Building Adaptive Capacity in Social, Ecological, Epistemological (SEE) Systems. *Ecology and Society*, 16(3), pp.18–34.

Mileti, D. (1999). *Disasters by design: A reassessment of natural hazards in the United States*. Washington, DC: Joseph Henry Press.

Mnguni, P. P. (2010). Anxiety and Defense in Sustainability. *Psychoanalysis, Culture and Society*, 15, pp.117–135.

Moser, S. (2012). Getting real about it: Navigating the psychological and social demands of a world in distress. In D. R. Gallagher, R. N. L. Andrews and N. L. Christensen, eds., *Sage Handbook on Environmental Leadership*. Thousand Oaks, CA: Sage., pp. 432–440.

Nicholsen, S. W. (2003). *The love of nature and the end of the world*. Cambridge, MA: The MIT Press.

Olshansky, R. B. and Chang, S. (2009). Planning for Disaster Recovery: Emerging Research Needs and Challenges. *Program Planning*, 72(4), pp. 200–209.

Pearce, L. (2003). Disaster Management and Community Planning, and Public Participation: How to Achieve Sustainable Hazard Mitigation. *Natural Hazards*, 28(2-3), pp.211-228.

Pelling, M. (2003). *The vulnerability of cities: Natural disasters and social resilience*. London, England: Earthscan.

Perry, R. W. (2007). What is a disaster? In H. Rodríguez, E. L. Quarantelli and R. R Dynes, eds., *Handbook of Disaster Research*. New York, NY: Springer., pp. 1–15.

Pomeroy, J. W., Stewart, R. E., & Whitfield, P. H. (2016). The 2013 flood event in the South Saskatchewan and Elk River basins: causes, assessment and damages. *Canadian Water Resources Journal*, 41(1-2), 105-117.

Public Safety Canada. (2011 January). *An Emergency Management Framework for Canada* (2nd ed. Available at: <http://www.publicsafety.gc.ca/cnt/rsrscs/pblctns/mrgnc-mngmnt-frmwrk/index-eng.aspx#a06> [Accessed 25 Feb. 2016].

Public Safety Canada. (2016). *Canada National Disaster Mitigation Strategy*. Available at: <https://www.publicsafety.gc.ca/cnt/rsrscs/pblctns/mtgtn-strtgty/index-eng.aspx> [Accessed 25 Feb. 2016].

Randall, R. (2009). Loss and climate change: The cost of parallel narratives. *Ecopsychology*, 1, pp.118-129.

Richards, G. and Howell, T. (2013, June 26). High River Residents Demand to Return Home. *The Calgary Herald*, [online]. Available at: <http://www.calgaryherald.com/High+River+residents+demand+return+home/8584527/story.html> [Accessed 25 Sep. 2015].

Rodela, R., Cundill, G. and Wals, A.E. (2012). An Analysis of the Methodological Underpinnings of Social Learning Research in Natural Resource Management. *Ecological Economics*, 77, pp. 16-26.

Rubin, C. and Barbee, D. (1985). Disaster Recovery and Hazard Mitigation: Bridging the Intergovernmental Gap. *Public Administration Review*, [online] Volume 45, pp. 57-63. Available at: <http://www.jstor.org/stable/3134998> [Accessed 28 Feb. 2016].

Sandford, R. and Freek, K. (2014). *Flood forecast: Climate risk and resiliency in Canada*. Rocky Mountains Books. Toronto, Ontario: Rocky Mountain Books.

Shrubsole, D. (2013). A history of flood management strategies in Canada revisited. In E. C. H. Keskitalo, ed., *Climate Change and Flood Risk Management: Adaptation and Extreme Events At The Local Level*. Cheltenham, UK: Edward Elgar., pp. 95–120.

Sinclair, A. J. and Diduck, A. P. (2001). Public Involvement in EA in Canada: A Transformative Learning Perspective. *Environmental Impact Assessment Review*, 21(2), pp. 113–136.

Sinclair, A. J., Diduck, A. and Fitzpatrick, P. (2008). Conceptualizing Learning for Sustainability Through Environmental Assessment: Critical Reflections on 15 Years of Research. *Environmental Impact Assessment Review*, 28(7), pp. 415-428.

Smith, G.P. and Wenger, D. (2007). Sustainable disaster recovery: Operationalizing an existing agenda. In H. Rodríguez, E. L. Quarantelli and R. R. Dynes, eds., *Handbook of Disaster Research*. New York, NY: Springer., pp. 234-257.

Spee, K. (2008 March). *Community Recovery After the 2005 Matata Disaster: Long-term Psychological and Social Impacts*. GNS Science Report 2008/12. Institute of Geological and Nuclear Sciences Ltd.

Statistics Canada. (2014). *NHS profile, High River, CA, Alberta, 2011*. Available at: <http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/details/page.cfm?Lang=EandGeo1=CMAandCode1=821andData=CountandSearchText=High%20RiverandSearchType=BeginsandSearchPR=01andA1=AllandB1=AllandTABID=1> [Accessed 11 Sep. 2015].

Tierney, K. J. (2012). Disaster Governance: Social, Political, and Economic Dimensions. *Annual Review of Environment and Resources*, 37, pp. 341–363.

Town of High River [ToHR]. (2015a January). *Report to Citizens on Renewal Activities*. Available at: http://www.highriver.ca/images/Communications/2015/2015_report-to-citizens_02-19-15_web.pdf [Accessed 6 Sep. 2015].

Town of High River [ToHR]. (2015b). *Town of High River Strategic Plan*. Available at: http://highriver.ca/images/Leg_Services/corporate-strategic-plan_2015_-_2017.pdf [Accessed 6 Sep. 2015].

Vallance, S. (2011). Early Disaster Recovery: A Guide for Communities. *Australasian Journal of Disaster and Trauma Studies*, 2: pp. 19-25.

Van Herk, S., Zevenbergen, C., Ashley, R., & Rijke, J. (2011). Learning and Action Alliances for the integration of flood risk management into urban planning: A new framework from empirical evidence from the Netherlands. *Environmental Science & Policy*, 14(5): pp. 543–554.

Ward, J., Becker, J. and Johnston, D. (2008 June). *Community participation in recovery planning: A case study from the 1998 Ohura flood*. GNS Science Report 2008/22. Institute of Geological and Nuclear Sciences Ltd.

Webb, G. R. (2007). The popular culture of disaster: Exploring a new dimension of disaster research. In H. Rodríguez, E. L. Quarantelli and R. R. Dynes, eds., *Handbook of Disaster Research*. New York, NY: Springer., pp. 430–440.

Weintrobe, S. (2013). The difficult problem of anxiety in thinking about climate change. In S. Weintrobe ed., *Engaging with Climate Change: Psychoanalytic and Interdisciplinary Perspectives*. London, UK: Routledge.

Weismiller, B. (2013, July 31). High River Residents Vent Anger at Meeting. *The Calgary Herald*, [online]. Available at: <http://www.calgaryherald.com/sports/High+River+residents+vent+anger+meeting/8733951/story.html> [Accessed 15 Dec. 2015].

Accepted Manuscript (Pre-Production)