NOTE TO USERS

INDIVIDUAL DISASTER PREPAREDNESS LEVELS AND CITIZEN EXPACTATIONS OF EMERGENCY SERVICES DURING A DISASTER

By

Brock Henson
B.A., Xavier University of Ohio, 1999

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We accept this thesis as conforming
to the required standard.

Norman E. Hardy, PhD
Academic Supervisor

Jean-Yves Forcier, CMM, CD, MA
Program Head, MA Disaster and Emergency Management

Gregory Cran, PhD
Director, School of Peace and Conflict Management

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Introduction

This research project seeks to determine what the residents of Saanich, British Columbia expect of local emergency services during a disaster and what the relative significance of such expectations are for local emergency services. Millions of dollars and a variety of other resources have been allocated as part of a concerted effort to increase individual preparedness levels across Canada. This certainly seems appropriate as emergency preparedness begins with the individual (Provincial Emergency Program, 2007). But we are not currently aware of how prepared the public actually is. Traditional approaches to public education directed at increasing awareness and/or risk perception have proven ineffective (Paton & Johnston, 2001).

It is generally accepted people are apathetic when it comes to disasters, often demonstrating an "it will not happen to me" mentality (Auf der Heide, 1989). Research has demonstrated apathy exists towards disaster preparedness. Research must be conducted to determine actual individual preparedness levels and dependence on, or expectation of local emergency services in the event of a disaster. As Quarantelli (1999) suggests, emergency management programs are too focussed on the written plan and its assumptions and they are not getting out into their communities to find out what is really happening.

This research project seeks to determine the answers to four main questions:

1. Are citizens aware that disaster preparedness begins with the individual?
2. Are citizens aware of the preparedness recommendations made by Public Safety Canada, and endorsed in British Columbia by the Provincial Emergency Program?
3. Do citizens expect to be affected by a disaster within their lifetime, and if so by what types of disasters?

4. What do citizens expect local emergency services to do for them in a disaster?

Preparedness efforts are challenged by the assumption local emergency services or Non-Governmental Organizations (NGO's) will deal with the problem (Emergency Preparedness Institute, 2007). If people are not aware that emergency preparedness begins with the individual, it may be fair to assume their perceived dependency on various levels of government is a barrier preventing them from taking actions to prepare their household for a disaster. The public often demonstrates a defiance of safety precautions and regulations (McEntire, 2001).

Millions of dollars have been spent on emergency preparedness messaging by local, provincial and federal governments in Canada yet there has been very little research conducted on whether or not this messaging is reaching the general public and positively affecting individual preparedness levels. Given the considerable investment made in emergency preparedness messaging, it would certainly be prudent to have an understanding of whether current public education models and messaging in our Country are effective.

The Problem and its Setting

Sub problem 1

The first sub problem is whether citizens are aware that emergency preparedness begins with the individual.

Data Needed

The data needed to resolve this sub problem are the responses to a research question asking who is responsible for disaster preparedness in Saanich? The respondent is asked to rank the order of responsibility regarding the individual, Municipality, Provincial Government and

Federal government.

Treatment of the Data

The data will be used to form a conclusion on whether people are aware of the "ground up" model of disaster preparedness. Beginning with the individual and filtering up through the Municipal, Provincial and Federal governments. A chart will be used to demonstrate the findings related to this data. It displays the percent of survey subjects who are aware of the "ground up" model of emergency preparedness.

Sub problem 2

The second sub problem is to determine if citizens are aware of the preparedness recommendations made by Public Safety Canada, and endorsed in British Columbia by the Provincial Emergency Program.

Data Needed

The data required to answer this sub problem will be provided by a question asking the respondents to list the disaster preparedness recommendations, made by Public Safety Canada of which they are aware. Some consideration was given to asking them to check off the individual recommendations they have complied with, but this would not provide an accurate reflection on whether they had even heard of the individual recommendations (i.e. I could ask if they have a wind up radio in their home. A given respondent may check yes, but this wouldn't mean they are aware of it being a recommendation of Public Safety Canada).

Treatment of Data

The data will be used to demonstrate what percentages of people are aware of Public Safety Canada's recommendations. If it is demonstrated by their responses that they are aware of what supplies they will need to be self sufficient for 72 hours, I will consider them to be aware, as this is the benchmark used by Public Safety Canada. This data will be broken down into sub-categories according to demographics. This will be done to conclude whether or not demographics are a factor.

Sub problem 3

The third sub problem relates to perceived vulnerability and whether people expect to be affected by a disaster within their lifetime.

Data Needed

The data required for this sub problem will be provided by a question asking if the respondent expects to be forced to survive in their own home with only the resources they have on hand. There will be a second question asked regarding what type of hazards the respondent feels most vulnerable to. This will be used to ascertain the subject's perceived vulnerabilities.

Treatment of the Data

This data will be used to ascertain perceived vulnerability. Conclusions will be drawn

from this data relating to perceived vulnerability and compared to previous experience along with its relationship to expectations of emergency services.

Sub problem 4

Answers provided in the survey will be used to determine what citizens expect local emergency services to do for them during a disaster.

Data Needed

The data required for this question was obtained by a asking the respondents to select what services they expect local emergency services to be able to deliver in the event of a disaster. Participants will also be asked how many incidents they expect local emergency services to be able to respond to simultaneously.

Treatment of the Data

This data will be used to conclude what individual's expectations of local emergency services are. It will be compared to the data relating to perceived vulnerability and preparedness. I will attempt to conclude whether perceived vulnerability and preparedness have an affect on an individual's expectations of local emergency services in the event of a disaster.

Hypotheses

1. Individuals are not aware that disaster preparedness begins with the individual.

2. Individuals are not aware of the preparedness recommendations made by Public Safety Canada and endorsed by the Provincial Emergency Program.
3. Individuals do not have a realistic expectation of what types of disasters they are most likely to experience.
4. Individuals expect local emergency services to be able to provide rescue services and medical aid to a large number of casualties, simultaneously.

Delimitations

This study seeks to provide exploratory research regarding individual preparedness, disaster experience, perceptions of what disasters are most likely to occur and citizen expectations of local emergency services during a disaster. The sample will contain its own unique characteristics and will not be adequate to form definitive conclusions about other communities across Canada and North America.

Survey respondents were asked a few demographic qualifier questions. They were asked if they are male and female and whether they have any senior citizens or children living at home. Respondents were also asked to state their age category. Participants were not asked to state their income, marital status, level of education or ethnicity. This study will attempt to draw some conclusions regarding the influence of having seniors or children in the household. However, it will not formulate any conclusions based on education, ethnicity or socioeconomic status.

This study does not attempt to assess individual household preparedness. Rather, it attempts to establish individual awareness of such recommendations. Respondents were not asked to state what they have done to prepare for a disaster, only to list disaster preparedness

recommendations made by Public Safety Canada of which they are aware. This study will not seek to establish or evaluate efforts in promoting disaster preparedness; it will only seek to find out if recommendations are reaching individuals at the community level.

In an effort to find out if previous disaster experience influences an individuals perception of risk of future disasters, respondents are asked if their community has ever been impacted by a natural or man-made event that caused a disruption in essential services, and forced them to survive on only the resources they had in their home at the time of the event. Respondents will not be measured on whether they were prepared for the event when it happened, but rather have they experienced such an event, and whether they expect to experience another event in their respective lifetime.

Participants were also asked to check off a variety of disasters they feel susceptible to. Respondents will not be asked why they feel vulnerable to a specific event and therefore, conclusions will only be formulated pertaining to perceived vulnerability to a specific type of event.

Definitions of Terms

Children - Individuals who have not reached the age of majority in British Columbia, which is 19-years-old.

Emergency Services - A collective term for police, fire department and emergency medical services.

Disaster or Emergency - In this study, the terms disaster and emergency are interchangeable; they refer to any significant event, whether natural or manmade, which causes the disruption of

essential services.

Essential Services - Essential services in this study include power, water and other utilities.

Household - Household refers to the family unit; this may be a single person, a couple, a family or any other living arrangement.

Preparedness - Household preparedness is considered within the context of Public Safety and Emergency Preparedness Canada's recommended list of supplies for 72-hour sustainability for all family members.

Senior - Senior refers to an adult 65 years of age or older.

Abbreviations

PSC - Public Safety Canada, the federal government agency responsible for public safety and emergency preparedness in Canada.

Assumptions

The first assumption: All households surveyed have access to the media necessary to acquire PSC's 72-hour preparedness recommendations.

The second assumption: All households in an area will have been subjected to the same experiences as the community in general; that is, if the community experienced a disaster, all members of that community would be familiar with the situation.

The third assumption: The survey respondents will be representative of the community being examined.

The fourth assumption: The standard for preparedness is based on and measured against Public Safety Canada's 72 hour preparedness guidelines as found in *Your Emergency Preparedness Guide*, PSC's recommendations document.

Importance of the Study

Emergency management practitioners may not understand what citizens expect of local emergency services during a disaster. The current model is based on assumptions and theory. While individuals have been told to prepare by Local, Provincial and Federal bodies, has this had an effect? This study will demonstrate if individuals in Saanich are aware that disaster preparedness starts with them. It will also provide insight into perceived dependencies on local emergency services. Policymakers and the public need a way to assess preparedness: doing so is critical for resource management (Jackson, 2008).

By conducting research, emergency management practitioners will obtain a better understanding of the needs and expectations of families and individuals during a disaster. This type of research will help communities allocate their emergency preparedness resources appropriately. If individuals are not aware of Public Safety Canada's recommendations and the capabilities of local emergency services, perhaps a paradigm shift will be needed.

Review of the Literature

Natural disasters are increasing both in number and frequency around the world, resulting in ever growing human suffering and economic cost (Public Safety Canada, n.d.). It has been proposed that one of the main reasons for the recent increase in the number of disasters around

the world is a result of human activity. Many of the disasters that have occurred in the last decade can be termed as "man-made", as they have occurred as a result of human activities and technological events as opposed to being 'acts of God' affecting communities randomly (Blaikie et al, 1994; Fothergill and Peek, 2004). The black outs in Eastern Canada and the North Eastern United States and the devastating effects of Hurricane Katrina are examples of how human activities can influence the extent of, or even cause a disaster. Such examples demonstrate how disasters are - the result less of the extreme natural event itself, than of the inappropriate way we have designed and built our communities and buildings in the hazard prone areas where they occur (Geis, 2000). Given that the occurrence of disasters is increasing around the globe, it makes sense for all levels of government to invest resources into promoting emergency preparedness.

Individual disaster preparedness has become a significant area of focus for local, provincial and national authorities. Preparedness is fundamentally about being ready to take action when a damaging event happens (Jackson, 2008). In Canada, emergency preparedness begins with the individual (Provincial Emergency Program, 2007). Canadians view public safety as a priority for government and expect their government to reduce the impact of emergencies (Strategic Counsel, 2008). However, neither individuals nor governments can successfully prepare for an emergency without effective participation of the other (Kuban, 2008). It is an individual's responsibility to ensure they have enough food, water and other supplies on hand to ensure they are self-sufficient for at least three days following a disaster. However, about four-in-ten Canadians (40%) think that the Government will take care of them if a large-scale emergency were to occur. It was also discovered that this was an increase of 13 points from previous years (Strategic Counsel, 2008).

It has become an accepted rule of thumb amongst disaster planners that individuals will be responsible for their own well-being for the first 72 hours following a major disaster when the normal flow of goods and services has been interrupted and emergency services are overwhelmed. Emergency management officials emphasize self-sufficiency during this critical period as a means of coping with disaster (Russell, Goltz, & Bourque, 1995). The 72 hours preparedness message is a common standard used across North America by first responders (fire, police, paramedics). Three days is the length of time it should take for a disaster relief effort to be organized. In the event of a disaster, first responders will focus on those whose lives are in immediate danger. In order to support response efforts and not burden emergency workers, those who are able to prepare have a responsibility to do so (Public Safety Canada, 2008). Previous disasters have demonstrated how first responders have limited resources, including a shortage in their own numbers. Events may also negatively impact the ability of first responders to provide an adequate response (Emergency Preparedness Institute, 2007). This demonstrates how individuals must prepare themselves for disaster. It may be some time until emergency services are able to get them.

With all of the media attention, public service announcements and government attention given to disaster preparedness activities, one would expect the proportion of individuals who are adequately prepared for a disaster has increased. However, research has demonstrated the opposite. Preparedness activities have not increased since 9/11. A recent survey of 15 000 Americans showed 32% had done nothing to prepare for a disaster (Emergency Preparedness Institute, 2007). Another United States national poll suggests only one in 14 people have taken the necessary steps measures to prepare for a disaster (Hales, 2007). It is interesting that so few

people fail to take actions to become better prepared, especially considering how 78% of respondents to a survey conducted in New York stated they were interested in receiving information on how to prepare their household for an emergency (Center for Catastrophe Preparedness and Response, 2006).

The likelihood of experiencing a disaster is relatively low. Only 13.8% of Americans have ever been severely affected by a disaster (Quarantelli, 2003). This finding is contradictory to a poll conducted by Time magazine which found half of those surveyed had personally experienced a natural disaster or public emergency (Ripley, 2006). Another study suggests as many as one third of natural disaster survivors may experience a second disaster (Sattler & Hittner, 2000). This can likely be attributed to citizens living in a region which frequently experiences the same disaster, such as a tornado-prone area. Except in jurisdictions where the occurrence of disasters is frequent, citizens perceive a low probability of loss (Henstra & McBean, 2005). Thus, it is not surprising that everyday concerns take much higher priority than low probability occasions such as disasters (Quarantelli, 2003).

People who are directly and more routinely affected by disasters are more responsive to future hazard predictions and tend to prepare themselves and their properties more than those who have never been affected (Russell et al., 1995). Blanchard-Boem and Cook (2004) proposed an individual's experience with a previous hazard is a major factor that determines whether that individual will engage in an increased level of preparedness. It has been found that people who have experienced an earthquake are more likely to be concerned about seismic risk and prepare for an earthquake (Dooley, Catalanom, Mishra & Serxner, 1982). This is further supported by Tanaka (2005) who concluded previous earthquake experience functions as educational experience which contributes to improvement in readiness. The Harris Interactive Study of

Disaster Preparedness found 38% of New Yorkers, the highest amongst cities surveyed, fear terrorism (Business Wire, 2003). This may be a direct result of how New York residents had a recent, direct experience with a terrorist attack. However, Time Magazine found only 16% of those who had experienced a disaster said they were "very well prepared" for the next disaster (Ripley, 2006).

Quarantelli (1994) states personal experience is memorable but there does not appear to be too many lasting behavioural consequences. For example, in July of 1987 an F5-rated tornado struck the city of Edmonton. On the tenth anniversary of the event, Edmonton residents were questioned about the perceived likelihood of a tornado seriously damaging their home in the next 10 years. Only 3% of the sample believed a future occurrence was very likely (Boehm & Cook, 2004). When respondents of the same survey were asked how prepared they were for the next tornado, only 26% felt prepared. These and other conflicting reports indicate that there does not appear to be a consensus amongst the literature reviewed pertaining to the influence of prior disaster experiences.

A recent survey in New York showed most households have not planned for a disaster (Barata, Llovera, Riccardi, Mayerhoff, Ward & Miele, 2007). Only 40% had engaged in some disaster planning and only 30% had essential supplies set aside. A similar study conducted in California found that approximately 40% of the sample had prepared stores of food and water in case of an earthquake or other disaster (Russell et al., 1995). This difference of approximately 10% could be attributed to California's higher risk of natural disaster occurrence, perhaps indicating previous disaster experience or perceived threat will result in an increased level of preparedness. However, it has also been suggested that complacency is another factor preventing people from preparing for disasters. Hales (2007) suggests that because California is prone to

tremblors most residents have become indifferent to warnings about them. While two thirds of San Diego County residents feel that it is likely they will be affected by a disaster in their lifetime, only half have taken time to formally plan for such an event (San Diego County, 2007). However, the claims that complacency is a factor preventing an individual from taking preparedness measures is refuted by the fact that the Harris Interactive Study of Disaster Preparedness found that households on the earthquake prone West Coast are far more prepared for dealing with a disasters (Business Wire, 2003). Heightened individual concern is related to increased preparation (Dooley et al., 1992). This is contrasted by a study that found beliefs regarding the probability of earthquake occurrence, its potential severity and the efficacy of preparedness are *not* associated with the adoption of seismic hazard adjustment and the accuracy of people's earthquake-related beliefs and their adoption of seismic adjustments increase as a result of exposure to earthquake information pamphlets (Whitney, Lindell & Nguyen, 2004).

Imminent hazards may also have an effect on preparedness. Peacock, Brody and Highfield's (2004) finding that risk perception is an important predictor of storm preparation further supports this. The understanding of imminent threat is a factor that may determine whether that individual will engage in protective action and preparedness (Boehm & Cook, 2004); although more research into how individuals come to perceive disaster risk is needed. Risk perception is a significant factor in personal preparedness. According to Palm (1995, P. 83) previous research suggests that, within a given environmental and cultural setting, individual variability in perceived vulnerability to hazards is at least in part a function of:

1. variability in personality characteristics
2. proximity to and previous experience with the hazard
3. a set of socioeconomic and demographic characteristics

Sattler and Hittner (2000) found optimistic bias plays a role in individuals' perceptions of threatening storms; this bias can be supported by natural events. An example of this is when a hurricane changes course and does not make landfall in a populated area, reinforcing the perception. Sattler and Hittner also reported participants of their survey questioned the likelihood of a disaster recurrence in their lifetimes. The Council for Excellence in Government (2006) found that very few Americans believe a natural disaster, public health emergency or terrorist attack will happen in their community in the next two years. Herbert Research Inc. (2006) found that respondents to their survey conducted in Washington State had the idea that the prioritization of disaster preparedness is low compared to other things one might be concerned with on a daily basis.

According to the Emergency Preparedness Institute (2007, p.9), the following factors challenge preparedness efforts:

- Apathy
- Not knowing how to prepare
- Assuming the government will take care of everything
- Feeling nothing they do will be effective
- Too much time involved
- Costs too much money
- Paper plan syndrome
- Planning must be accompanied by training, and updating.

It is generally accepted that people are apathetic about the prospect of disasters, often demonstrating the mentality that "it will not happen to me" (Auf der Heide, 1989). The public often displays a sense of apathy towards disasters and demonstrates a defiance of safety precautions and regulations (McEntire, 2001). While some believe a disaster is very rare and will likely not occur, others believe the odds of a disaster impacting themselves is less remote. It has been suggested we are not all apathetic. Precautionary behavior tends to be consistent within individuals across different types of hazards. People who perceive precautionary measures, including hazard preparedness, crime prevention, vehicular safety, and health maintenance, as useful, are more likely to engage in self protective acts (Norris, 1997).

It is a common theme amongst disaster research that individuals demonstrate an optimistic bias when it comes to their own perception of risk relating to disasters (Sattler and Hittner, 2000), and public perception of risk shows no correlation to actual risk (Auf der Heide, 1989). However, individual citizens are not the only component of our societies that demonstrate apathetic behaviour. Apathy is also present in government as well. Within the field of emergency management, it is a "given" that preparedness is essential for disaster survival. It is also a "given" that that preparedness is frequently accorded a low priority by public safety agencies and individuals, particularly in the light of low frequency of disasters that impact a community (Hooper, 1999). Many governments provide only the most basic emergency programs that include little more than a plan and an appointed coordinator (Auf der Heide, 1989). According to Perry and Lindell (2003), such an emphasis on written plans tends to draw away from the process of planning itself and the original objective of achieving community emergency preparedness. A written plan can be nothing more than an illusion of preparedness if the other requirements are neglected (Quarantelli, 1982).

Planning should take into consideration how people and organizations are likely to act, rather than expecting them to change their behaviour to conform to the plan (Quarantelli, 1985). Disaster Planning is an illusion unless it is based on valid assumptions about human behaviour (Auf der Heide, 1989). While many disaster planners believe members of the public will act in an anti-social manner following a disaster, studies show that individuals actually react rather well and tend to help each other (Quarantelli, 1983). Scanlon (1991) suggests that myths about panic, looting, the inability of people to cope and viewing citizens as helpless victims all influence how outsiders handle various situations. Examples of this include holding back warnings and assuming victims can't cope. Media coverage raises the anxiety level of the public and causes the allocation of police resources to be moved from useful to trivial tasks (Dynes, 2002). Disaster planning is only as good as the assumptions on which it is based (Auf der Heide, 2005).

Many reports have been produced after major disasters, identifying 'lessons learned', yet the same mistakes continue to be made by disaster planners. Evidence based disaster planning is necessary. Disaster plans often fail to anticipate common response problems that have been identified during systematic field research studies (Auf der Heide, 1989). A shift must be made to help people think about preparedness in a new light. A new point of view is needed to crystallize how a disastrous event has a probability of occurring, which calls for definitive preparedness efforts (Emergency Preparedness Institute, 2007).

Social and political structures are far from objective and will promote the interest of some, such as business leaders, over those with less power. This view of political decision-making is contrasted by Quarantelli (2003), who explains that despite the implied criticism, the political decision making process tends to be very rational and understandable. The primary challenge preventing mitigation strategies here in Canada is political: disaster management rarely appears

on the policy agenda and mitigation is rarely chosen as an approach (Henstra and McBean, 2005). Given political pressures from various interest groups, the challenge of protecting the vulnerable with public funding is difficult (Fothergill and Peek, 2004). Emergency management professionals must convince politicians and other public officials that vulnerabilities are the only cause of disaster that humans have control over.

Historically, emergency management and planning has been viewed from a para-military perspective (Scanlon, 1982), resulting in a top down approach to emergency management. The para-military perspective implies a command and control model of management. Such a methodology is disconnected from community objectives and needs, with an emphasis on preparedness and response that has rarely included the public. Disaster and emergency management has largely been initiated and implemented for the community, not with the community (Laughy, 1991; Pearce, 2003) and the military approach has left little room for flexibility and innovation (Dynes, 1994). Citizens are an often overlooked resource in both pro-active and reactive phases of emergency management. Social Capital resources are an important part of improving a community's resilience (Murphy, 2007). This is important to note as emergency preparedness is considered a shared responsibility between governments, communities and individuals in Canada (Lemyre, Lee, Turner & Krewski, 2007). Despite the involvement of upper levels of government, emergency management tends to concentrate the responsibility for the delivery of services with local level authorities (Murphy, 2007). Disaster management in Canada has a "bottom-up" approach where policy is designed, formulated and implemented locally (Henstra & McBean 2005). When a disaster strikes a municipality in Canada, the federal government and the appropriate provincial government are typically available to support that municipality in its response effort. This community level focus should

continue to serve as the guiding principle for all disaster response efforts at local levels (Kuban, 2008).

The Canadian government has acknowledged it needs to do more to promote preparedness amongst individuals and communities. Since 1980, it has administered the Joint Emergency Preparedness Program, which provides funding to local governments for disaster preparedness projects (Henstra & McBean 2005). Preparedness efforts are challenged by the assumption that local emergency services or non-governmental organizations such as the Red Cross or St. John Ambulance will deal with the problem, or the idea that a written plan constitutes preparation – the "paper plan syndrome" (Emergency Preparedness Institute, 2007). Mileti (1992) suggests that people must have a steady stream of comprehensive repetitive risk information from a variety of sources.

Comfort et al. (1999), explain how varied levels of vulnerability between different communities and nations are a result of geography, infrastructure and social conditions. Small countries are systematically vulnerable to disasters. But so too are advanced industrial societies. Their costs are likely to be even greater because of the complexity of their interdependent systems. An example of this is the ice storm, which hit Canada in 1998 causing $1.44 billion Cdn. in damage due to the significant destruction of the electricity grid (Lecomte, Pang and Russell, 1998).

Geographic discrepancies result in differential vulnerabilities, which can lead to catastrophic results. Such discrepancies necessitate different mitigation, response and recovery actions. As a result of this Cutter and Emrich (2006), suggest a one-size-fits-all approach may be the least effective. This assertion contrasts recommendations made by Public Safety Canada, which promotes an all hazards approach as part of its emergency management framework (Public

Safety Canada, n.d).

According to Quarantelli (2003), individual households are typically not much interested, much less concerned about disasters before they happen. Socio-economic factors appear to play a role in preparedness levels. It has been revealed that education, income and ethnicity are related to earthquake preparedness (Turner et al, 1986, as cited in Fothergill and Peek, 2004). Demographic factors that contribute to personal preparedness include households with children. Homes without children show a trend in being less prepared for disasters (Barata et al., 2007; Russell et al., 1995). This is supported by a survey that found 49 % of those who have taken steps to prepare for an emergency say being responsible for children is a major reason for their actions (Emergency Preparedness Institute, 2007). Consequently, one of the best ways of publicising awareness campaigns can be achieved by integrating these activities into children's activities (Izadkhah & Hosseini, 2005). It appears that more research is needed in this area, especially in a Canadian context, to provide useful information to disaster researchers and practitioners.

Demographics have been found to impact preparedness levels. Individual preparedness levels vary significantly by demographic groups, with many observed gender differences (Lemyre et al., 2007). According to the Council for Excellence in Government (2006), age, education and income affect preparedness. Increasing age is also a demographic influence that accounts for increased preparedness levels (Siegel et al, 2003). Cutter (2006), describes how those with resources were able to leave in advance of Hurricane Katrina while the poor and others without resources remained, trapped. The same article also describes how lack of action during the preparedness phase defines an emergency management system that is not functioning at its highest level. It is important for emergency management professionals to understand they

may need to target males with preparedness messaging as gender plays a role in preparedness. Women perceive disaster events or threats as more serious and risky than men, especially if it threatens their family members. There is some indication that women prepare their families and communities for disaster more so than men and women are more likely to receive risk communication, due to their social networks, and more likely to respond with protective actions, such as evacuation (Fothergill, 1996). According to Enarson (1999), women showed a greater propensity to prepare their families and household for a flood, however their voices were often not heeded in family decisions regarding preparedness activities. Morrow (1999), describes how an important factor in a given household's ability to protect itself and prepare for a disaster is the degree to which it lacks control over its own circumstances. Such resiliency depends not only on economics, but also on a household's relation to community decision makers. Racial and ethnic groups are also differentially affected by disasters. Many studies have shown that racial and ethnic communities in the United States are more vulnerable to natural disasters due too such factors as language, housing patterns, building construction, community isolation and cultural insensitivities (Fothergill, Maestas & Darlington, 2002).

The response phase of a natural disaster is when players act immediately after a disaster to manage its consequences in an effort to minimize suffering and losses associated with disasters (Public Safety Canada, n.d.). Socio-economic status is an important variable in the response stage of a disaster. Gladwin, Morrow and Peacock (1997), reported that people with lower incomes were less able and likely to evacuate due to a lack of options regarding transportation and shelter. Gender issues combined with socio-economic factors also affect an individual's ability to evacuate during the response phase of a disaster. During the Red River valley Flood, Enarson (1999) found that homeless, unemployed, low-income women were less

able to evacuate than more affluent women. However, some studies have found no relationship between socio-economic status and response. Russell et al. (1993) found that economic status was not associated with evacuation behaviour in the response phase of the Loma Prieta earthquake. Perry and Lindell (1991), as cited in Fothergill and Peek (2004), also reported no significant difference in evacuation compliance between different socio-economic groups.

Method

Theoretical Framework

This study will examine the public's perceptions of what type of disasters they are most at risk of experiencing and whether they were aware of Public Safety Canada's emergency preparedness recommendations. It also investigates expectations of emergency services during a disaster in the Municipality of Saanich and what the relative significance of such expectations is for local emergency services.

This survey also attempts to determine if recent experience in an emergency that included extended loss of essential services influenced an individuals perceived risk of another emergency/disaster occurring. A qualitative approach was chosen, as many of the responses of those surveyed will be based on perception and perspective.

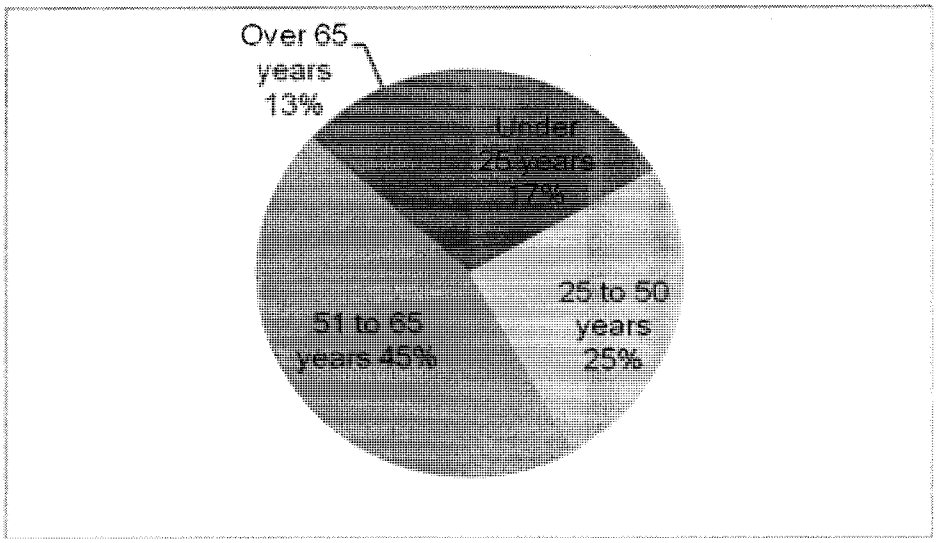
Sample

The research conducted as part of this project was done so exclusively in the Municipality of Saanich. Saanich is a community of 108 265 (Statistics Canada, 2007). It is the largest Community on Vancouver Island. Saanich is also the largest of 13 Municipalities that comprise Greater Victoria. It is possible that some of the respondents may not reside in Saanich itself as many people within Greater Victoria could be expected to attend Saanich recreation centres from time to time. This is not expected to skew the data collected as a household in Saanich is typical of other households in the surrounding area. The sample size of this survey is 250. A sample size of 250 has a margin of error of 6.2% and a confidence level of 95% (Raosoft, 2004).

The age of respondents who agreed to participate is not entirely representative of the population. Subjects aged 51 to 65 were more likely to agree to participate in the survey than other demographics and thus, are over represented in this survey. This overrepresentation of the 51 to 65 age demographic resulted in an underrepresentation of the other three age demographics. The Municipality of Saanich has a large senior citizen population with over 17% of the population being aged 65 or older, compared to an average of 13% nationally (Statistics Canada, 2006). Only 13% of those surveyed were over the age of 65. Chart 1 displays the age breakdown of the 250 respondents to the survey.

Chart 1

Age Breakdown of Respondents to the Survey



In this survey – and as is typically the case with survey research (Herbert Research, 2006) – women responded to the request to participate in the survey at a rate that exceeded their presence in the population. Table displays the amount and proportion of both males and females surveyed.

Table 1

Are you Male or Female?		
Answer Options	Response Frequency	Response Count
Male	37.8%	94
Female	62.2%	155
answered question		249
skipped question		1

Instrument

The instrument created for the research is a face-to-face questionnaire (see appendix: A) consisting of a preamble, 4 demographic data questions and 8 disaster related questions. The preamble explains the purpose of the study, the researcher's affiliation with the university, and how the results will be used. Before conducting the field research, the survey was submitted to an Ethics Review Committee for approval; the survey was approved.

Demographic questions are included to ascertain age, gender and whether or not children or seniors reside in the household. The presence of children in a household as well as older adults has been shown to positively influence disaster preparedness.

Survey questions were designed to gather the following information:

- previous disaster experience
- perception of risk
- awareness of household preparedness recommendations made by Public Safety Canada
- perceived dependency on local emergency services
- expected emergency services service levels

Data Collection

Data collection was conducted at five different sites in the Municipality of Saanich. Local Recreation Centres and the University of Victoria Campus were selected as data collection sites. Data was collected at all four recreation centres and the University of Victoria, as demographics were expected to vary from one geographic location to the other. Data was collected between

October 15th and December 15th, 2008. The research was halted once 250 surveys were complete.

Participants were selected at random, and asked if they would be willing to answer a seven minute questionnaire about emergency preparedness. Participants were informed that the information they provided would be kept anonymous and summarized in a final report. Overall compliance with participation in the survey was relatively low. It was not unusual to have ten or so refusals for every individual who agreed to participate in the survey. It is important to note that I am a uniformed member of the Saanich Fire Department and the Emergency Program Officer for the Municipality of Saanich. In an effort to assure the quality of the data, survey respondents were never informed of my occupation or employer.

Survey Area

The Map below (Figure 1) indicates the study area. Each marker represents one of the five data collections sites. Note that each of the sites is proportionately spread across the Municipality of Saanich, based on population density.

Collection Site 1 = Saanich Commonwealth Place

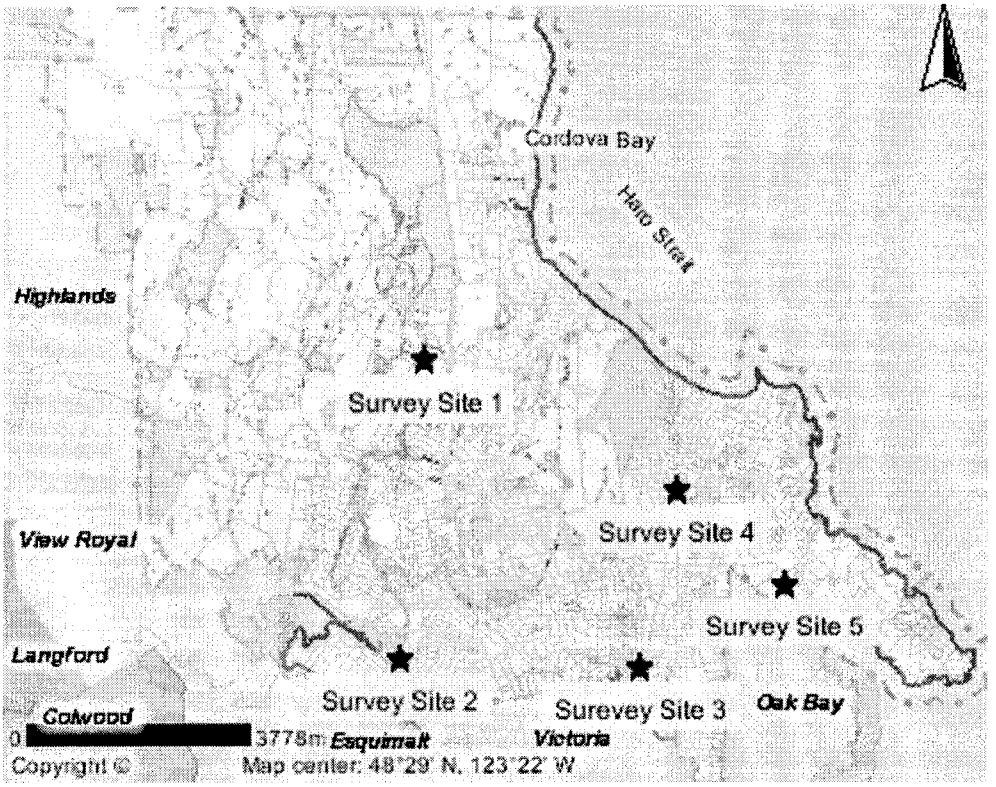
Collection Site 2 = Saanich Pearkes Recreation Centre

Collection Site 3 = Cedar Hill Recreation Centre

Collection Site 4 = Gordon Head Recreation Centre

Collection Site 5 = The University of Victoria

Figure 1



(District of Saanich, 2009)

Results

Treatment of the Data

This section will explain the process and criteria used to evolve the raw survey data into useable information and explain how the data is presented for final analysis. First, it will describe the rationale for the arrangement of the data, and then it will explain the process of how the raw data was compiled and transformed into useable information. Finally, this section will rationalize the selection of the final presentation format, from which implications and conclusions can be drawn.

Arrangement of the Data

Once the research hypotheses were identified, an analysis of the sub problems was conducted in order to identify the types of data that were required to support the research hypotheses. This process identified the essential elements and variables required to form the research questions and the comparative analysis between various demographics, such as age and gender to address the various components each specific sub problem.

Compilation of Data

The data collected from the surveys was entered into tables and charts that were formatted to capture both objective and subjective information. Some of the research questions required open ended answers, and summary tables for the data can be found in appendix C. Should the research ever be challenged, or need to be revisited, then this information will serve as the record from which the research can be regenerated.

The series of tables and charts presented were populated with filtered data in an effort to draw out the pertinent information. The information from these tables and charts serve as the foundation from which the implications and conclusions of the research are drawn.

Presentation of Data

Tables and pie charts were assessed as the best presentation methods. The criteria used to identify this format focused on four criteria. First, it was critical that the presentation allowed for the continuity and accuracy of information born from the original survey raw data. Second,

the format required the flexibility to effectively display a broad spectrum of data. Third, the presentation of the data required a visual representation that would allow the researcher to readily identify and interpret multiple relationships amongst the many discrete variables. The final criteria required a format that was reader-friendly and intuitive.

Summary

This section has outlined the process and criteria used to evolve the raw survey data into useable information, and postures the data for final analysis. The following section will present the mature data in the form of tables and charts to draw out the comparative relationships between the variables from which implications and conclusions can be drawn in support of each of the four sub problems.

Discussion

This section will address each sub problem individually by identifying the necessary data and then highlighting the implication. Finally, it will draw a series of conclusions that address the stated research hypotheses.

Sub Problem 1

Are citizens aware that emergency preparedness begins with the individual?

In order to obtain the data required for this sub problem, respondents were asked to rank the order of responsibility for disaster preparedness in Saanich. They were given the following choices:

- Individuals
- The Municipality of Saanich
- The Province
- The Federal Government

Chart 2 reflects who the 250 respondents listed as being the most responsible for disaster preparedness in Saanich.

Chart 2

Who is most responsible for disaster preparedness in Saanich?

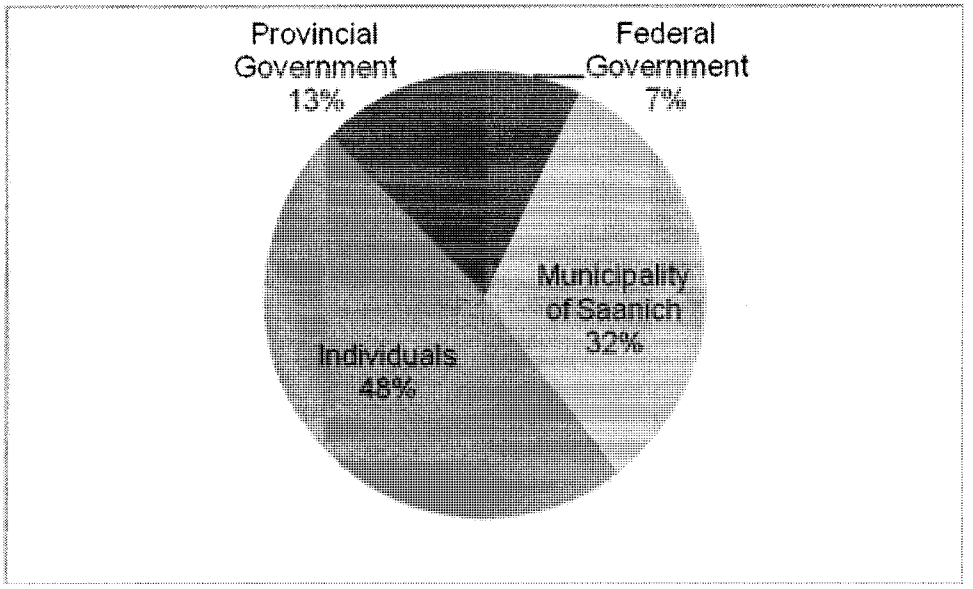


Table 2 displays who individuals believe is the first, second, third and fourth most responsible for disaster preparedness in the Municipality of Saanich.

Table 2

Who is responsible for disaster preparedness in Saanich? Please Rank from 1 to 4 according to order of responsibility.					
Choices					
Answer Options	**Federal Government**	**Municipality of Saanich**	**Individuals**	**Provincial Government**	**Response Count**
1 most responsible	17	78	**115**	30	240
2 2nd most responsible	10	**129**	26	63	228
3 3rd most responsible	33	24	43	**125**	225
4 least responsible	**161**	8	48	5	222

	Question Totals
answered question	240
skipped question	10

Approximately 48% of respondents indicated that individuals ranked first when it comes to order of responsibility for disaster preparedness in Saanich. Of interest, almost one third (32%) of respondents believed that the Municipality of Saanich is in fact most responsible for disaster preparedness.

The sample population's most frequent answer for each ranking (1 thru 4) was correct. However, while the most frequent answer for each ranking was correct, it should be noted there were many respondents who did not select the correct answer. While 115 of the 240 respondents to the question were aware that the individual is most responsible for disaster preparedness, 125

individuals were not. Another important piece of data gathered pertains to the ranking of who is least responsible for disaster preparedness in Saanich. While 161 (73%) respondents to the question believed the Federal Government is least responsible, 48 (22%) respondents believe the individual is the least responsible.

Tables 3, 4, 5 and 6 display how gender and age may have influenced the responses

Table 3

Males					
Answer Options	**Federal Government**	**Municipality of Saanich**	**Individuals**	**Provincial Government**	**Response Count**
1 most responsible	13	21	**50**	7	91
2 2nd most responsible	7	**52**	7	21	87
3 3rd most responsible	10	12	9	**54**	85
4 least responsible	**55**	6	21	3	85

Table 4

Females					
Answer Options	**Federal Government**	**Municipality of Saanich**	**Individuals**	**Provincial Government**	**Response Count**
1 most responsible	4	57	**64**	23	148
2 2nd most responsible	3	**77**	19	42	141
3 3rd most responsible	23	12	34	**71**	140
4 least responsible	**103**	2	27	2	137

Table 5

Under 25					
Answer Options	**Federal Government**	**Municipality of Saanich**	**Individuals**	**Provincial Government**	**Response Count**
1 most responsible	7	**13**	10	6	36
2 2nd most responsible	4	**14**	5	11	34
3 3rd most responsible	7	6	9	**12**	34
4 least responsible	**16**	3	10	5	34

Table 6

Over 65					
Answer Options	**Federal Government**	**Municipality of Saanich**	**Individuals**	**Provincial Government**	**Response Count**
1 most responsible	1	8	**22**	2	33
2 2nd most responsible	1	**21**	4	5	31
3 3rd most responsible	3	2	3	**22**	30
4 least responsible	**25**	2	3	0	30

Demographic Comparison and Implications

- A higher percentage of males responded correctly to the order of responsibility than females.
- Respondents under the age of 25 demonstrate a lesser understanding of who is responsible for disaster preparedness.

- Respondents over the age of 65 demonstrated the most accurate understanding of who is responsible for disaster preparedness.

Conclusions

Based on the most common response, respondents were aware that disaster preparedness begins with the individual. However more than half (52%) believed either Municipal, Provincial or Federal Governments were most responsible. Overall, the data demonstrates most individuals are not aware that disaster preparedness begins with the individual. It also appears

age and gender influence an individuals understanding of who is responsible for disaster preparedness.

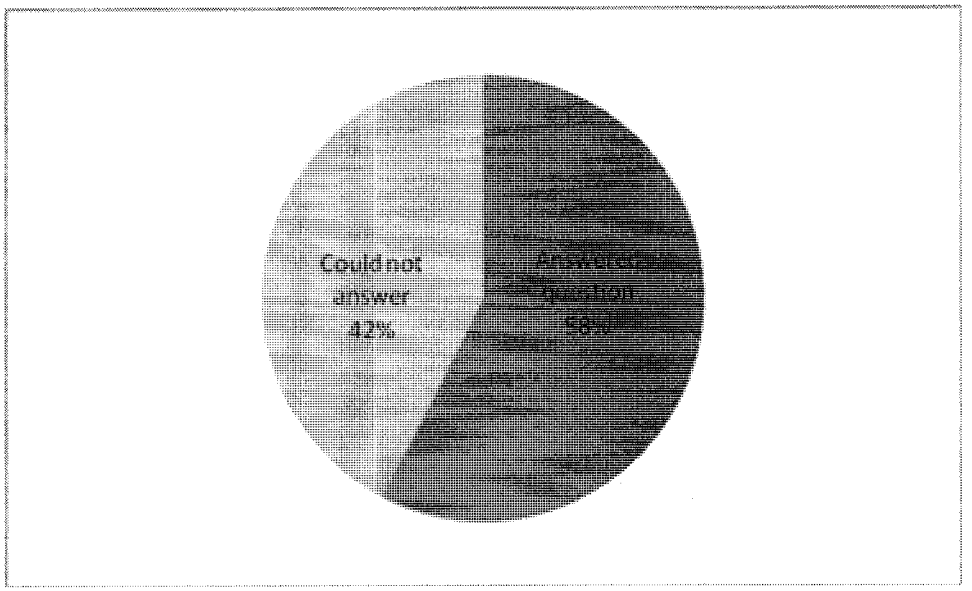
Sub Problem 2

Are citizens aware of the preparedness recommendations made by Public Safety Canada and endorsed in British Columbia, by the Provincial Emergency Program?

In order to address this sub problem, respondents were asked to list the disaster preparedness recommendations, made by Public Safety Canada of which they are aware. The respondents were not provided with recommendations to choose from as this would not demonstrate if they actually were aware of any recommendations. However, it is was not the researcher's intent to investigate how many individuals are able to remember all of the exact recommendations made by Public Safety Canada, it was to simply discover if citizens were aware of the recommendations at all. Not a single person surveyed was able to provide a complete list of Public Safety Canada's preparedness recommendations from the Emergency

Preparedness Guide (2007), which includes: water, food, manual can opener, flashlight and batteries, battery powered and wind up radio, first aid kit, special needs items, extra keys, cash and an emergency plan. Chart 3 displays how many individuals answered the specific question.

Chart 3



While many respondents to the survey provided an answer to the specific research question, the answers provided were not necessarily correct. It was necessary to determine criteria for what type of answers would be an acceptable correct answer to the specific research question which reads as follows:

> *Public Safety Canada has a list of disaster preparedness recommendations. Please list the individual disaster preparedness recommendations of which you are aware?*

In an effort to eliminate the level of subjectivity in what would be deemed an acceptable answer to the research question above, the following criteria were developed:

- An acceptable answer could state a need to be self sufficient for 72 hours, as this is the central theme of Public Safety Canada's Emergency Preparedness Guide.
- An acceptable answer could state a need to have a supply of food and water, as it is assumed a spare supply of food and water should make one self sufficient for 72 hours.

Examples of acceptable answers to the research question provided included:

"Have emergency contacts, a radio, food and water."

"Emergency kits good for at least 72 hours."

"Keep a supply of drinking water; dry clothes; matches; canned and dry goods; first aid supplies. Prearrange a meeting place for family members."

"72 hour self-sustainability."

"Water, food, flashlights, warm clothes, battery operated radio."

Examples of unacceptable answers to the research question provided included:

"Coordinated planning at local level."

"Disaster evacuation routes on highways."

"Store water, candles, fire extinguisher."

"Safety equipment at schools."

"Have a disaster kit so you can survive for 48 hours."

A complete list of all the responses received to this research question is available in appendix C.

Of the 250 respondents to the survey, 144 attempted to list recommendations made by Public Safety Canada. Based on the criteria for an acceptable answer as outlined previously – their answer must demonstrate an ability to be self sufficient for 72 hours - 93 of the 250 respondents were able to provide an acceptable response. This means 157 respondents or 63% of all respondents to the survey were deemed unaware of Public Safety Canada's disaster preparedness recommendations.

Demographic Comparison, Experience and Implications

A table format (see table 7 below) has been selected to display how many individuals from each age demographic either answered or did not answer the specific research question. Also included in the Chart is filtered data including how individuals who indicated they had previous experience being forced to survive on the resources they had in their home at the time of a given disaster event. It should be noted that the category "answered question" does not indicate the respondents answered the question correctly, only that they in fact attempted to answer the specific question. This was accepted as a means to determine a comparative analysis between the various demographics with respect to an overall awareness of Public Safety Canada's recommendations.

Table 7

Please list the individual disaster preparedness recommendations made by Public Safety Canada of which you are aware?		
Demographic	**Answered Question**	**Skipped Question**
Under 25 years	37%	63%
25 to 40 years	59%	41%
41 to 65 years	68%	32%
Over 65 years	48%	52%
Male	52%	48%
Female	61%	39%
Previous Experience	67%	33%
Children in Household	50%	50%
Seniors in Household	50%	50%
No Children in Household	60%	40%
No Seniors in Household	59%	41%

- Those under the age of 25 were least aware of Public Safety Canada's recommendations.
- Awareness of the recommendations increased with age until the age of 65, then it decreases.
- Females are more aware of Public Safety Canada's recommendations than males.
- Households with children and seniors were less likely - by similar proportions - to be aware of Public Safety Canada's preparedness recommendations than households without children and seniors.
- Previous experience has the most influence on an individual's awareness of Public Safety Canada's recommendations.

Conclusions

Age and experience positively affect whether an individual is aware of preparedness recommendations made by Public Safety Canada. While the awareness of preparedness recommendation increases with age, it appears as though this awareness begins to decline once individuals are over the age of 65. Previous experience plays a significant factor in whether an individual is aware of disaster preparedness recommendations made by Public Safety Canada. The presence of children and seniors in a household does not positively affect the overall awareness level of Public Safety Canada's disaster preparedness recommendations. Public Safety Canada's preparedness messaging is failing to reach and resonate with a large number of Canadians, including some of the most vulnerable which include children and seniors. A new public education model should be considered.

Sub Problem 3

Do citizens expect to be affected by a disaster within their lifetime, and if so by what types of disasters?

Table 8 displays whether respondents believe their community will experience a disaster that will force them to survive on only the resources they have in their home for a period of more than 72 hours. Table 8 is then broken down into various demographics and the responses are displayed along a gradient.

Table 8

Within your lifetime, do you think that your community will experience an event that will force you to survive in your home with only the resources and food that you have on hand? Please rate on a scale from 1 to 10. 1 being not likely, 10 being very likely.

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	14	5	12	18	40	23	33	**52**	15	37	6.51	249
answered question												249
skipped question												1

Males

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	9	2	5	6	15	9	7	**22**	5	13	6.25	93

Females

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	5	3	7	12	25	14	26	**30**	10	23	6.65	155

Under 25

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	6	0	1	7	**10**	4	3	7	1	2	5.29	41

Over 65

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	3	1	1	1	**8**	5	3	5	2	4	6.09	33

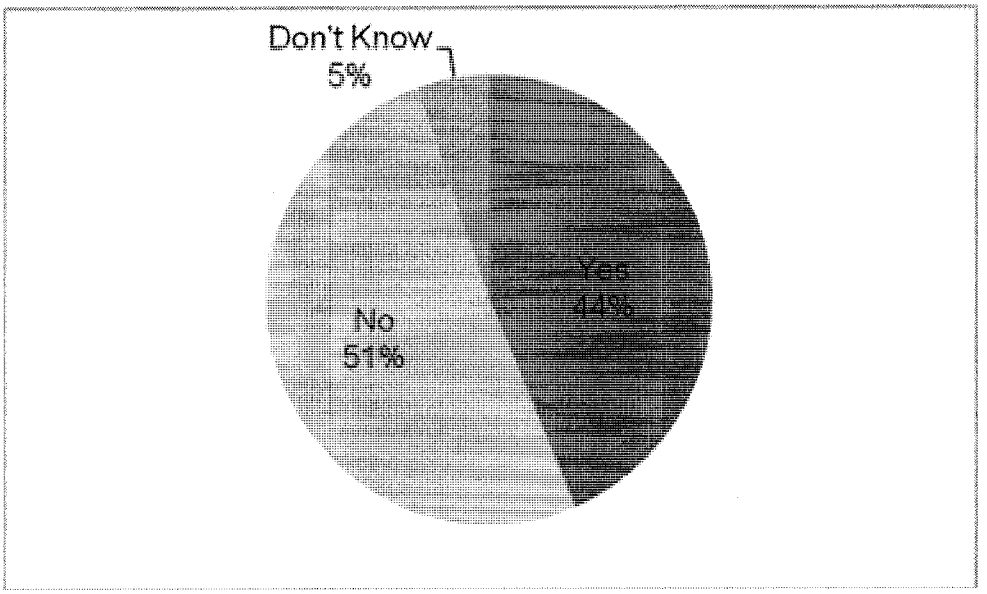
Previous Experience

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	2	3	4	7	9	6	13	25	10	**29**	7.41	108

Chart 4 investigates previous experience and asks if respondents if their community has ever been impacted by a natural or man-made event that caused a disruption in essential services, and forced them to survive on only the resources they had in their home at the time of the event.

Chart 4

Has your community ever been impacted by a natural or man-made event that caused a disruption in essential services, and forced you to survive on only the resources you have in your home at the time of the event?



If respondents had experienced such an event, they were asked to name the type of event. This information is displayed on the next page in Table 9.

Table 9

Has your community ever been impacted by a natural or man-made event that caused a disruption in essential services, and forced you to survive on only the resources you had in your home at the time of the event? If yes, what type of disaster?		
Answers	**Response Frequency of 250**	**Response Count**
Snow Storm	36%	90
Power Outage	4%	10
Wildfire	0.8%	2
Wind Storm	2.8%	7
Flood	0.4%	1
Tornado	0.4%	1
Earthquake	0.4%	1
Hurricane	0.8%	2
Ice Storm	0.8%	2
answered question		**110**
skipped question		**140**

Table 10 describes the type of hazards – natural or man-made – respondents believe their community is most vulnerable to.

Table 10

What type of hazards, natural or man-made, do you think your community is most vulnerable to?		
Answer Options	Response Frequency	Response Count
earthquake	**90.8%**	**226**
wind storm	**67.1%**	**167**
snow storm	**59.0%**	**147**
epidemic	36.1%	90
tsunami	29.7%	74
hazardous material spill or release	22.1%	55
interface fire	21.7%	54
flood	17.3%	43
heat wave	11.2%	28
terrorist attack	10.8%	27
landslide	6.0%	15
hurricane	4.4%	11
tornado	1.6%	4

Demographic Comparison, Experience and Implications

The majority of those surveyed believe they are likely to experience an event that will force them to survive in their home with only the resources and food that they have on hand. Gender does appear to influence an individual's perceived vulnerability towards experiencing such an event. Age also affects an individual's perceived vulnerability towards experiencing disasters. Respondents under the age of 25 demonstrated an optimistic bias when compared to other age groups as they recorded the lowest average score on the gradient.

Previous experience plays a significant role in determining whether an individual expects

to be affected by a disaster event in their lifetime. Respondents who stated they had experienced a disaster event scored almost a full point higher than any other category along the gradient. This research indicates a relationship between previous experience and perceived vulnerability.

The specific type of disaster experience one has had does not appear to play a role in what hazards an individual feels most vulnerable to in the future. While only one respondent (0.4%) of those surveyed had experienced an earthquake that forced them to survive on only the food and resources they had on hand for a period of 72 hours, 226 (90%) of those surveyed believed it is one of the hazards their community is most vulnerable to.

Conclusions

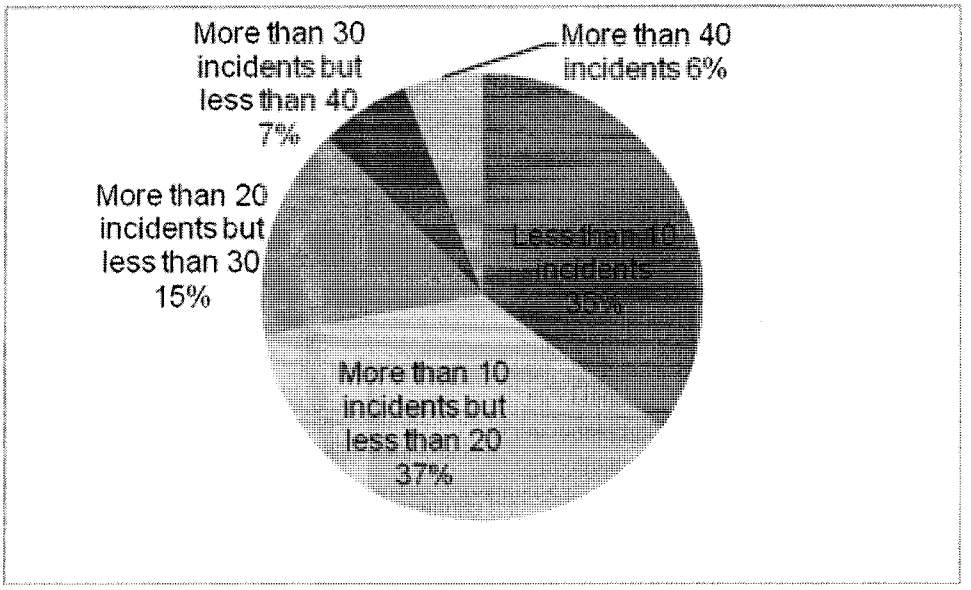
The majority of Individuals believe it is likely they will be forced to survive on the resources they have on hand for a period greater than 72 hours. Individuals who have experienced a disaster event in the past demonstrate a higher perceived vulnerability towards disaster events occurring. When comparing expectations and experience, experience has a greater influence on perceived vulnerability than expectations. Overall, respondents to this survey have a realistic understanding of which type of disasters they are most vulnerable to. Respondents listed earthquakes and wind storms as two of the hazards they are most vulnerable to. This is consistent with Hazard, Risk, Vulnerability, Assessments conducted in the area. Of the choices the respondents were provided with, earthquakes and wind storms were the only hazards that were found to be high risk to the area in a report compiled by Emergex (2006).

Sub Problem 4

What do citizens expect local emergency services to do for them in the event of a disaster?

In order to address this sub problem, it was determined several research questions would be needed. The first question would ask respondents how many emergency incidents they expect local emergency services to respond to at the same time, in the event of a disaster. This information is displayed in Chart 5.

Chart 5



The second question asks respondents to identify what they expect local emergency services to be able to do for them in the event of a disaster. A pre-determined selection of emergency response activities were provided to the subjects and they were asked to select which activities they expect local emergency services to be able to do. This information is presented in Table 11.

Table 11

What do you expect local emergency services to be able to do for you in the event of a disaster?		
Answer Options	Response Frequency	Response Count
first response for medical aid emergencies	**76.0%**	**187**
fire suppression	**74.4%**	**183**
search and rescue	**65.4%**	**161**
respond as required	49.2%	121
hazardous materials response	47.2%	116
respond to criminal acts	44.3%	109
provide shelter	40.2%	99
prevent looting	34.1%	84
provide food and water	32.9%	81
answered question		246
skipped question		4

The third research question asks respondents if they expect local emergency services to be able to respond if they require them personally, in the event of a disaster. A gradient format is used to display the answers to this question in table 12. This information is then further broken down according to age and previous experience.

Table 12

Do you expect local emergency services to be able to respond if you require them personally, in the event of a disaster? Please select the appropriate number. 1 being not likely and 10 being very likely.												
Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	29	**35**	33	27	**35**	32	17	22	6	13	4.77	249
answered question												249
skipped question												1

Demographic Comparison, Experience and Implications

Males

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	12	13	13	8	8	**17**	8	5	1	8	4.83	93

Females

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	17	21	20	19	**27**	15	9	17	5	5	4.74	155

Under 25

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	3	3	3	1	5	5	6	**9**	2	4	6.15	41

Over 65

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	5	7	3	5	4	4	3	1	1	0	4.15	33

Previous Experience

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
	10	**20**	14	12	17	14	3	10	2	5	4.65	107

- Respondents under the age of 25 believe it is more than likely that local emergency services will be able to respond to them personally, in the event of a disaster.
- Respondents over the age of 65 believe it to be the least likely - when compared to the other age groups - that local emergency services will be able to respond to them personally, in the event of a disaster.
- Males believe it is more likely that local emergency services will be able to respond to them personally, in the event of a disaster than females.
- Previous experience does not appear to play a significant role. However, individuals with previous experience did demonstrate slightly lower expectations than those who without disaster experience.

Conclusions

It was discovered that citizens have a realistic expectation of how many incidents local emergency services may be able to respond to in the event of a disaster. Approximately 72% of respondents expect local emergency services to be able to respond to less than 20 incidents at the same time. However, when respondents were asked if they expected local emergency services to be able to respond to them personally, if required in the event of a disaster almost one in three believed it was more than likely that emergency services would be able to respond. With respect to expectations of specific types of emergency services, respondents ranked first response for medical aid emergencies, fire suppression and search and rescue activities as the three services they expect most.

Summary

The data gathered from this research offers insight into whether or not individuals are aware that disaster preparedness begins with the individual. The data supports the first hypotheses that individuals are not aware that disaster preparedness begins with the individual. Approximately 48% of respondents indicated that disaster preparedness began with the individual and the majority, or 52% of those surveyed, were not aware that disaster preparedness begins with the individual. It was also discovered that age and gender may affect an individuals awareness that disaster preparedness begins with the individual. Respondents under the age of 25 demonstrated a lesser understanding of who is responsible for disaster preparedness while respondents over the age of 65 demonstrated the most accurate understanding of where the responsibility lies. It was also discovered that 55% of males understood that disaster preparedness begins with the individual compared to 43% of females.

The second hypothesis of this study is that individuals are not aware of the preparedness recommendations made by Public Safety Canada and endorsed by the Provincial Emergency Program. Approximately 42% of those who completed the survey were unable to list any of Public Safety Canada's preparedness recommendations. Not a single person surveyed was able to list all of Public Safety Canada's individual preparedness recommendations. This research is consistent with a recent study prepared for Public Safety Canada that found only 2% of those surveyed were able to name at least 6 of the recommended 9 emergency kit items on an unaided basis (Strategic Counsel, 2008). The research demonstrates that Public Safety Canada's 72-hour preparedness campaign has not filtered down to the community level on a significant scale. Previous experience and advanced age both appeared to positively affect an individual's awareness of Public Safety Canada's recommendations. However, awareness of Public Safety

Canada's preparedness recommendations begins to decline again amongst the over 65 demographic. Respondents who had been previously forced to survive on only the resources they had in their home at the time of the event demonstrated an increased awareness of Public Safety Canada's disaster preparedness recommendations.

The third hypothesis of this study is that individuals do not have a realistic expectation of what type of disasters they are most likely to experience. Overall, respondents to the survey demonstrated a realistic understanding of which type of hazards they were most vulnerable to and those who indicated they had previous disaster experience demonstrated a higher perceived vulnerability towards future disaster events occurring. Of the 13 different hazards the respondents were able to choose from when asked what type of hazards they were most vulnerable to, the top two choices were consistent with the highest rated risks in a recent Hazard, Risk, Vulnerability, Assessment conducted in the area by emergency management professionals Emergex (2006).

Finally, with respect to the study's final hypothesis, do individuals expect local emergency services to be able to provide rescue services and medical aid to a large number of casualties simultaneously. The research demonstrates that individuals do not in fact expect local emergency services to be able to provide rescue services and medical aid to a large number of casualties simultaneously. Only 6% of residents expected local emergency services to be able to respond to more than 40 incidents at the same time. However, when respondents were asked if they expected local emergency services to be able to respond to them personally, if required in the event of a disaster almost one in three believed it was more than likely that emergency services would be able to respond and the majority of those under the age of 25 believed local emergency services would be able to respond to them personally. It is important to note that

while males demonstrated a greater understanding that disaster preparedness begins with the individual, they also believe it to be more likely than females that local emergency services would be able to respond to them personally in the event of a disaster.

Recommendations

Based on the research findings of this project it is apparent that a variety of measures and initiatives should be introduced or altered in order to positively affect an individual's understanding of who is responsible for disaster preparedness. In order to accomplish this I make the following 3 recommendations.

1. Start with agency credibility (Nigg and Perry, 1985).

   Agency recognition is a prerequisite for credibility. People equate source credibility with information belief (Mileti, 2008). An emergency management agency must establish first establish itself as credible organization if it wants to influence public behaviour. Citizens should be educated on the nature of community emergency management, and the structure of the organization that carries it out.

2. A public education campaign with a main message stating - *Emergency Preparedness Starts with You!*

   Such a campaign would provide a clear message that even though there is a community emergency management organization in place, emergency preparedness ultimately begins with the individual. In order for such an education campaign to make a difference, it must be clearly demonstrated to the public that emergency preparedness does in fact begin with them. People want to know what a disaster looks

like and therefore it is very important to include the disaster response cycle in any presentation. Such a response cycle clearly identifies how long it will take local, provincial, federal and international resources to become mobilized and clearly demonstrates why individuals need to take ownership for emergency preparedness.

3. Provide local information – what can happen here – not in another locale, province or country (Swisher, 1999).

People will become more motivated if they have a clear understanding of the issues specific to their community. As an example, the research for this project was conducted on Vancouver Island. If individuals are aware that specific vulnerabilities - such as living on an island – make it more important for them to become prepared, they will be more inclined to take action. The personalization of emergency preparedness messaging will help the public understand that as individuals, they are in the best position to take action and insulate themselves from the risk of disaster. Public Safety Canada's 72 hour campaign is too generic for a country as large and diverse as Canada.

The research collected in this survey demonstrated that Public Safety Canada's 72 hour emergency preparedness messaging is not reaching the vast majority of the general public. In order for their messaging to better resonate with Canadians, I make the following three recommendations:

1. Public Safety Canada should focus on parents and caregivers.

Ties to others increases salience of risk reduction and lessens risk taking behaviour (Mileti, 2008). A sense of responsibility will cause individuals to take part

in preparedness activities. Public Safety Canada should tell parents and care providers that if they are not willing to make emergency preparedness a priority for themselves, they should at least consider it for those who depend on them.

2. Public Safety Canada should turn disasters into opportunity.

   By increasing the promotion of their 72 hour campaign after a disaster has occurred domestically or abroad, more people will be inclined to listen and take action. Promotion could be increased in a specific region if that region is susceptible to a specific type disaster that occurred elsewhere. An example of this could be preparedness messaging in coastal regions following a large tsunami as such an event will generate interest and discussion on the topic in tsunami prone areas.

3. Public Safety Canada should use humour to promote emergency preparedness.

   Research has established that a different approach to communication - using Humour - might be helpful and effective for delivering a serious message in a manner that will provoke action to be taken by the listener (Emergency Preparedness Institute, 2007).

In this survey, medical aid calls, fire suppression and search and rescue were identified as the top three activities that individuals expect local emergency services to be able to perform following a disaster. First responder and fire suppression resources are well established in our communities. However, urban search and rescue is not. The search and rescue capacity of our Canadian cities is extremely limited. There are five heavy urban search and rescue teams in Canada and 41 other cities have accessed funds to develop light or medium urban search and

rescue capabilities (Public Safety Canada, 2008). Saanich - the Municipality where this survey was conducted – does not have a light or heavy urban search and rescue team as defined by Public Safety Canada. It is recommended therefore, that the District of Saanich consider the development of urban search and rescue teams as the taxpayers of Saanich appear to have an expectation that such a capacity exists.

Further Research

This study makes the case that individuals are not aware of Public Safety Canada's preparedness recommendations. This research was limited in depth and residents of Vancouver Island, the province of British Columbia and the rest of Canada could benefit from a more detailed examination of issues pertaining to emergency preparedness levels and expectations of emergency services.

This study also identified that many Canadians were not aware that disaster preparedness starts with the individual and age and gender influence an individual's understanding of who is responsible for disaster preparedness. Further research is needed to investigate why people are not aware that disaster preparedness begins with the individual and why age and gender may influence this awareness. Such research could be expanded throughout the province of British Columbia and research data can be compared between rural and urban centres and coastal versus interior etc..

Appendix A:

Researchers Qualifications

HENSON, BROCK

Student

Royal Roads University

Master of Disaster and Emergency Management

Education:

B.A. (Public Relations/Communications), Xavier University of Ohio, 1999

Relevant Experience:

Emergency Program Officer, Municipality of Saanich (Current)

First Class Firefighter, Saanich Fire Department, Emergency Medical Assistant Level 3 (2003-2007)

Professional Membership:

British Columbia Association of Emergency Managers

British Columbia Professional Firefighters Association

Appendix B Survey

Preamble

My name is Brock Henson and I am a student at Royal Roads University. I am conducting a brief survey as part of my Major Research Project. This Major Research Project is part of a Master of Arts, Disaster and Emergency Management degree. My credentials with Royal Roads University can be established by contacting J.Y. Forcier.

The research will consist of a brief 3-minute survey. My questions will be about emergency preparedness and results of this survey will be included in a Major Research Project. The information you provide will be anonymous and will be summarized in the report. The results of this report will be publicly accessible. Your participation in this survey is voluntary and if you wish to withdraw from this survey at any point, you are free to do so and your survey will be immediately destroyed. Your completion of this survey will constitute your informed consent.

Would you be willing to participate in a survey and answer a few questions related to emergency preparedness?

Survey Questions

MALE_____ FEMALE_____

AGE: ☐ under 25
☐ 25 – 50
☐ 51 – 65
☐ over 65

DO YOU HAVE CHILDREN LIVING AT HOME?
YES _____ NO _____

DOES YOUR HOUSEHOLD INCLUDE SENIORS (e.g., people over the age of 65)?
YES _____ NO _____

1. Has your community ever been impacted by a natural or man-made event that caused a disruption in essential services, and forced you to survive on only the resources you had in your home at the time of the event?
   YES _____ NO _____ DON'T KNOW _____
2. If yes:
   a) What emergency/disaster? _____
   b) When? _____

c) In which community did this emergency/disaster occur?

_____

3. Within your lifetime, do you think that your community will experience an event that will force you to survive in your home with only the resources and food that you have on-hand? Please Circle the appropriate number.

Not likely 1 2 3 4 5 6 7 8 9 10 Very likely

4. What type of hazard, natural or man-made, do you think that your community is vulnerable to?

- ☐ Flood
- ☐ Earthquake
- ☐ Snow Storm
- ☐ Wind Storm
- ☐ Interface Fire (Fire that originates in the wildland and eventually burns homes)
- ☐ Tornado
- ☐ Terrorist Attack
- ☐ Hurricane
- ☐ Heat wave
- ☐ Landslide
- ☐ Tsunami
- ☐ Epidemic
- ☐ Hazardous material spill or release

5. Please list the three hazards that you perceive to pose the most threat. (NOTE: If respondent does not perceive any risks, leave blank)

a. _____
b. _____
c. _____

6. How long have you lived within the community where you currently reside?
_____ yrs

7. Who is responsible for disaster preparedness in Saanich?
Please rank from 1 to 4 according to order of responsibility.

____ Federal Government
____ Municipality of Saanich
____ Individuals
____ Provincial Government

8. Public Safety Canada has a list of disaster preparedness recommendations.
   Please list the individual disaster preparedness recommendations made by Public Safety Canada of which you are aware.

   _____

   _____

9. a) How many incidents do you expect local emergency services in Saanich (i.e. Police, Fire, Ambulance, Search and Rescue) to be able to respond to, at the same time, in the event of a disaster?

   - ☐ Less than 10
   - ☐ More than 10 but less than 20
   - ☐ More than 20 but less than 30
   - ☐ More than 30 but less than 40
   - ☐ More than 40

   b) What do you expect local emergency services to be able to do for you in the event of a disaster?

   - ☐ Search and Rescue
   - ☐ First Response for medical aid emergencies
   - ☐ Fire Suppression
   - ☐ Hazardous material response
   - ☐ Respond to criminal acts
   - ☐ Prevent looting
   - ☐ Provide Food and Water
   - ☐ Provide Shelter
   - ☐ Respond as required

   c) Do you expect local emergency services to be able to respond if you require them personally, in the event of a disaster? Please circle the appropriate number

   Not likely 1 2 3 4 5 6 7 8 9 10 Very likely

Appendix C: Research Data

1. have emergency contacts, a radio, food and water
2. have supplies for 72 hours to be self sufficient
3. have some non perishable food and water
4. canned food, flashlight, water for 3 days
5. water and food supply in your home for 2 days
6. have some non perishable food, water and a generator
7. kit for disaster amt. of food and water put aside
8. Everyone to have three days worth of emergency supplies on hand
9. food, radio, flashlight
10. don't know
11. food, flashlight, water
12. emergency medical, food, communications, etc supplies in the home
13. emergency kits good for at least 72hrs
14. Earthquake preparedness
15. Keep an emergency bag of first aid, water, food (to be changed regularly. Emergency persons to call to report on how you are managing as well as checking up on close relatives.
16. Water. Food. Flashlights. warm clothes, battery op. radio, axe
17. food, water, shelter, flashlights, blankets, central emergency contact, i.e. family outside the area
18. have bottled water at home have a battery operated radio for instructions in case of electrical outage caused by earthquake or other disaster
19. Contact numbers, for all types of help, meeting place for help. food, and all amenities in your possession
20. Grab and Go bag. Supplies to last family for 7 days with no outside help. Knowledge of how to turn off water, gas, electricity. How to 'make do' with toilet, etc. How to conserve water, etc.
21. Keep an emergency kit outside your house, capable of sustaining you and your family for at least 3 days Including, battery radio water food shelter (tent) clothing/blankets tools i.e. shovel, axe
22. food supplies, bottled water for several days, survival blanket for warmth, camp stove for use outside, battery radio, flashlight
23. Saanich Emergency Program

24. Have enough food and other supplies to last for a considerable time.
25. earthquake
26. Have food, water, and first aid supplies on hand. Have a battery or windup flashlight and radio. Have warm blankets.
27. -have food, water and medication for 72 hours -know your neighbourhood emergency plan
28. -exit procedures -food/water supply -safety issues re:gas,electric
29. Co-ordinated planning at local level
30. earthquake preparation
31. have enough food and water available to look after yourself for 3 days; medical kit; contact list; have flashlight, candles and portable radio; warm clothing
32. wind up radio water cell phone canned food blankets medical supplies
33. Food and water for a week. Appropriate first aid and emergency items.
34. leave the building, go to a specific checkpoint, have water, food supplies, wind-up radio and flashlight, camping stove, get to know neighbours in general
35. PEP instructions (in phone book)
36. No idea, but common sense suggests having a water supply and non-perishable food on hand
37. Have enough food and water to be self-sufficient for three days.
38. Have enough water, food, blankets, first aid kit, crank radio and or battery operated radios, flashlights and a family rendezvous point.
39. Have enough supplies to last you 72 hours. Have an emergency first-aid kit. Have a third party contact for your family
40. Not familiar with this list but am aware of local preparations I can make (resources etc.)
41. Food, water, medications for three days
42. Bottled water, battery radio, strapping hot water tank to wall, be prepared with food, water, meds, heating for 72 hour independence. I can't respond to queries re Saanich, as I live in Victoria.
43. Have an emergency kit on hand as well as a supply of food and water.
44. I believe, keep enough cash, water, food, first aid equipment, and fuel to last at least 2 weeks without access to assistance.
45. Not aware of this list
46. Disaster evacuation routes on highways
47. Keep a supply of drinking water; dry clothes; matches; canned and dry goods; first aid supplies. Prearrange a meeting place for family members.

48. Have enough food and water to last 48hours, Have a portable radio, basic first aid kit, flashlight and blankets, spare batteries, plastic bags, matches, candles
49. Each household should be able to look after themselves for at least 72 hours, and have the provisions necessary to do.
50. keeping a first aid kit, water, and food , flashlights and battery radio available
51. 72 hour self-sustainability
52. emergency kit -- e.g. water food for a few days flashlight extra clothing turn off gas
53. no idea if I had to guess... have bottled water available have a safety meeting place known among family members have a radio non-perishable food items, (granola bars) have a fire extinguisher in house in the safety kit have a flash light and extra batteries, and some matches
54. having sufficient food and water on hand alternate cooking measure, such as camping stove alternate heating source, such as a fire place having cash on hand sufficient gas in your car
55. Be prepared for 72 hours to make it on our own - first aid kit, water, food, flashlight etc.
56. have a survival kit have potable water have a battery operated radio
57. having food and water supplies stored having alternate heat, light and communication devices available
58. have emergency kits with food, water, blankets, shoes etc have an evacuation plan
59. Have food water and a radio
60. emergency preparedness for 72 hours, food, water, radio, phone use, out of province contact information
61. bottle water, food, can opener, flashlight, batteries, first aid kit
62. water, food, light
63. fire extinguisher, bag of emergency stuff, list of phone numbers, escape routes
64. earthquake preparedness
65. stocking water, non-perishable foods, flashlights, batteries, matches, safety blankets, candles, battery powered radio
66. food, water, shelter
67. keep water and food to survive for 48 - 72 hours
68. flashlight, blankets, battery operated clock and radio, bottled water, first aid kit
69. Have a reserve of food and water. Have first aid supplies.
70. earthquake readiness, fire escape plans, evacuation planning
71. be self sufficient for up to 72 hours

72. first aid kit, earthquake preparedness kit (red backpacks with rope, water purification tablets, etc.
73. Have an extra supply of food, water and flashlights. Have a transistor radio to listen to public radio.
74. water, food, alternate heat, radio
75. ESS
76. water, food, meds, first aid supplies, flashlights, cash
77. water, food, flashlight, radio, first aid, medications, money
78. Food, first aid, radio, light
79. Earthquake kits, water supply, food supply
80. Have a plan within your family to meet. Have a disaster kit so you can survive for 48 hours.
81. Food and equipment to last 3 days. Know where shut offs are for power, water, etc.
82. emergency kit, 3 days supplies, water, food, etc.
83. earthquake
84. emergency kit, water supply, food supply, etc.
85. safety equipment at schools
86. earthquake boxes in community, emergency kits, radio announcements
87. 3 days of food, 1 week of water, first aid kit, escape route from house
88. earthquake kit, first aid kit, drinking water, blankets, flashlight
89. radio, water, food for 48 hours
90. first aid kit, drinking water, blankets, flashlight
91. emergency earthquake packs
92. store water, non-perishables, batteries, blankets, gas-shutoff tool
93. water, survive for 72 hours
94. food for 72 hours
95. water supply, structure, food, heat, communication station
96. food, water, flashlights, etc.
97. bottled water, food, emergency first aid kit, cash
98. store water, candles, fire extinguisher
99. water, food, first aid, etc. kit
100. 72 hour stay and survive kit

101. food and water for 3 days, radios, blankets, first aid kit, etc.

102. be prepared to be full self sufficient for 72 hours

103. emergency kit, organized neighbourhood groups

104. grab and go bag, 72 hours stay and survive

105. food, water and communication plan

106. emergency kit, food and water for 3-7 days, battery radio, flashlight, spare blankets

107. water, food, medications, first aid kit, clothing

108. food, water, medication for 5 to7 days, communication devices, heat, cover

109. food and water for 5 days

110. food, water, tent and medical supplies

111. food and water for 3 days

112. food, water and medical requirements for 7 days

113. Candles, food

114. earthquake preparedness

115. food and clothing for 72 hours

116. none

117. food and water for 72 hours, flashlight, battery radio, medical supplies

118. battery, radio, water, contact location for family, food

119. none

120. water supply, food supply

121. food and medication for 3 - 5 days

122. food and water supply, cash, flashlights

123. water and food supply, battery radio, blanket

124. Food and water for 3 days. Know gas shut off

125. first aid kit, food, exit plan

126. food and water supply

127. emergency kit

128. water and food supplies, candles

129. non-perishable food, supplies for 3 days, water for 5 days

130. first aid kit

131. first aid kit

132. first aid kit, flashlight, radio, non-perishable goods

133. earthquake kit, food items, flashlight

134. have food, medication and shelter for one week

135. supplies to survive 3 days

136. keep emergency supplies on hand, seek refuge in safe place

137. personal prep pack to sustain for 7 days

138. Food, water 3 days worth, emergency kit, blankets, flashlight.

139. food, water, radio, light for at least 3 days

140. none

141. water, food, medical supplies, out of area contact

142. none

143. radio, food

144. none

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