The Lost Creek Fire: Managing social relations under disaster conditions[1]

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Abstract

This paper examines some of the social processes associated with disaster conditions. Using an asset-based perspective of community capacity we focus on four types of normative systems to interpret the community's ability to manage a wildfire and its aftermath: market-based, bureaucratic-based, associative-based, and communal-based The results confirm the contributions of all types of social capital to resiliency, the necessity for rapid use of place-based knowledge, and the importance of communication among all types and levels of agents. The integration of local networks and groups into the more general disaster response minimized the impacts on health and property.

Keywords: resiliency; social capital; disaster; governance; wildfire; networks; community;

The Lost Creek Fire – Managing social relations under disaster conditions

Introduction

Changing climatic conditions are increasing the health, social, and economic risks to rural communities (ISDR, 2009). Extreme weather, drought, flooding, wildfires, insect and disease expansion are predicted to increase over the next few years – with significant impacts on community and national resources (Lemmon et al., 2007; IPCC, 2007). It behoves us, therefore, to consider how we should reorganize our institutions and networks to increase resiliency and minimize the undesirable outcomes where the risks cannot be avoided. To increase community resiliency, we must consider and prepare for these changes, assess the individual and community assets and capacities that are necessary to meet them, mobilize groups at all levels to reorganize those assets, and evaluate past successes and failures. All of these initiatives must take place in an ongoing cycle to meet changing conditions as yet unimagined.

Our research addresses the community mobilization part of the process by examining the 2003 Lost Creek wildfire in the Crowsnest Pass of southwestern Alberta. In doing so, the following questions about community responses were considered:

- What are the bases upon which local action was mobilized and co-ordinated?
- What were the potential sources of social conflict and how were they reduced or avoided? Which were not?
- What were the critical assets or resources for minimizing and avoiding negative outcomes?

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For this discussion, we will focus on identifying the mitigating factors that helped the community to minimize the negative outcomes once the fire was 'upon them'. We consider the role of local social capital since it provides key assets for community governance – assets that are often overlooked in the development of more formal planning.

Conceptual Framework

Community resiliency depends on the relatively smooth functioning of social relations during and after a disaster. No matter how such resiliency is defined it requires the co-ordination of activities to organize and reconfigure resources to meet the challenges (Dynes, 2006; Norris et al., 2008; Cutter et al., 2008a). For this reason our focus of investigation is on social relations – the conditions supporting them, the challenges they face under disaster conditions, and the most useful strategies for re-building them should they be disrupted.

The importance of this focus is supported by most of the studies on resiliency, although they use a variety of approaches to represent these social relations. The review by Norris et al. (2008), for example, includes references to social units, groups, families, communities, and social networks as representations of those social relations. Brown and Kulig (1996-1997), Dynes (2006), and Norris et al. (2008) identify the importance of social capital as a key element in the resiliency process – especially its more local and informal manifestations (Bowles and Gintis, 2002; Hawe, 2009). Even those approaches that focus primarily on physical infrastructure acknowledge the importance of "social infrastructure" for the ability of places to manage disasters and crises (Cutter et al., 2008b). Following this lead we have paid particular attention to the ways in which social relations were organized during and after the Lost Creek fire.

Effective social action requires social relations that are reasonably familiar – where one can anticipate how others will respond, trust they will follow through on promises, and respect the interests of others, at least within some limits (Fiske, 1991).This requires relatively intact social structures and rules of engagement. Under disaster conditions, both of these are challenged. Communication structures may be damaged, direct interaction impossible, the ability of others to fulfill obligations diminished or lost, and the threat of personal danger may drastically alter established norms of respect and deference. The conditions for social action are often radically altered. Understanding the bases for these social relations is, therefore, an important step in preparing and mitigating the negative effects of disasters.

Following Fiske we assume that "...people must use some kind of models of and for social relations to guide their own social initiatives and to understand and respond to the social action of others." (Fiske, 1991:3) Fiske identifies four elementary modes that people use in these relationships. We have modified these four according to insights and research from political-economics (Polanyi, 1944) and sociology (Coleman, 1987) resulting in a framework that identifies four types of normative systems structuring collective behaviour: market, bureaucratic, associative, and communal. They reflect the major types of norms that guide groups of people when organizing activities and accomplishing tasks – including the preparation for, and responses to, disasters such as wildfires. Each of them reflects relatively coherent systems, with formal and informal rewards and sanctions that make it possible for people to take action with some confidence that the implicit expectations will be respected. They also lie at the basis of our understanding of social capital as a potential asset for community resiliency. Table 1 provides the details about each of these normative types and their relevance for the case of wildfires.

Market-based norms are those that guide our interactions in relatively free exchange relations. In order for these types of relations to proceed we must feel we have adequate information about our exchange options, trust that any agreements are respected by others, and are free to choose our exchange without exogenous consequences. Each time we shop for groceries, search of a job, or buy a car, we engage in relations where such norms predominate. Under wildfire or disaster conditions, these norms typically become less important than others – although they play an important part of any preparation and recovery activities where payrolls, property, and financial compensation are concerned.

Bureaucratic-based norms are those most often found in government or corporate organizations. In this case we interact on the basis of established roles that include (often formal) specifications of rights and responsibilities. These may be attached to our age (when we interact with drinking establishments or driver's licence bureaus), labour status (when we interact with unemployment agencies or credit companies), or any number of other characteristics specified by the organization. In this case, the conditions of engagement are specified by general rules or regulations both formal and informal: the "command and control" approach identified by Dynes (2006). The successful operation of these types of norms are particularly important in the preparation of disaster plans, the organization of disaster personnel, and the reestablishment of services and infrastructure after a disaster (Teague et al., 2010).

Associative-based norms are those most often found in voluntary groups or associations. In this case, we interact and coordinate our behaviour with others who share a common interest, threat,

or objective. So long as this objective is being met – or the promise of it is salient – we are willing to accommodate the group's interests even if it means forgoing our own. Under disaster circumstances these are the norms that become predominant as people volunteer their time, resources, and skills to help others, pass on information, prepare materials, or care for the injured or bereaved.

Communal-based norms are those typically found in family relations. They rest on strongly shared identities, usually based on kinship, but can extend to beliefs, shared events (usually extreme), or geography. Operating within these norms, fair exchange, organizational rules, and even group or personal interests are forgone in favour of the interests of the family, clan, cult, or gang that serves as the primary focus. Under disaster conditions the operation of communal-based norms is most often manifested in the concerns for family members, the sometimes dangerous actions taken to ensure their safety, and the trauma of loss or guilt associated with the injury or death of family members.

Each of these systems of co-ordination can be strong assets for the governance of community responses to wildfires and similar disasters. They serve as different normative bases that structure and guide the operation of social capital as identified by Coleman (1987) and others (Reimer et al., 2008). They do not always operate in concert, however, in some cases creating conflicts of norms and objectives that can get in the way of effective governance. Commitments to family, for example, can get in the way of regulations and initiatives emerging from bureaucratic-based organization (Mukherji, 2008). Market-based obligations to workers and property owners can get in the way of effective organization of volunteers (Thompson and

Izaskun, 2004). Good governance, therefore, requires the recognition of these various normative systems and the co-ordination of them in a way that is most effective for the management of the disaster in the short term and the preparation for future crises in the long term (McEntire, 2001; Pandey and Okazaki, 2005).

All these forms of social capital can make the difference between life and death in disaster situations (ISDR, 2009), so they are particularly important for our consideration. To this end, we will use the example of the Lost Creek Fire to illustrate the ways in which social capital of various types was used to manage responses to the crisis. Through this process, we gain insight regarding the most important types of social capital involved, the points at which obstacles to co-ordination were encountered, and some of the strategies used to overcome them.

The Lost Creek Fire
The wildfire of 2003 in the Crowsnest Pass region of southwestern Alberta provides an excellent case study for the examination of the research questions originally formulated and an elaboration of the implications of social capital as a key asset for community resiliency. Not only was it the largest fire in North America (in terms of area and fuel load) during that year, but the management and community outcomes were among the best that could be expected given the nature of that disaster. Over 21,000 hectares were burned, 2000 residents were evacuated from their homes, more than 800 firefighters and personnel were required of the 31 day state of emergency, with a cost of over $2 million to the municipality and $38 million to the provincial government. In spite of the enormity of this disaster there was no loss of life and injuries were limited to a few fire fighters. Community members with health problems (most often seniors)

were evacuated to a senior's lodge and small hospital in a nearby town. As a result, we consider it a case of good practice overall. Our objective will be to use it to illustrate the ways in which they used their available social capital, coordinated the various normative systems involved, and managed the potential points of conflict that could hamper an effective response to the wildfire.

The Crowsnest Pass, in Southern Alberta, Canada or "The Pass" as it is regionally known, originally consisted of two individual towns (Coleman, Blairmore) two hamlets (Bellevue and Frank) and parts of an improvement district (Hillcrest Mines). In 1979, it was amalgamated into one municipal government. Even though it has amalgamated, individual town names are still in use. Historically, it was an underground coal mining community but the mines have since closed and it is common for local workers to commute to the neighbouring province of British Columbia and work in the coal strip mines. The area has dealt with a number of significant disasters throughout its history, including the Frank Slide in 1903 (i.e., the fall of Turtle Mountain which buried part of one town) and the 1914 Hillcrest Mine Disaster, the worst mine disaster in Canadian history. The Pass is in the Rocky Mountains and offers a variety of outdoor recreational activities. It has become- a tourist destination with numerous part-time residents who reside there only on weekends and in the summer months. Almost 31% of home-owners are absentee landowners.

On July 23, 2003, a few days after its annual Rum Runner Weekend (http://www.rumrunnerdays.com), fire broke out in the mountains south-west of Hillcrest Mines during an unusually hot, dry spell.

"On July 26, a State of Emergency was called that lasted for 31 days (until August 25)...

At its height, the Lost Creek Fire travelled at close to 89 feet per minute and required

over 800 Sustainable Resource Development (SRD) firefighters and personnel and a

coordinated team of over 868 identified workers including all local 104 fire and rescue

personnel plus equipment (21 helicopters, 8 water bombers, over 30 dozers and more

than 20 water trucks) to contain it. Over 2,000 residents were evacuated from Hillcrest

Mines and the southern part of Blairmore; approximately 100 residents used the local

evacuation centre as their primary residence during their evacuation. By the time the fire

was under control, 21,000 hectares (51,800 acres) had been burned. The cost, to the

municipality, which was fully reimbursed by the Provincial government, was $2,394,180

and the SRD cost was approximately $38 million." (Kulig et al., 2009:34-35)

Methodology

This article focuses on the data generated from the qualitative interviews that were conducted as

part of this study (Kulig et al., 2007). The interviews were conducted from September to

December, 2006. Although there was a time lag between the fire event (2003) and the study,

other investigators have noted that sentinel events are recalled with over 80% accuracy up to 50

years later (Berney and Blane, 1997; Nadalin et al., 2004). Ethical approval for the study was

obtained from the Human Subject Research Committee of the University of Lethbridge which

follows the Tri-Council Agreement on Research with Human Subjects.

One of the authors (Kulig) was originally from the Pass, continues to be a property owner there, and has many connections in the community. In addition, her previous research in the community about its ability to deal with the numerous challenging events provided assets for conducting the study (Kulig et al., 2003). In this study, a local individual acted in the capacity of an advisory member of the research team and helped to locate potential participants, set up community presentations about the findings, and reviewed the final report before release. After collecting the informed consent and demographic information, Kulig conducted the open-ended interviews asking questions about each respondent's experiences during the fire, their role within the disaster, lessons learned from the fire experience, and the impacts of the fire on the community's resiliency. In total, 30 strategically selected respondents were interviewed, including individuals who had been evacuated, were local firefighters, were affiliated with the provincial forestry services, or were local administrators who were responsible for addressing the disaster. The participants were from all the settlements in the Pass. The interviews lasted from 45 minutes to 1.5 hours and were confidentially transcribed from digital recorders for subsequent analysis. The latter occurred simultaneously with data collection in order to include any additional questions during the other interviews. Local dissemination included presentations to the public and a provision of the final report to the participants, the local library, the municipality office and the provincial forestry office. A subsequent *Lessons Learned* booklet that was developed based upon the fire experience has also been widely disseminated (Kulig et al., 2003) (http://www.ruralwildfire.ca/files/LostCreekFire-LessonsLearned.pdf).

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Initial information that a wildfire was in the vicinity was received by local officials from the provincial Sustainable Resource Development (SRD) office. The Mayor and Chief Administrative Office (CAO) met with SRD officials to remain informed regarding the fire but eventually a more local response was needed because of the rapid approach of the fire to two of the towns (Blairmore and Hillcrest Mines). On July 26 a local state of emergency was declared by the Mayor of the Crowsnest Pass, all regular municipal work was suspended, and all vacations were cancelled in line with the provincial disaster plan. The local radio station became a key conduit of information regarding the conditions of the fire and evacuation plans. A 24-hour telephone line was established and administered through the Municipal Office.

These initial responses provide a good illustration of the social assets inherent in bureaucratic-based institutions. The established infrastructure of the SRD and the municipal officials provided an effective mechanism through which priorities for action could be identified and various physical, financial, and social assets reorganized to respond to the threat. The availability of a provincial and regional disaster plan was a key ingredient in that reorganization – identifying the shifts in responsibilities and reallocation of assets in a previously negotiated fashion. An appropriately constructed plan is an effective mechanism to address the crisis, but it needs to have an established legitimacy among all participants in order to ensure their attention and co-operation. This includes the anticipation and management of potential conflicts.

Potential points of conflict are likely to occur among the various normative systems which serve to co-ordinate peoples' behaviour, however (Reimer et al., 2008). In the case of disasters such as wildfires some of the most sensitive interstices are between the bureaucratic norms typically

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established by state organizations, and the market, associative, and communal-based norms that guide so many of the community relationships. Market-based norms regarding employment and property ownership, for example, are potentially in conflict with bureaucratic regulations regarding conscription, evacuation, and compensation. The associative-based norms of volunteer groups must be respected if they are to serve as assets for dealing with the disaster. One woman respondent, for example, indicated that she didn't volunteer because "...some were getting $12.00 an hour, while the others weren't getting anything… I didn't think it was fair that they got paid, and other ones weren't getting paid" (Female #17). The communal-based norms of family relations and commitments must also be recognized to ensure public acceptance of evacuation and shelter arrangements. If these are not managed in a transparent fashion, the ability to meet the disaster effectively can be jeopardized. Since the relationships with bureaucratic norms are most important from a policy point of view, these are the ones we will focus on in this paper (Carroll et al., 2005).

In the Lost Creek fire, the disaster plan was originally conceived using a bureaucratic model of top-down organization. As demonstrated by organizational research, this approach appears particularly effective where rapid decision-making is required in a relatively predictable environment but is heavily dependent on continuously maintained mechanisms of legitimacy (Salamon, 2002). However, since bureaucratic-based normative systems are organized on the basis of generalized principles or roles, they tend to be relatively insensitive to rapidly changing or particularly unique local conditions. Several respondents pointed to the initial dependence on decisions being made in Calgary (the SRD Centre about two hours from the Pass) as a contributing factor to the extent of the fire.

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"SRD weren't getting it about the danger to Hillcrest, they weren't getting it.… There was a lot of frustration at the beginning because SRD was being handled out of Calgary, and there was a lot of strong feelings that the fire did not have to be as big as it was, had it been dealt with different at the onset" (Female #6)

Disaster management of a bureaucratic nature is also vulnerable with respect to both its legitimacy and flexibility characteristics. It requires the coordination of a variety of social groups that may have little or no allegiance to the bureaucratic norms of government. Rural areas in particular often have a legacy of governance that is suspicious of 'bureaucracy' and a long-standing tradition of confidence and competency in associative or communal-based normative structures (Reimer and Tachikawa, 2008). If these strengths are not acknowledged and integrated they remain at best as underutilized assets and at worst as obstacles to effective implementation.

The traditions and knowledge of local community organizations often vary considerably – creating many opportunities for a lack of fit between the requirements of a broad-based plan and the specific characteristics of their implementation in particular locations. In the Lost Creek Fire, the local residents were uncomfortable and dismayed when the SRD officials did not utilize local knowledge about geography and landmarks in determining the response to the fire. At one public emergency team update meeting, incorrect mountain names and geographical features were used to describe the path of the fire. This error was exacerbated by the fact that local residents had previously volunteered assistance to the SRD to explain the geography but their offer had been rejected. Only after the Mayor and CAO intervened were such consultations initiated – with positive results.

Fortunately for the Lost Creek Fire situation, local officials responded positively to the community initiative and reorganized their activities in a more inclusive way – maximizing the opportunity for conflicting norms to be identified and various interests to be accommodated. The Mayor noted that the change to a more horizontal model for the disaster plan management ensured the involvement of every group at their twice daily meetings.

> "Our disaster plan was set up according to a traditional hierarchal model. When we realized that the fire could be a rather long and drawn out threat to the community, we structured our response very differently with basically a flat model. Involved representatives of every group that we could imagine were brought together for daily meetings." (Mayor)

This restructuring of the management in the Lost Creek fire was a key element for addressing the crisis in a way that supported local assets and helped to minimize the potential conflicts in organizational norms that so often limit effective governance.

Potential Bureaucratic-Market-based Tensions

Disaster responses require significant allocation of equipment and other resources to manage the source or impacts of the crises in an effective and speedy manner. In most cases, this involves potential conflicts of interest between bureaucratic and market-based normative systems such as those found in local businesses. Local and distant contractors and business people can legitimately be expected to be compensated for the use of their equipment and personnel, or access to their land. Compensation for businesses when their employees take time away to fight the fire may also be considered a legitimate claim. The terms of such agreements need to be anticipated and identified beforehand in order to avoid delays and conflicts – not only during the

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period of the disaster, but afterwards where relationships of trust may be jeopardized by injustices felt by community members.

Communication in all its forms turned out to be a critical element for effective governance in the Lost Creek Fire. Information about the state of the fire, the implications for the communities, the fate of family members, instructions, strategies, alternatives for the local population, and material for the external press are all required for management and anxiety reduction – as is the opportunity for people to ask questions and get useful and prompt responses.

> "If you're going to call it a disaster then you better inform people, because people are panic stricken and…and you don't want them to be bouncing off the walls, you want them to be calm, and in order for them to be calm you have to inform them" (Female, #18)

Effective communication is necessary not only for the transmission of information but for the development of legitimacy on the part of the various agencies involved – a necessary ingredient to ensure compliance to directives and initiatives. This requires the integration of communication methods and media across normative systems.

Much of this communication requires the establishment or diversion of market-based organizations from their usual activities. Radio stations, telephone companies, internet providers, newspapers, and local businesses are often implicated in the process and will expect some form of compensation according to their norms of involvement. In the case of the Lost Creek Fire, the SRD made arrangements with a local printing service to print all materials related to their operation including updated fire maps. Not only did it provide welcome financial compensation

to the local community, but it reinforced the credibility of the local-provincial relationship and provided a proximal infrastructure for the rapidly changing circumstances created by the fire.

Potential Bureaucratic-Associative-based Tensions

Agreements for compensation must also be considered for associative-based groups. Although this may be financial as with market-based groups, voluntary organizations are often very responsive to other forms of recognition, as well. Primary among these are inclusion in the decision-making and planning, accommodation in the action taken, and public recognition for their efforts. Bureaucratic-based organizations (especially those of the state) have particular difficulty with providing adequate and quick responses in these areas because of their (necessary) commitment to general principles of operation and accountability (O'Toole and Burdess, 2004). This is especially apparent with respect to financial matters where the requirements for invoices, receipts, and related justification for expenses place an extra burden on the more informal mechanisms and associative norms that are critical for rapid, locally-appropriate responses.

Two of the most contentious points of conflict in those norms can be found with respect to fair representation and accountability. Bureaucracies typically espouse norms of fairness in recruitment and the allocation of resources. They also require evidence of accountability whether that is in constituent representation or financial control. Frequently, however, leadership under local conditions is more often based on charisma, family connections, gender, belief, or ascribed characteristics. Volunteer's motivations can be significantly reduced in the face of bureaucratic

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demands for application forms and auditors' reports. These often become obstacles to dialog and co-ordination of activity – creating conflicts or lost assets when co-ordinated action is required.

The Lost Creek fire provides a good example of how these normative conflicts may be minimized or avoided under disaster conditions. The SRD's initial reliance on general procedures created animosity and errors of judgment until they increased their local collaboration. The key elements were the inclusive nature of their consultation including meeting with local experts about the geography. By integrating local community knowledge, they drew in a wide variety of leaders so that the range of experiences, competencies, and assets could be accessed in order to deal with the crisis. Members of the volunteer fire departments shared their knowledge about the local conditions with the SRD, and participated directly in the firefighting activities. The "Quad Squad", a local group of all-terrain vehicle (ATV) enthusiasts assisted with evacuations, patrolled the streets, and provided emotional support to evacuees. Many of the members of the Quad Squad were also firefighters – thereby ensuring considerable information flow and co-ordination among these two groups. Staff members from the municipal Learning Centre[2] helped organize accommodation, meals, and emotional support under the auspices of the two government-employed individuals officially designated within the disaster plan to create and maintain the Learning Centre as an evacuation centre. Using their visibility as prominent community members, the lead individuals were able to recruit additional volunteers with the necessary skills. The Learning Centre became a gathering place and support location. Individual community members participated by providing information about the geography, staffing

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[2] The Learning Centre was a local community facility owned and managed by the municipality. It was set up in an old hospital building.

facilities, and sharing resources. Their willingness to contribute requires respect for the norms with which they are familiar, the leaders they trust, and the networks that have worked in the past.

One of the communities most affected by evacuations (Hillcrest Mines) started a volunteer service to provide food and refreshments for the local firefighters, local officials, and the SRD personnel in their community hall. This service was initiated by a couple who then used their local connections to request volunteers. Thus, women from a variety of economic and social backgrounds came forward to develop a schedule of tasks and matching volunteers for the entire period of the fire. When Hillcrest Mines was evacuated, a community hall in Bellevue was used to provide hot breakfasts, lunches and suppers on a daily basis for the entire time of the firefighting. Donations for food were received from stores and individuals. Other groups in the area (such as the Hutterites and Mennonites[3] from a nearby community outside of the municipality) also donated food and time to prepare the meals.

Groups based on associative norms are likely to provide some of the most important communication services as well. Most volunteer groups have established methods of communication for their own purposes – methods which can be effectively recruited if these groups are integrated into the process. Faith-based, ethnic, recreation, leisure, charity, and professional groups are all potential partners in this process and are often able to provide quick

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[3] Hutterites and Mennonites are two religious groups that emphasize service to others as a key element of their faith.

and effective communication using a wide variety of media – including telephone, newsletters, bulletin boards, posters, and word-of-mouth.

Potential Bureaucratic-Communal-based Tensions

Many rural communities organize themselves within a system of governance that gives high legitimacy to communal-based norms (Rosenzweig, 1988; Reimer and Tachikawa, 2008). Family relations, ethnic connections, and religious ties are often intimately connected with the other normative systems in complex ways. This has always been a challenge for bureaucratic-based normative systems, especially those connected to state agencies, sometimes giving rise to political and legal challenges of patronage, favouritism, and racism.

The reluctance to get involved with these other normative systems can undermine effective action, however, especially under disaster conditions. It can mean that critical leadership assets are overlooked, for example, or animosities generated that undermine local governance activities into the future.

Leadership is not an individual characteristic. It depends on the networks and social legitimacy that have been established – usually over a long period of time. Under disaster conditions, time is of the essence so it makes sense to turn to established leadership rather than attempt to build it from scratch. This can be anticipated in a disaster plan – one that identifies the ongoing leadership needs, the social networks and groups most likely to foster leadership, and the mechanisms to draw in the local leadership assets as quickly as possible. Once again, this means going beyond the bureaucratic tendency to designate leadership in terms of formal roles and look

for leaders in market, associative, and communal-based groups. It also means respecting the norms and interests they represent and seeking ways to co-ordinate them with those of bureaucratic organizations.

Communal-based norms also play an important part in effective communication. Family, ethnic, and friendship networks and groups not only serve to pass on information, but they also provide the social reinforcement of certain types of information over others. Research regarding adoption of innovation practices makes clear that key people and networks serve to filter the massive amount of information we face, associate it with particular evaluations, and interpret it to foster or inhibit confidence in its veracity (Katz et al., 2006). If local opinion leaders are not 'on board,' there will be considerable resistance to well-coordinated action. This means that a full range of interests and values must be accommodated in the communication strategy – including the wide range of media they represent. The original families in the Pass share an historical past and have become more fully integrated across the different settlements as marriages occurred through the years, for example. During the fire, this was an asset because individuals who needed evacuation more commonly stayed at relatives' homes in the other settlements rather than relying on the evacuation centre for accommodation. Other individuals became informal caretakers for seniors with no remaining family members in the Pass. They ensured that these individuals were identified, safely evacuated, or if they did not require evacuation, were feeling safe in their home and aware of the situation.

> "...one other thing that really bothered me once we were getting into the areas where we
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> started to evacuate, was our elderly people…. It was quite evident that the people
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> that…couldn't speak good English…the immigrants to our community who have been

residents for many years, who had no real family around... were phoning in...[asking

things like...”How am I supposed to handle this?” “How will I know when they come to

my door?” “What am I going to do with my animal or my pet?” People were going to

stay in their homes because their animals couldn’t be taken with them…that was so

upsetting, it still brings tears to my eyes” (Female #25)

The support they received crossed ethnic lines as has always been the case during the times of

other disasters such as mine explosions (Brown and Kulig, 1996-1997).

Conclusion

Recognizing the normative systems by which people take action is critical to good planning for

disasters – especially at the local level. The Lost Creek Fire provides many examples of the ways

in which the differences among these systems can be accommodated with flexible management

and a broad-based approach to social inclusion. By doing so, the local community was able to

mobilize all its resources and in the process build its capacity to deal with future crises.

This event provides us with a number of lessons that can serve as bases for planning and action

in the future. They also serve as points of investigation for researchers. At the most general level,

the responses to the Lost Creek Fire reinforce the importance of recognizing all the normative

systems that structure collective action. Although bureaucratic norms appear most effective for

organizing the complex array of resources and people required for disaster response, we must be

aware of the fact that not all governance occurs in this form. Many local assets (both physical

and personal) are organized with respect to other norms so effective disaster action must

recognize these differences and seek ways to accommodate them at all stages: planning, response, and recuperation (Dynes, 2006).

This means finding ways to integrate all potential partners and leaders into the process, right from the beginning. One advantage of disaster planning is that one can achieve considerable buy-in of a wide diversity of social groups and individuals because of the common impacts of such crises (Sweet, 1988). Maximum effectiveness can most often be achieved, however, by making use of those different ways of operating rather than insisting on a narrow procedure that all must follow. This can best be achieved by bringing all potential participants together, recognizing the differences, and working with them (Pelling, 2003; Heijmans et al., 2009). Local leaders faced with the Lost Creek Fire were quick to recognize this once the disaster was upon them and were able to modify the plan to become more inclusive. This lesson can be implemented in the early stages of planning to make it even more effective.

The importance of communication among all participants emerged as another important lesson from our research. This takes place in many ways within rural communities, however, so one cannot assume that all members are well connected through one type of media. Identifying the various ways in which information is transferred and (perhaps more importantly) reinforced or represented becomes an important focus of attention for future planning. In the Lost Creek Fire this communication was facilitated by regular and frequent meetings, the use of local facilities, clearly defined compensation information, and multiple forms of communication – from radio and newspapers to visits and word-of-mouth. Who are the local opinion leaders? What are the groups or networks to which they are connected? What are the media through which that

connection is made? All of these questions become important ones to ask at the planning stage – with initiatives identified to make use of these networks and methods of communication.

The presence of effective leaders appears to be an important component for the management of the Lost Creek Fire. In fact, we can point to key individuals in the events who played critical roles in all aspects of the crisis. However, the main lesson from these observations is not about the individuals but about the networks and groups to which they are connected. For planning purposes, it is these networks and groups that must be identified within a particular region and for particular purposes. The leaders will be associated with those networks and groups – often in informal and less public ways. In rural areas, for example, it may be the women's auxiliary that is most adept at providing food in crisis situations, and the women in that auxiliary will often point to the person who can make it happen. Good planning will identify and make use of these types of social assets as much as the more formal leaders who are designated by official positions.

Finally, we have learned that there is considerable research which needs to be done in order to understand the details of some of these processes. The Lost Creek Fire provides a positive example of effective management of the potential social conflicts involved, but we could be better served by examining other cases where this management was not forthcoming. "What were the outcomes of these responses – both in the short and long term?", "Which of the various types of conflicts we have identified were most critical for those outcomes?", and "What other resolutions of those conflicts can be found?" are some of the questions that emerge. Answering such questions will help disaster planners to identify the most strategic approaches to building

effective integration and governance structures. They will also help researchers to understand the

processes involved in collective action in general. If the success of the Lost Creek Fire response

is any indication, these processes will be more inclusive, more complex, more flexible, and more

open to learning than is usually found in our traditional institutions and in our current disaster

plans.

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Table 1: Characteristics of the Four Normative Systems (developed from Reimer et al., 2008)

	Market	Bureaucratic	Associative	Communal
Characteristics	Relatively free system of exchange	Rationalized division of labour and the structuring of authority through general principles and rules	Shared interests, threat, or common objective	Common, strongly shared identity
Examples	Commercial, labour, housing markets	Government and corporate bureaucracies	Volunteer groups, clubs, and associations	Family, gangs, cults, and strong friendship groups
Expectations	Norms of transparency of information, product mobility, and the honouring of contracts	Stable division of labour, clear specification of rights and responsibilities	Consistent contributions to common objectives and interests of the group	Loyalty to group interests
Relevance to wildfires	Hiring of firefighters and equipment, preservation of property, insurance appraisal and payment	Co-ordination of behaviour within and by government agencies, police services, firefighters, and many of the non-government support organizations	Activities and contributions of community and outside groups, clubs, and charities during and after the wildfire	Supports provided by and for family members and close associates