Journal of Preparedness in Canada

Volume 1 Issue 1

Preparedness is free, it is only an investment of your most valuable resource, time.

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The Why

Emergency management is a broad discipline, an emerging academic field, whose research, thoughts or opinions have real world impactful consequences.

Preparedness is a traditional pillar of the paradigm, arguably the most underrated, encompassing the totality of efforts to influence the post-event outcomes of people, places, and economies.

This Journal and the iterations that follow, represent a place where the Canadian and international voices in preparedness have a home, a place where opinion matters, where innovative and disruptive ideas are presented and an opportunity for preparedness research to foster new discourse in this most important pillar of emergency management.

We acknowledge that a French version is not available currently, we are seeking a translation partner to ensure accurate interpretations.

Within this initial offering and the quarterly issues to follow, we will present peer-reviewed articles and research papers, alongside opinion pieces. The latter is an importance inclusion, where we can challenge the status quo, offer insight into innovative explorations, and generally disrupt paradigmatic norms. Our intent is to add to the conversation, not replicate existing notable Journals. Preparedness is a significant endeavour worthy of a specific discussion forum; we hope you'll find that here with us.

The second issue, to be published on 15 February 2024, will contain opinion pieces on Indigenous preparedness and municipal emergency management leadership, a peer reviewed article on financial incentives in preparedness and the first report on the national research project into public sector resident facing preparedness communications in Canada.

This Journal is free to read, disseminate, publish in, and receives no support from external agencies. This offering is fully funded by the publisher, Preparedness Labs Incorporated. If you're interested in offering an opinion piece or have a draft article for peer review, contact us through our website: https://preparednesslabs.ca.

This issue is a culmination of a multi-year effort to carve out a section of the noisy debate for preparedness, a labour of love and commitment to this incredible nation. This is dedicated to all those who work tirelessly in Canada to prepare economies, communities, and families to navigate exogenous shocks beyond their control and to enjoy better outcomes.

Pro Patria,

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Preparedness Thoughts 2020-2021

Our preparedness conversations are not novel. Here is a collection of pontifications during that initial challenging and chaotic timeframe, written as opinion pieces and published in forums across social platforms, questioning the status quo. Republished with permission.

Individual Emergency Preparedness – The Start of the Paradigm

Across the professional and academic spectrum, there are initiatives for Disaster Risk Reduction (DRR) as part of the Sendai Framework governed by agreements managed by the United Nations Office for Disaster Risk Reduction (UNDRR). Academics laud this effort to address the effects of known and predictable events, including typhoons, hurricanes, floods, and avalanches. We see cross-pollination efforts with the climate change gurus and those arguing for a species-level movement to alleviate the known impacts of natural events that are both increasing in severity and economic damage.

These efforts garner huge international and organizational support, therefore cornering the market on grants, creation of advisory councils and most academic publications. While many of the champions will declare their efforts are in support of the most at risk island populations and those living in environments with vulnerable infrastructure; the question remains as to who is voicing mitigation / preparedness messaging for non-predictable disruptions, or the realization of unknown hazards not addressed via DRR? For this effort some academics, experts and professionals have moved away from examining DRR and utilize Disaster Impact Reduction (DIR). Theoretically, this means that we in the Individual Emergency Preparedness (IEP) field are not concerned with the hazard, but the effects. Utilizing an examination of the Critical Infrastructure (CI) that permits the functioning of modern society, we educate and evaluate preparedness initiatives related to the provision of and life without any element of CI. In essence, it does not matter whether it is an earthquake or hurricane that eliminates power - we concentrate on managing the loss of utilities. Further, we concentrate our research, publications and communications strategy on efforts that have proven results - social capital, reorientation of EMO to acting as consults for communities and preparedness whole of life lens - from transportation, finance, leisure, and employment.

Paradigm shifts taken time to emerge and fester, according to Thomas Kuhn in his Structure of Scientific Revolutions. Anomalies occur, crisis in the discipline emerges, model revolution occurs and then a professional adoption of the new theory. The movement from DRR to DIR may constitute the crisis moment in the discipline, or it might emerge as complementary. The breaking from the IEP field may be the beginnings of a subordinate genre in academia and/or professional fields - potentially a new theoretical lens for examining the behaviour of humans under disruptive conditions. While the outcomes of these crisis are unknown, we do know that the discipline is ripe for disruption and long overdue for a theoretical re-evaluation.

Individual Responsibility – Why Me?

COVID-19 has exposed bare the dependencies within our society, in that each of us has seen to ensuring our legal obligations have been met - both through our own hard work and the

generosity of our society. In many cases, people have drawn from government programs created during a pandemic to address the immediate loss of income, forcing a wide spectrum of families to consider how close to the financial edge they operate. Some due to choice, some due to circumstances - but none due to anything other than results of decisions made in the past. Most find that statement harsh, aggressive and without feeling, but it represents a truism. We are the result of our choices - not of the events to which we are exposed, but the resulting decision we made during or immediately after the circumstances. The pandemic did not cause you to be unable to pay rent within a month of losing your job, the decision to not have an emergency fund of multiple months' worth of expenses did. Further, your decision to rely on a single income as a financial system placed yourself at considerable risk - risk that was not realized until that source of income was terminated. These are decisions we all make.

The world is rife with arguments as to why, today, people remain living close to the edge and that it is a function of societal organization and expectations that both encourage and persuade most of us to live as if there was a guarantee that the next paycheck will be deposited. However, COVID-19 has shown the fallacy of following that program, but due to the generosity of society, most have not learned that lesson. Many claim it is society's responsibility to provide support until their previous employment returns to normal, so that they may resume their previous existence of living on the edge, preparing for nothing. We can draw a parallel to the 2008 financial crisis. Banks, financial institutions, and large corporations are free to play loose with our money and their stability simply because they know that when it hits the fan, same as in 2000, 2008 and in 2020 - the government will step in and prevent catastrophic failure. Hence, lessons from the 2008 crisis have largely gone nowhere, with corporate debt, along with personal debt leveraged at outrageous and unsustainable levels. Both these are examples of how people and corporations will continue to charge forward, knowing that the government will intervene and rescue those in need when the economy collapses.

While I am not calling for those in peril to fail, I am using this as a platform to open a discussion on personal responsibility and ask the arguably most important question in emergency preparedness - "who is responsible for your outcomes?". If a major disruption intervenes in the normal operation of your life, is it the government's responsibility to step in and save the day, or are you responsible to evaluate your risk, examine options and develop a plan to provide for increased resiliency and become less of a burden on society? Financial crisis is but one of the crises that may occur. There are in fact 10.

Those 10 possible crises are events within one element or organizational sector of society that act as support structures to normal operations. Our modern urban and suburban existence is enabled through the continued operation of 10 different systems that we all largely take for granted - some with catastrophic results when they are no longer functional. Commonly referred to as critical infrastructure (CI), these pillars under our cities allow us to continue a fast paced, connected, and vibrant lifestyle. There is a myriad of hazards within the world, some more dangerous than others, not all present in all areas of the nation - but everywhere, everyone is enabled by CI. Unless your yurt is off the grid, you are permitted to live your life through the development of and continued functioning of these sectors. Hence, risk assessments at the individual and household level are most appropriately framed in consideration of CI and not hazards. Once you have accepted responsibility for your own outcomes and wish to develop a plan that is orientated on your family continuing their normal

lifestyles, as much as possible, not only prior to but through and after a disruption - then CI is your vital ground.

Many of my colleagues are involved in the Disaster Risk Reduction (DRR) paradigm, where they work to build mitigating efforts to limit the hazard risk from known and predictable events. This is an essential effort, worth considerable support and in some research has shown to have limited benefits in the Individual Emergency Preparedness (IEP) sphere. However, research within the genre of IEP demonstrates the limited value of DRR and offers a complementary but alternative framework - Disaster Impact Reduction (DIR). At the individual, household and potentially the community level, the reasons for the loss of a CI are largely irrelevant - it is the loss itself that is prepared for and therefore represents the foundation of an emergency plan for individuals and micro-organizations. That is the rationale for focussing academic, business and community-facing efforts to educate the population on the value of DIR, utilizing CI as the framework for developing an individual, customized emergency preparedness plan.

This week on Inside My Canoehead, we will be exploring the topic of individual responsibility, obligations to society, limitations on the ability of society to support you during a disruption and where to begin to consider a prepared life. Weekly 30-minute podcasts drop on Tuesdays, with a 5 min condensed YouTube version the following day. This blog precedes these to set the stage and remind everyone of the discussions from the previous week.

Engage, discuss, argue, and bring forth all your commentary. The greatest plans in history remain untold in the cemeteries of our nation. Speak up - be unapologetically you and join the discussion on whichever social media you choose.

Social Capital – The True Emergency Kit

My point of view on emergency kits or 72-hour kits is clear and always has been that they are useful door stops, but in no way provide any extra protection for the owners. There never has been any evidence to support any claim that even a single family's outcome has been improved through the ownership and employment of these kits. zero. Yet we have decades of scholarly thought, evidence, examination, and correlation to offer near concrete evidence that social capital does improve outcomes post disaster. Social capital is the true emergency kit. If I could give one piece of advice to someone interested in preparedness, it would be to go meet your neighbour, become social and cordial. That is growing your social capital, which has proven to be far more helpful than a flashlight, radio, or some weird food in a bag.

Throughout time, humans have succeeded as a direct result of collective action, utilizing the skills, resources, and knowledge of fellow community members to counter water disruption has occurred. In the 21st century, that is no different, yet we spend sparse time engaging our neighbours and close community members in a personal and engaging way. While the COVID-19 pandemic has instituted barriers to community engagement, studies have shown that through spending more time outdoors and in the community spaces we are becoming more and more socially aware of our neighbours, their needs, and struggles. Some would argue that the pandemic has raised our collective social awareness as to the members of our society that are often overlooked but deemed essential. Our neighbours are struggling, and we have stepped up, to help, advocate for government assistance and to push for permanent change in order to build a better and more prosperous community.

These are all expressions of social capital. We are familiar with human capital - education, financial capital - money, but it has always been the social capital, loosely defined as the measurement of both the extent and strengths of our interpersonal and membership relationships, that has supported our communities. There are many scholars on social capital, with at least 35 differentiating definitions in academia, but they all describe in some fashion the resources available to individuals when disruptions occur. Our communities - be they physical neighbourhoods, faith organizations, clubs, athletic leagues, or residential associations all bring people together and create bonds. The strength of those bonds, the connectivity, and the extent to which they lead across organizations demonstrate the level of resources - personal, spiritual, physical and at times financial that we have access to. If you pause and think who you could count on at 3 AM when the world comes crashing down - that is your bonded social capital. Bridging social capital reaches between organizations, even levels within an organization to bring two groups together - separated by a hierarchal system or across barriers that occur due to some groups requiring membership. Finally, linking social capital is that element, most important to emergency managers, that is an expression of the strength of relationships between communities and the hierarchal EMO systems. I am often asked for advice by municipal governments how to better support emergency preparedness in communities - I advise them to build community centres, create the space to grow social capital, allow those bonds to form through that investment. That neighbourhood will be far better prepared for a disruption than trying to get everyone to buy a flashlight or radio.

It is this social capital, which is expressed in an emergency as spontaneous volunteer groups, your neighbour banging on your door at 3 in the morning after seeing smoke, helping a stuck car across the street. We know from extensive evidence that first responders are community members and not police, fire, or EMS. Now the municipal resources do help, but the majority of rescue from imminent harm is done by someone who cares about you and your future - a member of your social capital. Yes, strangers do this out of their humanity, but actively building this capital will ensure that there is a plethora of resources available when calamity strikes. You create trust, which is essential in times of need - family, friends, and institutions. Finally, evidence shows that community groups who have strong social capital engage municipal governments more often and with clearly better results post disaster. The organized and mobilized sectors of society do get access to better resources from government in times of need. So, if you truly want to be prepared for whatever life will throw at you - go meet your neighbour, join a community organization, and leave the colourful bags for someone else.

The Value of Practice in Emergency Preparedness

Why there is little logic in turning off your electricity to experience a power loss or to exercise your plans for loss of energy and utilities, practice is key. When we sit down to rehearse something, be it a key play in sports, that address for the conference, that difficult conversation with our loved ones - we all have a vision for how the experience will pan out.

Vision, a foundational process in business development philosophy, is what we look like when we have reached our goals. When this is all done, what does our future look like. That's what we practice for, we rehearse to ensure that puck is shot into the top corner, the audience gives a standing ovation, or our families understand the situation and agree to make hard and

consequential decisions. Planned or not, we have visions for all aspects of our lives. So why not preparedness?

Irrespective of the state of our personal preparedness, we envision how we would manage a disruption. What decisions we would make, how we would behave and if necessary, which tools we would employ. If we consider the potential hazards in our area, we think about what could happen. Practice in emergency preparedness is not running into the woods with your 72-hr kit / bug out bag / get home bag or whatever concoction the Internet has told you to assemble and have at the ready. Because seriously, do you really consider grabbing a backpack and running into the tree line a viable option for your individual and family emergency preparedness plan? We consider practice to be the visualization of planning - the "walk and talk" or "chalk talk" the what ifs... What do we do when X happens.

How to practice. In military planning, most scenarios are managed through the options of the "most likely" and the "most dangerous". These two extremes will cover best and worst-case scenarios and when properly discussed and addressed, will by default cover the myriad of other possibilities along that spectrum. First determine what is the most likely hazard in your area to occur. Then think about that happening at the most inconvenient time of day, when you are likely not at home, neither are your family members and there is a traffic jam. Walk through what you think you would do, what are the consequences of that action and then consider what did not go well. Call those lessons, then rehearse the same scenario by following the better plan from the lesson and continue this until you have determined the most positive outcome from the most likely hazard realization. You have a vision. You can picture the correct actions, their order, and the consequences of those decisions. Further, when you do the same for the most dangerous, you have now walked through and conducted a complete scenario analysis for free. I use a whiteboard - I like to write as I talk out loud and whiteboards allow you to erase and improve. Or a Hilroy scribbler, $0.25 at Walmart; yes, I still use those at 50. They are incredible.

Practice and improving your emergency preparedness does not require financial investment. There is no tool, piece of equipment or commercial product that by its very acquisition will raise the probability of a better outcome. The single greatest weapon at your disposal in an emergency is your brain. Use it to walk through what you may face and consider your options. Think it through to the end, rehearse and develop your logical and personal plan for managing the situation. Exercise your greatest tool, practice with it, let it guide you to success. When you need it, and you will, it will be prepared and ready to respond. Set yourself up for success in a chaotic and disrupted world.

The Stoics were correct: all events just are, they are neither good nor bad. You decide how you respond, you are responsible for your outcomes.

Preparedness and Bandwagons

Far too often we are subject to a barrage of advertisements, expert opinions and a flurry of content designed by SEO gurus to persuade us to follow what we are being told. Jumping on the bandwagon is a common practice, from sporting events to politics, we all want to be on the winning team. But at what cost? Are we selling out to the highest bidder - or best marketer? Your journey into emergency preparedness is yours, with goals and ambition that belong squarely to you and your family - not with the marketing gurus. Even the global reaching non-profits are advertising their solutions to your preparedness woes. The question is, should you

simply purchase what is being sold by those self-professed experts on the Internet, or should you follow a program designed to have you write your own plan, for you and your family? It seems like a simple question; however, it is fraught with struggle. We trust our institutions to provide us the best possible advice, we listen to the advice for public health to mitigate our exposure to the current pandemic, but we remain ill prepared for life's calamities. The plans offered on municipal, provincial, state, and federal websites are good starting points - become informed, have a plan, collect supplies, and ensure all family members know their roles. That advice is correct, but woefully inadequate in the 21st century. None of those plans deal with cyber preparedness, insulation for financial events, political upheaval, loss of government services, failure of logistics and longer-term significant alterations to normalcy. The question is, do you wish to leave your preparedness to expire in 72 hours, or would you prefer to become prepared in all manner and respects, across all exposure to the modern world for periods of time far exceeding the 72-hr public guideline? What if there are no operating government services when that 72 hours expires? Where do you and your community turn when governance operations are effectively nullified through any number of circumstances? These questions leave a huge and difficult gap between what the public institutions are advising - be prepared for the first 72 hours, and the reality when that expires and there is no one to help.

This is not apocalyptic, but reality as we continue to see the current pandemic disrupt the normal conduct of our lives. With Variants of Concern (VOC) becoming the standard across the developed world, with multiple trusted news sources (Aljazeera, BBC) asking tough questions about the possibility and probability that some mutation will make the current batch of vaccines less effective. None of us are in control of the outcome of this pandemic, we will all get our vaccines when they are available, but this has served as a practice run for a seriously significant event, which causes far more disruption than a few weeks of no barbers or pet grooming. There are those who would sell the idea that the doomsday clock will soon hit midnight, or there is a WW3 on the horizon or that the next pandemic will have a far higher mortality ratio - they are playing to fear and discomfort, and they are profiting exceptionally well in 2021.

Your individual / household emergency preparedness needs to extend far beyond 72 hours and incorporate much deeper thought and effort than is recommended by the public services. We are all living in a dress rehearsal for the big one - take the time to become truly prepared, with a plan extended to all facets of your life, ensuring a detailed and well-defined layer of preparedness insulation wraps you and your family. So, when the next disruption hits, you can be the one offering help to your community, being the beacon of hope and survival, knowing that you have taken the necessary preparedness steps to ensure your family not only survives, but thrives.

Profit? No. Community service - yes. All the information you need is available on Inside My Canoehead podcast. Available on Apple, Google, Spotify, and other platforms. No cost, no commitment, just someone who believes you need to be doing more and shouldn't have to figure it out on your own. With listeners on 4 continents and from 14 countries, there is something for you.

Be Ready for Anything

This week is Emergency Preparedness Week in Canada and in many other places around the globe. Our theme is "be ready for anything". This is a very intriguing and challenging thought for

most citizens. The very nature of the word "anything" means "everything", which to most will represent a massive almost insurmountable task to accomplish. This is often the first "off-ramp" people take from the emergency preparedness community when we employ the "Chicken Little" strategy that the sky is falling, and we are doomed. Apocalyptic references follow, the message becomes ignored at best, leaving the once-a-year opportunity lost down the drain. In a recent study of the New Zealand communications strategy for reduction of vectors of transmission for COVID-19, they employed basic yet exceptionally effective psychology. We all try it as parents, positive reinforcement. Instead of berating their citizens with a slew of "don'ts", they encouraged "do's". By simply re-orientating the message to support individuals getting outside, enjoying sports, playgrounds, beaches, parks - all while keeping the rule of 6' apart, they were the catalyst for citizens to do something beneficial. Messages of "go see your relatives", stay 6 feet apart, have a coffee in their driveway - all designed to maintain the public health measures required to stem the tide of the pathogen. An Irish study showed that 1/10th of 1% of traceable transmission of COVID-19 was due to outdoor exposure. Hence the message is clear, tell people to do the low-risk activities and they will comply with not doing the high-risk activities. Fear only works when the subjects are ill-informed. Once people understood the pandemic and the virus transmission research, they stopped reacting to fear mongering and government intimidation. Simple lesson, but still lost on many politicians.

For emergency preparedness, we need to make the message about reachable goals, ideas and actions that are nominal in price and exponential in benefit. Encourage simplicity in the tackling of tough goals and people will happily follow on the journey. We don't get ready for anything overnight, in fact research tells us that emergency preparedness is a fluid state, not a specific set off accomplishments, but an attitude. Hence, the most important question in emergency preparedness is: "Who is responsible for your outcomes?". Preparedness is a journey that requires patience and commitment, but that follows a logical and methodical path. It is about accepting responsibility for you and your family's outcomes, understanding the state is exceptionally limited in their ability to assist. Guiding citizens along this journey, knowing that everyone is at a different stage, but continuing to encourage good behaviour, moves society along the preparedness continuum. Most scholars note that we need to move beyond the current messaging - kits, inform, plans, and move to the adoption of a mindset; the critical advantage of the human species - adaptability.

To "be ready for anything" is a statement which is best translated into adaptability. This is the measurement of your ability to pivot from your current trajectory, based upon stimulus. When the pandemic caused a disruption in employment for many Canadians, the government provided benefits. That should have been the period where individuals pivoted to an alternate career or employment, in order to fund their lives, while awaiting the disruption to pass in their normal industry. It never was the intention nor the responsibility of the government to fund lives until the pandemic passed, but to afford the time to pivot, re-orientate and launch down an alternate path.

The adaptability theme in preparedness encourages individuals to adopt lessons learned along the way but be moving; fluid in actions and thought. If you build a bunker, you provide yourself one option, if you think through possible eventualities, you give yourself multiple options. Preparedness is cheap and simple. It is about attitude and responsibility, not about anything that costs money. Governments should be encouraging the construction, expansion, and

maintenance of social capital - the true emergency kit. Community resilience is the expression of collective adaptability. We as a species are far better off in normal situations when part of a tribe and this is only amplified during disruptions. By spreading a message of building communities from the ground up, governments encourage and possibly fund the strengthening of social relationships between residents. Forget the fact that this has huge socio-economic, safety and trust side effects, it is the most scholarly supported preparedness initiative to create better outcomes. That is why governments are in the preparedness space - to create better outcomes for citizens. This is not complicated, so why are we asking people to be ready for anything?

Preparedness – How Much is Enough

Across the spectrum of emergency preparedness there are a plethora of websites, YouTube channels, email campaigns, not for profits, government agencies and experts all professing to know the level of preparedness that is correct for you and your family. We know that statistically, less than 45% of citizens consider emergency preparedness measures on a regular basis and irrespective of the nation, no evidence exists to show a population has met the desired government-mandated emergency preparedness standard. With this bewildering forest of loud and heterogeneous voices, how does the average family determine what is best for them, considering their family, location and personal desires? Simple. First accept that the government standard of messaging - be prepared for 72 hours - was created as part of a social marketing campaign to nudge individuals towards adopting more preparedness behaviours. This was the initial message and other than some radical ideas from specific elements of government, it has remained stagnant for decades. Those radical elements are emerging from FEMA Regions and local governments who understand that in the event of a significant disruption - on the lines of an earthquake in BC / Washington State or a Katrina style hurricane, no government presence, beyond token individual elements will be in force for days if not weeks. Hence, the messaging from those elements speaks to 14-21 days, expressed in clear language: "you need to manage on your own, it may be weeks before anyone can attend to your individual family needs". With that, the discussion moves to - how much is enough?

In order to assess that answer, which will be and should be different for everyone, the first concept is to define who you are responsible for - the people for whom you intend to provide sustainment. In the 21st century, the nuclear family looks different than in the 1990s, with families now multi-generational, with multiple locations within a town / city and more than likely, complex needs, often in varying socio-economic positions. Hence, go buy X or have Y days are good ideas, general in nature, but likely to be inadequate advice. With family defined (geographically and individually) AKA your "sandbox", you understand the parameters of your responsibility. The second is an important question, with significant weight - how much do you trust your government? This is not slight to those working in emergency management, but findings of a multiple studies show there is a belief in government's ability that does not accurately reflect their capability. In essence, citizens have outsized confidence in their government's response capability, therefore placing sustainment responsibility in the hands of an organization that is not resourced to meet such expectations. The same question is asked of utilities, food supply, etc... From a personal perspective, how confident are you that corporations and government will be able to stabilize the supply chains of necessities when

significant disruptions occur? This is an expression of your self-confidence and risk tolerance. These are known in research to be the two leading predictors as to an individual's decision to adopt preparedness behaviour. These are tough and challenging reflections – your own self confidence to pivot in a disruption, which should by now be abundantly clear to most after over a year of pandemic and government induced limitations on your ability to earn an income and free from infection. In general, how do you manage life - with an abundance of caution and detailed consideration, or do you fly by the seat of your pants? Did you pivot to an alternate occupation when COVID-19 impacted your ability to work - or did you wait for the job / hours to normalize? Do you live with little savings, confident in your ability to earn income in any situation?

With the sandbox, self-confidence and risk tolerance understood, citizens are better positioned to assess whether their current level of preparedness is acceptable considering their own HIRA. Planning for the unknown is not a difficult task. Imaginative yes, difficult no. Simply put, the easiest methodology is one utilized by many professionals in the military, police, and emergency management profession: Most Likely and Most Dangerous. By considering both these possibilities (the two ends of a spectrum), by default others are included. Place those scenarios in your sandbox, be honest when considering your trust in government, self-confidence and risk tolerance and you will be guided to a figure that represents the time lag between event and when you are confident in the re-establishment of reasonable normality. The same event consideration will result in different sustainment requirements for each family, when considering their networks, social capital and their self-confidence.

Teaching these skills is not hard, it just takes effort and a commitment of time from the citizens. Like CERT and other training initiatives, municipalities can implement tools that enable citizens to create individual / family preparedness plans. We are seeing emerging trends from public agencies who understand the value of being blunt with citizens. Imagine if this was your municipal announcement: - if there is a significant disruption, it could be days if not weeks before someone answers your 911 call - if it can get through. Build your network through community groups and neighbours. Create systems together to sustain yourselves without the requirement for external intervention. If we heard that message - preparedness would shift from the agenda to the decision cycle.

For professionals, the conclusion is that one message does not fit all, that the tools are available for you to utilize to encourage the development of individual family preparedness plans, leverage social capital and build a resilient community - one that is likely to ask for little when a hazard is realized, so municipal resources can be orientated at critical infrastructure, not citizen response.

For individuals, the message is blunt: there will be time that you are completely on your own, so plan for however you define family, for a period that reflects your confidence in your ability to manage disruptions. The question to ask is: what are you going to do when no one answers 911, for days if not weeks?

Preparedness: The Roaring 2020s or Societal Breakdown

A Prepared Life, well that's one in which you and your family are happy, joyful, and pursuing your ambitions all within a blanket of resilience - a plan created by you, for you. Fairly simple to achieve, takes a bit of effort, but in the end, you are far better off than your previous self, your

community is strong, and you feel the weight of the world lifted off your shoulders. But, what to make of the "apocotalk" online, through social media feeds and in the news, especially the biased and catastrophically poorly informed mainstream media? Remember the Stoic teachings - the dichotomy of action: everything falls into one of two categories, things you control and things you don't control. So why are you concerned?

There are multiple threats in the air: climate change, pandemic variants, economic bubbles, hyperinflation, end of globalization and any number of other situations that would fall into "all-hazards" examination approach. So, what is the average middle class worker living in suburbia expected to do? How to navigate what is potentially a world on the brink of significant societal breakdown or at least re-organization. What to do? Substantially nothing.

That's the point of preparedness, in that you have taken the necessary steps to insulate you and your family from the effects of a turbulent world - to the greatest extent possible, therefore nothing. That's exactly what you should do. So why this blog? Well, we will go over those potential events and provide some context and outline why doing substantially nothing is your best course of action.

First, climate change. Now the IPCC defines climate change loosely as the accelerated alternations to normal climate patterns as a direct result of human conduct. Simply put, the earth is naturally warming as part of its 4-billion-year-old cycle, we just happen to be putting the afterburners on the timeline. We have one planet, and as a great thinker, Sadhguru said, "because we have wild beliefs about an afterlife that is perfect and amazing, we don't bother to take care of the one we have now". The world will warm and as a prepared individual you need respect mother earth by examining how you interact and lessen your footprint. The how, well that's up to you: electric car when you are due for a change in vehicle, become a no waste household, adopt energy conservation in power consumption, work from home, etc. Altering behaviours to reduce your impact on the natural environment is free, the choices are readily available, and the Internet is full of great advice. None of these are substantial and their cost is nominal. Really, nothing.

Second, pandemic variants. Get your vaccine, it is free and other than AZ, they have little to no side effects. Ignore the anti-vac movement and get your jab. Most scientists believe, like many of the other childhood vaccines currently in use, there will be a need for a booster sometime this year. So, get the booster. Your best defence against any virus is great personal health. I have said this many times, you have one body to carry yourself through this awesome thing called life. Take care of it, feed it real food, not manufactured goods. Exercise, laugh, love and you will be ready to fight the next one, because there will be a next one. So, really, nothing challenging - no money required.

Third, economic bubbles. This one could hurt and hurt bad. If you believe certain individuals on social media, there is an exceptionally overvalued stock market that is ready to bust. You cannot control that. Diversify your portfolio - how? Well, the best book ever written on the subject, Unshakable by Tony Robbins, is summed up all over the internet for free - don't carry debt, invest in stock market, and bond ETFs, have some emergency cash and go live your life. If the stock market collapses - well, it has bounced back better every time in history. Will you lose your job if the market collapses? If so, then examine the portion of your family preparedness plan dealing with pivoting to a second career, make sure there is sufficient $$ to cover the pivot time (until you secure new employment) and then get back to having an awesome life. Really,

nothing to do here but ensure your plan is rock solid - something you're already doing as a prepared individual. So, really, nothing here.

Fourth, hyperinflation. That's when the average price level across the entire economy rises by more than 50% month to month. Not happening in the developed world. There is an increase to inflation in Canada, estimates are that is remains outside the Bank of Canada's target of 1-3% year over year, but not out of control. The danger here is that the average family in Canada has saved about $5K over the pandemic, totalling an estimated $12B nation-wide and that when restrictions are lifted, there will be an orgy of spending as everyone is coming out to re-engage with society. The danger is that most will not see the rise in prices, by valuing the experience and the goods over the inflated prices. This will mean that only after about a year, inflation will be a significant concern for the nation and the government will rise the bank rate to slow the price growth. That will affect those who carry variable or revolving debt - lines of credit, credit cards and variable mortgages. If you don't carry a balance on those, well then, the rise in interest rates to slow inflation in 2022 will be insignificant to you. Hence, really nothing to do but normal behaviours, stay out of consumer debt and enjoy the &^%$ out of life.

Fifth, the end of globalization. Whether you follow Pete Zeihen or other thinkers, we know that the 2020s will be the decade where most western nations "re-shore" manufacturing capacity for necessary and critical goods. There will be an inward look at our international affairs and most nations, especially the US, will be largely disengaging from the international trading world. International trade other than with Canada and Mexico represents about 3% of US GDP. They could literally stop trading with the rest of the world and barely feel it. Globalization as a framework for the world is dying and replacing it will be the formerly existing world of nations, where we have few but strong alliances and largely blocks of nations - the EU, the AU, the ASEAN, etc. If this intrigues you, google Peter Z, he is a brilliant prognosticator on what the coming decades will look like. So, for you in the suburbs? Nothing really, just keep a pulse on your pivot employment, otherwise nothing significant.

Lastly, the myriad of others - call it the multi-headed hydra from mythology. Just like the "all hazards approach" utilized in modern emergency management, you can attempt to think through every possibility and war-game the world - or follow the advice provided within these blogs - embrace Disaster Impact Reduction (DIR). This is where you examine your exposure and dependence on the 10 sectors of critical infrastructure and develop micro plans for each to ensure the continued normal family operations. Bringing those 10 micro plans together and you have constructed a rock-solid personally designed emergency preparedness plan for your family. We don't care why the utilities are no longer functioning, we care what we plan to do about that. Have a plan for no power and you have perfectly addressed the loss of power due to any hazard. Simple, nothing to do but follow the plan. It's free. So, really, nothing that costs money here.

So, navigating the expected apocalypse is not difficult, in fact it requires substantially nothing. You're a prepared individual, hence you have the plan, the mindset and therefore the blanket of resilience. Its near free to become a prepared individual. So go meet your neighbours, develop a strong sense of community - care, love, laugh. It's going to be OK; you've seen to that.

Ideological Neutrality in Preparedness Discourse

Author: Anonymous – by request

We live in the most connected time in human history, yet we are the loneliest and have the highest number of caustic relationships. This world, especially on social media, can be explained as a game of limited-rules dodgeball. We are poised to strike, watching everything someone does, ready to jump on the slightest expression of weakness or misspeak. In essence, we have chosen to become an ideologically driven series of camps, chest-thumping for attention, all in the relentless pursuit of confirmation bias. We contest that the truth is divisible, into your truth and mine. That facts are fluid and malleable, that if you demonstrate a propensity to gravitate to one political spectrum, you are a zealot, a "winger" or xenophobic racist.

Discourse, debate, intellectual exchange of ideas – all being lost to the loudest and most politically correct voices. This is the world into which we must communicate preparedness.

The resilience warriors, those dedicated to building individual and collective capacity and capability to navigate disruptions operate in this environment. Whether they are emergency managers at the local level, policy advisors at a government ministry, academics in institutions, independent researchers, or stalwart experts. Individuals dedicated to improving the human condition are faced with the challenge of entering this dodgeball game, researching how to carry important messages through the noise to the citizen on the other side, ideally to influence the adoption of preparedness behaviors.

The principal minefield to avoid is being seen as ideologically driven. There are many other pitfalls, but none will have your message characterized and summarily dismissed faster than being perceived to adhere to one group, one viewpoint or associated with an organization. One stalwart example of how to communicate through this chaos is the United Nations Sendai Framework:
https://www.preventionweb.net/files/44983_sendaiframeworkchart.pdf

A brilliant presentation of goals, grounded in research, without an ideological lens. The underlying principals in this document and its predecessor, the Hyogo Framework, argue that the state has the primary role in reducing exposure to and harm from disasters, with considerable detail as to the recommended efforts to increase resilience throughout the population.
Translating this success to local emergency preparedness communications has been a difficult endeavor for most resilience warriors. The Sendai framework is directional, but necessarily vague as are all consensus based global policy documents. At the local level, clear, concise, precise direction is required. One ideologically driven global challenge faced by resilience warriors is climate change. No single issue online and related to disasters is more polarizing. Politically, it has been summarized as necessitating punitive measures, such as significant taxation, or characterized as overhyped and an effort to enforce control over individual

decisions. Framing preparedness communications within the climate change discourse is a recipe for polarizing this important conversation, immediately losing a portion of the population, turning many to distrust institutions of government.

If the goal of preparedness communications is to persuade the recipient to adopt a given set of measures – attitudes and activities – to be ready to navigate exogenous shocks more easily, if that is the intent, then it must be done without an ideological or political frame.

How do we communicate the totality of the potential impacts of climate change leveraging facts and data, without creating an offramp for those who will see climate change as an issue, but not something that has a significant impact on their lives, or they frame it as an attempt by governments to control populations, in effect an intervention into freedom of choice and behavior?

Forecasting is a challenge, prediction based upon modelling has been a thorn in the side of scientists, but it is the foundation of the scientific method – understand what has happened in the past so that we may best inform the future. The difficulty posed with climate change is that other than the IPCC heightened warning about increased temperature, all previous forecasts have not come to fruition. That is not the fault of science, in fact science should fail, that is how we learn, but the failure comes when the IPCC reports and forecasts are lauded as impending doom by a small, but influential voice. When they fail to materialize, this undermines the intent of the exceptional work the IPCC undertakes and the value of their research to humanity.

If we choose an outcome methodology for preparedness communications, presenting the problem statement – an expression of the situation / condition as it exists and the undesirable consequences of not ameliorating it, then we side-step the argument as to the underlying contributary factors that are beyond individual and community control. If a town floods, the preparedness communication is likely to be most successful if it is oriented to what the individual can do to mitigate their loss, to understand the risk imposed and present strategies to address the impact of the flooding – vice framing the communication as increased flooding due to climate change. This is the application of disaster impact reduction (DIR) versus disaster risk reduction (DRR). The underlying concept in DIR is that we are not concerned with the why the town floods at the individual level, we frame the issue in reducing the impact of those floods on our personal circumstances. DRR is best suited at the state and sub-national level where the discussions are orientated around the cause of the flooding and mitigation and larger government interventions are useful. That is the place for the political and ideological discourse, at the policy table, in the deliberations on DRR and climate change - it has no logical place in preparedness communications.

Social media is the modern public square. Marketing 101 instructs the communicator to speak to the target population where they are, on their platforms and in their language. The community of practice, the resilience warriors, are diligently working to reach citizens on social media. Ideologically driven minefields are a permanent part of the social media landscape. The messy middle of human discourse is open, for all to see and is only being amplified.

If this public square is the road to inform the population about resilience, we must be seen to be impartial and trustworthy, to communication without political and ideological bias.

An Opinion on Mass Evacuation

Author: Jeff Donaldson, PhD

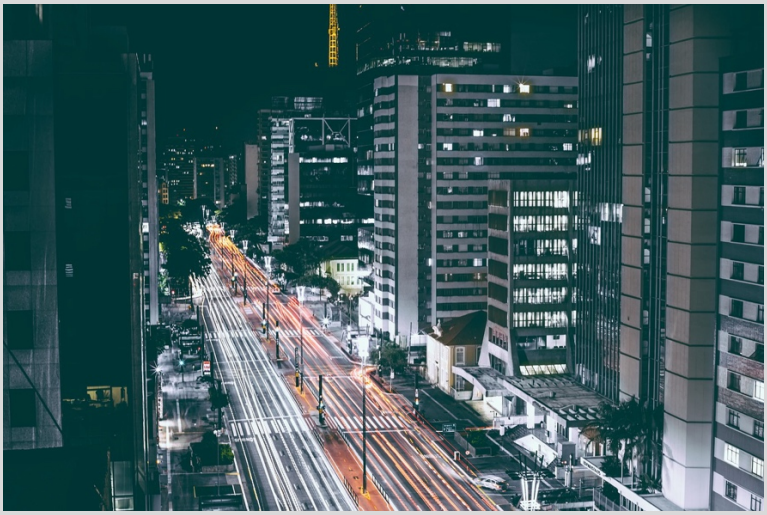
Evacuations are arguably the most dangerous situation in which an individual or family may find themselves in an emergency. The intentional abandoning of your home and possessions, often on short notice, within a context of chaos and limited information. As such, this is an important aspect of social science, to examine the phenomenon, to understand the variables that influence better outcomes and to contribute to a better prepared and therefore more resilient society.

Within emergency management there has been an increase in the focus of researchers and academics on mass evacuations. Specifically, transportation modelling has provided scenario-based timeframes and throughputs for sequential and need-based staged evacuations. Further, there has been multi-modal models identifying the gaps and advantages of employing different transportation options, from automobiles, watercraft, public transit, school buses and to some degree, trains.

Most research on network capacity and throughout put has been on short distance, urban systems, with reasonably short (less than 100km) evacuation routes. Often not discussed in the literature is the importance of the preparedness stage, the inclusion of route maintenance and a few assumptions that challenge the deployment of research findings.

Mass evacuations occur in stages, while the discipline's nomenclature is not homogenous, we can consider this sequential order:

Preparedness
Alert Notification
Movement
Reception
Return.



Pixsabay (2023)

Assumptions

Within the movement stage, there are several important sub-elements, notably selection of transportation mode, choice of route and route maintenance. It is often assumed that routes are reasonably controllable from the public sector's perspective, however there is nominal research on the capacity of the police to enforce route restrictions in urban environments, which ironically is a critical requirement of staged evacuations. Without the surge security personnel necessary to ensure that those who wish to leave outside their allotted timings are deterred, significant challenges emerge in the operationalization of timed evacuations.

In transportation simulations, the selection of transportation mode at the onset of the evacuation notification is regularly tied to vehicle ownership, not necessarily considering the pattern of life in a community. Often assumptions are made that if the resident has a vehicle, it is available to them for evacuation. This may be a significant confounding variable in research focussed on urban areas with high density of transient worker populations, where individuals commute from the suburbs to the urban core for employment, often on public transit with their cars parked at home or at transit hubs. An urban center will respond differently dependant on the time of the incident. 0800 on Sunday morning and 0930 on Monday morning are two completely different modelling scenarios.

Route Maintenance

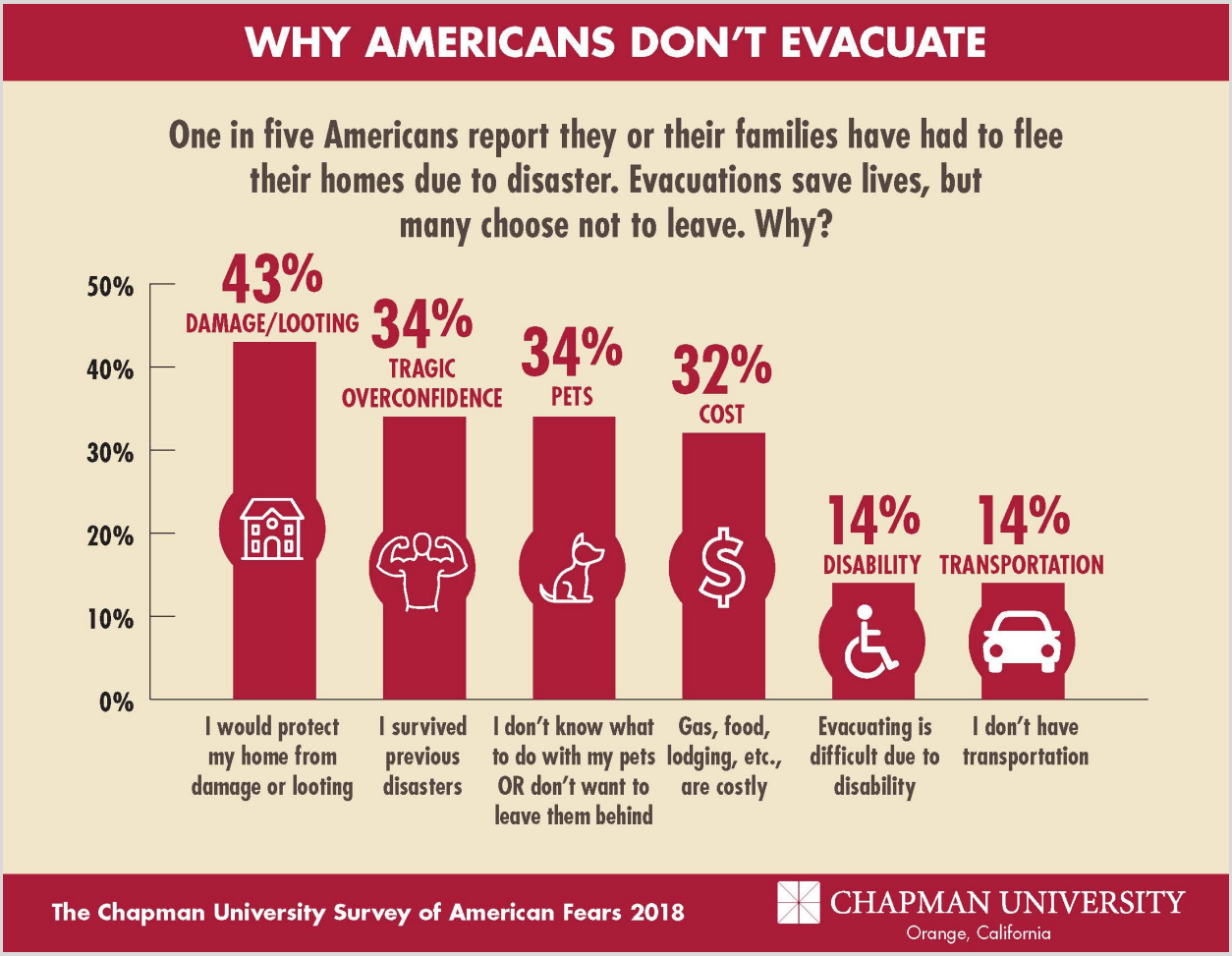
A significant and often ignored element is route maintenance. These are the sustainment activities employed along the evacuation route to support the evacuees throughout their journey to the shelter destination. From route clearance for snow / natural obstacles, crash and breakdown mobile repair teams, to ensuring sufficient fuel is pre-positioned / distributed to evacuees, the potential exists for the modes of transport to becomes obstacles. Further, the provision of potable water and food to evacuees, portable cellular communication towers if service is interrupted, rest and sanitation areas and portable / static medical support permit a healthy environment. Finally, route access control through traffic authorities and consistent communication with evacuees maintain the potential to alter destination.

The assumption that humans in a vehicle will be self-sustaining throughout the journey or that the existing services on the route are sufficient to support the evacuation is dangerous. It may further exacerbate inequities in society, with marginalized and vulnerable populations not possessing the financial capacity to support themselves throughout the evacuation. Route maintenance is of much higher importance in evacuations that have longer routes (more than 100km), where the time required to move from home to the shelter location is measured in hours at normal highway speeds.

Often mass evacuation planning doesn't consider the messy middle, instead concentrating on removing the population from the immediate hazard and dispersing them to a destination – not considering that without route maintenance, they may be imposing avoidable harms on the population and aggravate inequality.

Human Behavior

Studying human behavior and the rationale for decision making is not a novel endeavour, anthropologists have been modeling a millennium of decisions for centuries. Economics is undergoing a paradigmatic shift from neo-classical structures to behavioral economics. Humans are not rational beings that make decisions at the margins. We make decisions based upon emotions and subsequently rationalize them with logic. Understanding this is key to knowing that an affected population will not necessarily follow direction, for a myriad of reasons.



Fears, R.A.S.T. (2018). Chapman University Survey of America Fears

Preparedness

An often under-research area is the pre-event stage of preparedness. The time before a threat emerges is an opportunity to engage the target population in advance of a crisis, not in a warning period. The Federal Emergency Management Agency (FEMA) in the US refers to this as blue-sky planning, the intentional allocation of stakeholder engagement, strategy design and rehearsal time. The deliberate activity of first identifying the relevant stakeholders and rightsholders with the population provides for a spectrum of voices, whose organizations from all four sectors of society: public, private, non-profit and community will be impacted by both

hazard and response induced needs. Initiating contact and relationship building with the broad spectrum of target population well in advance, to provide input to and involvement in the design of evacuation strategies will lead to a higher degree of crisis message compliance.

Social Capital

Research indicates that communications have a higher degree of reception, adoption, and behavioral modification if they are delivered through a trusted source. Public sector officials are not viewed as institutional experts by default, simply because they have a title, but because they have to a certain degree, built, and maintained a trusted relationship with the communities they serve. Communities are spatial constructions of integrated networks across social, economic, geographical, and familial connections. These networks represent existing pathways within society, where information is disseminated. The social capital present within those networks, the norms and trustworthiness are valuable assets in persuading the population to view your alert as important, worthy of consideration and ultimately adopting the suggested behavior.

Communications

Much of the current research into evacuations begins the cycle with alerts or mass notifications. These originate from the public sector and are delivered across mediums to include television, radio, Internet, and SMS. In Canada the Alert Ready system pushes the message to phones across the cellular network, providing the public sector with reasonably immediate access to at least a plurality of the population. The delivery of a message cannot be presumed to commence an evacuation. The target population must first understand the situation, frame the request within their own family preparedness and evacuation plan and then determine the most effective method to meet both the needs of their families and the intent of the public sector leadership. Communications that reference earlier preparedness strategies, involve previously discussed plans, leads to a less anxious population, a healthier response and is likely to lessen the aggravation of inequities.

Outlook

Integrating social capital and preparedness communications research into mass evacuation planning offers an opportunity to understand the role of trust, family preparedness planning and the strategies for stakeholder engagement that will incorporate the community's voice in evacuations. Further, by considering the role of municipalities that will shoulder the burden of the evacuees along the evacuation route as well as the shelter location, the affected population will not only receive greater degrees of support, but these efforts will strengthen the trusted relationship, a foundational principal upon which mass evacuations are successful.

If the community trusts the voice and sees itself in the plan, they're likely not only to comply with the public sector instructions but prepare to facilitate a more effective and efficient evacuation.

Book Review

Meyer-Emerick, Nancy. *Using Social Marketing for Public Emergency Preparedness*. New York: Routledge, 2016. $63.64CDN (paperback).

In Nancy Meyer-Emerick's book *Using Social Marketing for Public Emergency Preparedness*, Meyer-Emerick challenges the status quo of preparedness communications, arguing for a more micro approach to designing and distributing preparedness messaging to populations, vice the current broad singular message of "*have a kit, be informed, and make a plan*." She states "Managers and Professionals in the emergency services community know that distributing information alone is not sufficient to motivate someone to change their behaviour"(p.26) (Meyer-Emerick, 2015). The author refers to the multiple independent and public policy reviews conducted over the previous decades that have provided guidance, with most recommendations not being implemented. This is similar to the findings of investigations into SARS in 2003 (Naylor et al., 2003) in Canada and the National Research Council's seminal findings in 2012 (National Research, 2012).

Meyer-Emerick posits that the broad swath of a singular message fails to appeal to the unique and diverse experiences across a vast nation. She argues that like efforts in Public Health, emergency preparedness communications should be grounded in the three principles of social marketing: identifying the affected population segments, conducting a situational analysis, and finally the use of atypical applications of marketing strategies. She presents the differentiation to current methodologies succinctly, "social marketing includes an ongoing relationship between the trainers and priority groups to determine whether people have continued the new behaviors"(p.3)(Meyer-Emerick, 2015).

The book is logically organized, first presenting the role of preparedness, the current challenge within modern societies, then moving to the social marketing processes of identifying the target markets, developing a plan, and working within the local community. The middle portion of the book argues that each community in a nation is sufficiently unique to be receptive to a tailored and focussed message that will resonate with the exposed population, thereby likely increasing the reception and adaptation of the message. This is a challenge to the governance structure's pan-level reliance on similar messages. The second portion of the book concentrates on the theory of social capital and the value of building strong and trusted relationships throughout the community, reinforcing a growing body of literature (Aldrich, 2012; Dynes, 2006; Franke, 2005). The concluding chapters present a discussion on the application of the book's argument through the effective use of social media, small wins and the growing acceptance of the important role that volunteers play in emergency management. The book ends with a reinforcing tone about persuasion and the relationship with behavioral economics and the stalwart "nudge"(Thaler & Sunstein, 2009).

There is a common preparedness message, born in the early 2000s as a response to the SARS epidemic and the terrorist attacks of 11 September 2001, painting a broad three step plan for all families. The generic nature of the strategy is highlighted as a key point of failure, in that across any nation, the exposure to and recent disaster experience is heterogenous. Understanding the motivations to adopting a preparedness message is a notable factor in

message reception and adoption. Individuals who have little historical reference for disasters and live with what is perceived to be a nominal exposure to hazards, are not inclined to be persuaded by a simple message. The book's main frame is that each community, as micro-defined as possible, has a distinct exposure to threats and a cultural ideology that influence the norms, trust, and relationship with government institutions. This perception of the target market, then provides the parameters for a uniquely designed preparedness message for a specific geo-located population. Meyer-Emerick argues that if the population can see themselves within the message, the likelihood of reflection, adoption and behavioural change is markedly higher.

Meyer-Emerick posits that social marketing strategies allow the public sector to first understand what a prepared individual represents, to think of ideas not normally resident in emergency management or novel behaviors that might influence preparedness. Further, through developing an implantation plan containing both monitoring and evaluation methodologies, the managers will be able to assess, adjust and review the success of their messaging iterations. Meyer-Emerick argues that such a strategy will increase the engagement with the population, leading to the potential for higher degrees of institutional trust.

The book is targeted at researchers, theorists, and practitioners within the discipline of emergency management. Scholarly investigation into preparedness communication is not a chronologically new venture, but one area with few notable studies and examinations in the preceding decades. This offering is a recommended read for public servants charged with the responsibility to communication with the public in advance of an emergency and for researchers investigating public sector resident facing emergency preparedness communications. The ideas in this book challenge the paradigm, are innovative and worthy of consideration across academia and in the field of practice.

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A Preparedness Literature Review

Introduction

This is a portion of a literature review offered in a PhD dissertation. Some of the context is removed, however the contribution to the body of scientific knowledge in preparedness is an important endeavour. While peer-review is the best of the horrible options available to academia, it serves at least as a marginal frame for standardization and reasonableness.

The overarching concept for this review is to address a policy implementation failure: that despite considerable efforts by all levels of government in communicating the need for preparedness, citizens remain unprepared for disasters. For a systematic examination of historical and contemporary scholarship, the search for this literature review was narrowed to include peer-reviewed journals, texts, and grey literature specific to the discipline and focus of the research. After a significant evaluation, several books, textbooks, and approximately 80 articles or other publications met the threshold for inclusion in this review.

Institutionalism

Institutions are reasonably stable, enduring conglomeration of rules, resources, practices, and structures that prescribe behaviors for actors in given situations (March & Olsen, 2006). Traditionally, institutions have been viewed as governance organizations designed to provide collective oversight in contrast to anarchy. Institutions provide the basis for decision-making based on what social norms deem right, rather than what cost–benefit calculations consider best. Actor and participant behavior is guided by the rules that govern the appropriateness of action for a given role or identity (Hall, 2010).

In simplistic terms, people control institutions by enacting laws and rules, codifying customs, and publicly supporting or deriding an institution. The extent to which individuals can influence institutions depends on the theoretical lens; specifically, historical institutionalism views the institution as the primary player in politics, guiding the actions, and eventually the adoption, of policy by its actors (Lowndes & Roberts, 2013). Institutions have a persistent effect on behavior (Hall, 2010) and are expected to constrain and enable outcomes through the fulfillment of roles by actors and the adaptation of the identities of the positions actors hold following the logic of appropriateness (Lowndes & Roberts, 2013). However, rational choice institutionalism, with its focus on unstructured institutions within government, offers a logic of optimization that differs from non-utility-maximizing historical institutionalism (Shepsle, 2006). Within emergency management, structured institutions play a significant role, as they are the organizations to which certain specific roles have been awarded, rules delineated in legislation, and appointments made, reflecting the influence of historical institutionalism (B. D. Phillips et al., 2016). Policy actors within unstructured organizations in the political sphere form coalitions with institutional actors to advance policies in their interest and lead to the desired outcome. In comparison to other government departments, emergency management may have a nuanced and different set of responsibilities, but institutionalism and the roles of actors influence the structure and delivery of services at all levels of government. To understand institutional

service delivery in the context of emergency management, a discussion of incrementalism and the true extent of state capacity is appropriate.

Incrementalism and State Capacity

The majority of governments make policy amendments at the margin, adjusting policy instruments at predictable and measurable – even reversible – levels to maintain control, assess impact, and inform follow-up planning (Lindblom, 1959). With government decisions having a profound effect on citizens, most governance actors prefer to remain within bounded rationality models, utilizing comparative analysis with pre-implementation trials and evaluations (Fukuyama, 2013). For most fields within the scope of government, this approach is tested and true, providing the least disruption to citizens and implementing policies with the highest probability of success. However, emergency management is a policy field that operates under times of stress, with less than ideal information, and requires rapid decision-making and supportive governance structures (B. D. Phillips et al., 2016). Hence, incrementalism is defined in the literature as a challenge for those in emergency management operations, who require significant policy amendments, often on short notice. The current pandemic is such a context, with the Government of Canada creating and implementing new national-level and multi-billion-dollar support programs without applying the tools of incrementalism – the preferred governance theory; emergency management requires a more fluid, responsive, and agile policy process (R. W. Perry et al., 2001).

The governance structure for emergency management establishes an institution within a level of government with the legislative authority to execute the mandate, such as other government departments or agencies. As the old axiom states, all disasters are local, and the majority of physical resources are positioned at the municipal level, at which they support forecasted levels of response capability (Rodríguez et al., 2007). Hence, if emergencies remain within the expected scope, state capacity can meet the requirements. However, due to the exceptional cost of maintaining large-scale contingency resources, most jurisdictions have only marginal capacity to expand response capability in times of extreme disruptions (Murphy, 2007; R. W. Perry et al., 2001). This situation leaves state capacity short of the necessary resources for immediate response in times of disaster, which is one of the foundational principles behind the creation of national preparedness programs, both in Canada through Public Safety Canada (PSC) and in the U.S. through the Federal Emergency Management Agency (FEMA; (Haddow et al., 2011; Meyer-Emerick, 2015).

Emergency Management

Having considered the importance of public policy and its formulation and actors, the next step is to consider the evolution of emergency management as a separate and distinct societal element. Emerging in both the professional and academic contexts, emergency management's relevance in society continues to grow, drawing additional interest and investment across academia and society. Therefore, a discussion focusing on both the discipline and its governance is crucial to understand the scope, breadth, and depth of the phenomenon within society. There are many new academic journals dedicated to emergency and disaster management, including government institutions and multinational organizations concerned with climate change, environmentalism, and DRR spheres. Understanding the extent to which

emergency management has become a distinct subfield provides an additional perspective for evaluating the outlined relationships, pandemic effects, and preparedness communications.

Emergency Management as a Discipline

Governments have a duty to provide timely, accurate, and relevant information to populations, to facilitate informed decision making in times of significant disruptions to normal life (Arceneaux & Stein, 2006; Kapucu, 2008; R. W. Perry et al., 2001). Civil defense organizations were created in the lead up to and throughout the second world war, to provide preparedness information in advance of and response to enemy attacks (Burtch, 2009; Kohn et al., 2012; R. W. Perry et al., 2001). The Cold War enveloped the world in the threat of mutually assured destruction from nuclear weapons; in Canada the civil defense organizations were initially focused on mass urban evacuation (Burtch, 2009) due to the five- to six-hour warning lead-time regarding the arrival of Soviet bombers. The 1960s development of intercontinental ballistic missiles, whose warning time was measured in minutes, made mass evacuation impossible, and a notable shift to preparing Canadians for sheltering in place, through education on public shelters and how to construct home-based safe rooms. This situation was fluid throughout the 1960s to the 1980s, as local civil defense organizations sought a reorientation and new mission (Rodríguez et al., 2007). This transition was mostly coordinated at the sub-national governance level, with the emerging of formal departments or agencies within existing government ministries.

Disaster and emergency management grew throughout the late 20th century as an academic discipline, drawing on other major social sciences (geography, sociology, psychology, economics; (D. Coppola, 2011; Levac et al., 2012; Rodríguez et al., 2007)). Over the last several decades, emergency management has evolved into a distinct discipline, vice a subject, leading to several dedicated programs. In Canada, two universities offer Master of Arts degrees in DEM: York University in Toronto ON, and Royal Roads University in Sooke B.C., with many undergraduate and graduate certificates in the subject widely available. Multiple annual conferences within Canada on related subject matters (Business Continuity, Risk Management, Emergency Response, Disaster Mitigation), dedicated peer-reviewed journals, and many scholars dedicated to research within this field (Rodríguez et al., 2007) have added to both professional and academic discourse. At the international level, emergency management has been integrated into the international efforts to combat climate change, codified in the original 2004 Hyogo Framework and the 2015 Sendai Framework on Disaster Risk Reduction (A. J. Davies & Davies, 2018). With a governance and academic structure globally established, it is important to discuss the structure of emergency management organizations in Canada.

Disaster and Emergency Management Governance in Canada

Canada codifies responsibility for various elements of emergency management at each level of government (Murphy, 2007; R. W. Perry et al., 2001). To facilitate cooperation and coordination, there are formal agreements between the federal and provincial/territorial governments regarding the provision of aid during a disaster, in addition to the architecture for the provision of financial assistance if necessary. Local governance differs across the country as municipalities are the creations of provinces and territories, and therefore are bound by the appropriate

enacting legislation, which do not delineate identical responsibilities and resources (Murphy, 2007; Raikes & McBean, 2016).

At the federal level, the Government of Canada recently announced the creation of a standalone Ministry for Emergency Preparedness, separate from Public Safety Canada, which itself was established in 2003. PSC remains responsible for border security, the Royal Canadian Mounted Police, and Corrections Canada. From 1945 to 2003, the minister of national defense was also the minister responsible for emergency preparedness. By the 21st century, each province and territory had created an agency or ministry to manage emergency and disaster affairs, with corresponding legislation for municipalities. There is no defined requirement for structure, governance, and capacity in Canada – each level of government operates independently, though much formal and informal cooperation exists.

Most of the literature is focused on the international coordination against climate change, incorporating research on disaster and emergency management with extreme weather events (Ejeta et al., 2015; Kohn et al., 2012; Levac et al., 2012). Other scholars have examined the coordination between national and sub-national governments in the provision of military and financial assistance. There are only a few dedicated research projects into the field of emergency management examining the relationship between municipal government and the citizens they serve (A. J. Davies & Davies, 2018; Dynes, 2006; Norris et al., 2008).

In Ontario, the 2004 update to the Emergency Management and Civil Protection Act (EMCPA) required all 444 municipalities to have an emergency program enacted in bylaws and to conduct an annual review or exercise. In Ontario and other provinces, other than the provincial police force (if one exists) and medical resources, the vast majority of physical resources utilized in response to an emergency are situated within municipalities: police, fire, emergency medical services (EMS), search and rescue (D. Coppola, 2011; B. D. Phillips et al., 2016). Provincial and territorial governments control the delivery of healthcare, less ambulance services, requiring significant coordination with municipalities to provide seamless healthcare. Therefore, municipalities must create a program, coordinate resources, appoint officials, and most important, provide emergency information and instructions to the public (Dynes, 2006; Hale, 2013; Rodríguez et al., 2007). To evaluate this process, it is necessary to examine the literature on household emergency preparedness to understand the factors that influence individual decision-making and behavioral adoption.

Household Emergency Preparedness

With the macro global and national frame established in this chapter, the discussion moves to the micro-level of individual and household emergency preparedness. This section reviews the literature on household emergency preparedness, the factors that contribute to a household's decisions regarding preparedness, and vulnerable populations. Furthermore, a discussion on risk and resilience at the individual and community levels assesses the state of research within the field. The section closes with a review of the community's role in preparedness and the public policy implications specific to preparedness communication. These points are essential review elements as they frame the understanding of human experience, why behaviors exist, and support a discussion on how to influence decision-making by residents and communities. These conclusions and summaries provide evidence supporting

the decision to examine the relationships between municipal emergency managers and the communities they serve.

Level of Household / Individual Emergency Preparedness

The literature is in agreement that households are inadequately prepared for the threats they face, placing an additional burden on the municipal resources allocated to the DEM response (Arceneaux & Stein, 2006; Ejeta et al., 2015; Kohn et al., 2012; Levac et al., 2012; R. W. Perry & Lindell, 2003). Studies in the United States, Europe, Africa, and Canada that between 17% and 48% of households are adequately prepared for known hazards (Bodas, 2019; Heagele, 2016; R. W. Perry et al., 2001). Household emergency preparedness is the examination of the desired level of preparedness, the barriers to achieving that level, the determinants that affect a household's decision to become prepared, and the efforts of the public sector to communicate the need to prepare (Ablah et al., 2009; Bourque et al., 2013; Canada. Privy Council & Canada. Global Affairs, 2016).

Academia and the public sector remain divided regarding the appropriate measurement of household emergency management. Both areas focus their analysis on needing to have 72 hours of supplies in the house, in addition to a family emergency plan (Kohn et al., 2012; Levac et al., 2012), and the public sector adds the requirement of being informed about existing threats and the current situation (FEMA, 2012; Canada. Privy Council & Canada. Public Safety Canada, 2016). These differences are perhaps nuanced but present a discussion point for determining how to establish a preparedness baseline. The most common methodology to measure household emergency preparedness levels is to survey the number of recommended emergency supplies in a respondent's residence. In an evaluation of 71 different public sector emergency kit lists, Heagele (2016) found that only one item was common: water. Although many of the other suggested items, such as food, hygiene products, flashlight, and radio, were present on many lists, this finding clearly indicates there remains inconsistencies as to what should be included in an emergency kit. Regardless of the contents of a household, individuals need to be self-sufficient for at least 72 hours (Levac et al., 2012; R. W. Perry et al., 2001; Rodríguez et al., 2007). Establishing a common level of preparedness is helpful, as is understanding the factors associated with citizens deciding whether to adopt preparedness behaviors.

Factors Associated with Levels of Preparedness

The literature is full of research defining and explaining the demographic and socioeconomic factors that influence an individual's decision to adopt emergency preparedness behaviors (Kohn et al., 2012; Levac et al., 2012; Thomas et al., 2009). The scholarly work commonly identifies four principal factors that, to some extent, influence preparedness decisions: income, education, age, and homeownership (Bourque et al., 2013; Lindell & Perry, 2000; Rodríguez et al., 2007). Most of the research into the determinants of these behaviors has been through examinations of individual hazards, such as tornadoes, earthquakes, hurricanes, and manmade events (Donahue et al., 2014). In their review of 23 notable studies published between 1974 and 1998, Lindell and Perry (2000) note that factors such as marital status, whether children are in the home, neighborhood, and immigrant status influence the decision to prepare. However, there are some limitations in these studies, including sample bias and bivariate analysis, which

has led more recent researchers to question the validity of those findings (Donahue et al., 2014; Levac et al., 2012; Nukpezah & Soujaa, 2018).

Early literature examining the relationship between gender and emergency preparedness utilized either a simple correlation or bivariate analysis, homogeneously painting women as less prepared than men (Edwards, 1993; Turner et al., 1980). These studies did not consider other variables, such as income, marital status, education, or home ownership. When gender is considered and examined utilizing multivariate analysis, studies find that gender does not influence the decision to prepare, nor is it a proxy for economic status and education (Donahue et al., 2014; Nukpezah & Soujaa, 2018). Similar results have been found when examining the influence of race, culture, and/or ethnicity as a variable that influences behavioral change either in deciding or declining to prepare (Ablah et al., 2009; Bourque et al., 2013).

Positive correlations with levels of household emergency preparedness are found with education, home ownership, age, and income (Ablah et al., 2009; Donahue et al., 2014; Edwards, 1993). Experience with a disaster, either recently or within a reasonable period, increases preparedness behaviors across all hazards (Bourque et al., 2013; Miceli et al., 2008; Mileti, 1999). There are outlier studies that argue the factors that influence preparedness decisions remain contested, leading to the reasonable conclusion that the literature remains inconclusive on this topic (Levac et al., 2012; B. D. Phillips et al., 2016). Each factor mentioned can be exponentially more influential when an individual's circumstances are considered. To understand outsized influence of factors, it is helpful to discuss vulnerable and marginalized populations regarding risk and risk perception.

Vulnerable Populations, Risk, & Risk Perception

Not all citizens receive, understand, and act upon important messages from different levels of government in the same way. As in many other examinations within the social sciences, the DEM literature has much insightful and conclusive research on segments of the population with identifiable characteristics, either personal or socioeconomic, that make them more exposed to the effects of a disaster and make recovery more challenging than the average person (Rodríguez et al., 2007; Thomas et al., 2009; Uitto, 1998). Vulnerability is considered the antonym of resilience, which is discussed in the following section. Like resilience, vulnerability is measured as a dynamic variable, one that can be influenced and ameliorated by policy (Levac et al., 2012; Norris et al., 2008; Uitto, 1998). The majority of books and peer-reviewed articles refine the definition of vulnerability to social vulnerability, which identifies and focuses not on the physical vulnerability of living near a hazard (e.g., seacoast, on a fault line, next to a chemical plant), but also the underlying social factors that generate unequal exposure to risk (D. Coppola, 2011; Thomas et al., 2009).

The literature has examined socially vulnerable populations via two principal themes: those with a physical or mental handicap that limits their ability to understand emergency management messaging, or those with a socioeconomic limitation that influences their ability to take the recommended steps to increase their resilience (Nukpezah & Soujaa, 2018; Thomas et al., 2009). Those who are considered medically frail, both physically and mentally, have been found to not undertake the necessary steps to procure supplies or training (Heagele, 2016). The implication for policymakers is these individuals will require a disproportionate amount of

emergency services in the event of a disaster (Uitto, 1998). With the overarching goal of reducing vulnerability across population demographics, several researchers have investigated both the levels of preparedness within this segment of society and the contributing factors influencing an individual's decision to adopt preparedness behaviors (Nukpezah & Soujaa, 2018; Thomas et al., 2009). The literature is largely in agreement that the most notable factors that influence the medically frail to not be prepared are competition for resources (the choices between immediate medical necessities and other economic expenditures) and the time available once the challenges of a disability are addressed (DeBastiani et al., 2015; Thomas et al., 2009).

The correlation between socioeconomic vulnerabilities within a population and the level of preparedness show that households with a lower income and education have notably lower levels of preparedness (Ablah et al., 2009; Donahue et al., 2014). Factors such as gender and ethnicity/race have either been demonstrated to not correlate to levels of preparedness (Nukpezah & Soujaa, 2018), or remain inconclusive. However, government research and national census data indicate that those with medical challenges do, on average, have a lower income than the mean and have lower levels of social interaction, reducing their ability to mitigate their vulnerability in comparison with the population as a whole (Rodríguez et al., 2007; Thomas et al., 2009). Those within medically frail populations are at a higher risk during disasters due to their vulnerability, which is based upon their lack of access to both social and economic resources.

Risk is the relationship between the severity and probability of an occurrence, which is more narrowly defined in the DEM literature as the connection between the likelihood of a disaster event in a given geographic location and the potential social, economic, and materiel losses that may be incurred (T. Davies, 2015; Donahue et al., 2014; Levac et al., 2012). Multilateral international efforts to address climate change, and the resultant increase in both the frequency and severity of natural disasters, are found in multiple UN publications on DRR. Disaster risk reduction is defined as the body of research and global policy efforts designed to reduce national vulnerability to the effects of disasters (A. J. Davies & Davies, 2018). In 2005, the UN's initial conference on the subject, a collective response to the devastating Boxing Day earthquake and tsunami off Indonesia, which killed approximately 250,000 people, published the Hyogo Framework for DRR, mapping a 10-year plan to address the growing human, social, and economic costs of disasters. In 2015, a further meeting adopted the Sendai Framework, a 15-year plan for capitalizing on the world's focus on DRR. In 2018, ground-breaking research by Davies and Davies (2018) argued DRR should not be the focus of the DEM community; it should be disaster impact reduction (DIR). The authors argue it is not the disaster an individual must prepare for, but the impacts. Following the UN DRR focus on repetitive and forecastable events (e.g., hurricanes, floods, ice storms), the impacts from low-probability, high-impact events with no warning (e.g., earthquakes, tsunami) do not fit the UN focus; therefore, DIR should be the focus of emergency managers and citizens (A. J. Davies & Davies, 2018). The intent of these international agreements was to collectivize knowledge on DRR, to evaluate potential policy interventions, and to facilitate such efforts in developing nations that rarely have the economic resources to address preparedness measures and are geographically located in higher-risk areas of the globe (D. P. Coppola, 2011; A. J. Davies & Davies, 2018; B. D. Phillips et al., 2016).

Extensive research has been conducted into risk perception and the components of attitude (belief in risk probability, severity, perceived vulnerability, and anxiety) and coping capacity (response orientation and the decision to prepare) that influence an individual or household to prepare for disasters (Donahue et al., 2014; Levac et al., 2012; Samaddar et al., 2014). The examination of attitude in relation to disaster preparedness has focused on an individual's personal perception of their risk tolerance and their orientation toward future events (Donahue et al., 2014). The intent was to determine whether those prone to taking risks or not considering future events in current decisions would demonstrate a different level of emergency preparedness than those who did consider risk. Donahue et al. (2014) found a correlation between the level of preparedness and those who were risk adverse and considered future events in their normal planning behaviors. A similar evaluation of flood risk behavior (Samaddar et al., 2014) found no correlation between risk perception and preparedness behavior, which was reinforced by a systemic review of multiple hazards (Ejeta et al., 2015). Capacity to prepare, measured in the individual's belief in self-efficacy, is not correlated with preparedness decisions (Samadarr et al., 2014), with the decision to procure supplies and operationalize preventive measures being correlated with the economic and opportunity costs (Donahue et al., 2014; Rodríguez et al., 2007; Samaddar et al., 2014). The research has argued that an individual/household does not decide to prepare based upon their risk perception or self-confidence, but rather on the factors that underlie their individual situation and their levels of vulnerability or resilience.

Individual & Community Resilience and the Role of Community in Disaster Emergency Management

The term resilience has its origins in the natural sciences, specifically referencing a body or system's ability to absorb the impact of an exogenous shock and the time expected to return to at least its original state (Klein et al., 2003; R. W. Perry et al., 2001; Rodríguez et al., 2007). That definition has changed over the past 20 years, particularly within the DEM literature. There are three major aspects to the concept of individual resilience worth noting: self-efficacy, access to resources, and social involvement. Paton and Johnston (2001) argue that individual resilience is a composite model, founded on the individual's ability to process and comprehend an atypical event experience and their belief in their self-efficacy, which the authors define as an individual's confidence in their ability to act in the presence of hazard occurrences. Paton and Johnson (2001) emphasize this composite model requires a positive relationship with the social setting, normalized behaviors in the community, and connectedness to a social network. In 2008, Norris et al. presented a nuanced definition of resilience, arguing it is a process that links adaptive capacities, which are measured differently depending on the application level (individual, community, nation, etc.), but maintains the same linkage between resources and outcome. The authors' premise is that outcome is an adaptation to a disturbance, whose success can be measured as a function of access to resources that directly influenced the strength of the adaptation, and therefore could be measured as a resilience variable (Norris et al., 2008). There remains heterogeneity regarding the definition of resilience across multiple disciplines. However, sufficient agreement exists to support the assertion that resilience is a measurement of how a system (individual, household, community) reacts to the onset of a significant disturbance and the methods by which that system can adapt and return to at least

the original pre-event conditions (A. J. Davies & Davies, 2018; B. D. Phillips et al., 2016; Rodríguez et al., 2007).

Significant research exists examining resilience at the community level and the concept that social networks and access to social bonds extensively influence an individual's ability to perceive hazards and put preparedness behaviors into motion (D. P. Aldrich & Meyer, 2015; Murphy, 2007; Norris et al., 2008; Paton & Johnston, 2001).

The DEM literature considers a community to be either geographically defined, such as a neighborhood, or more conceptually defined as a group of socially linked individuals with strong network ties (D. P. Aldrich & Meyer, 2015; A. J. Davies & Davies, 2018). In 2008, Norris et al. argued that citizen participation was critical to community resilience in those neighborhoods with a quicker trajectory toward recovery post-event, in which citizens took an active role in planning both response and recovery. This view amplified the 2001 Paton and Johnston claim that a sense of belonging and attachment to people and places are positively correlated to an individual's preparedness behavior. Further research into intra-community collaboration on non-DEM-related issues found a higher degree of community resilience related to the capacity to respond positively to a significant disturbance (Brudney & Gazley, 2009; Paton & Johnston, 2001). Large-scale decisions and policies for national preparedness and response to disasters are necessary, but for the impacts to be effective at the local level, the community must already have adopted DIR (T. Davies, 2015; Murphy, 2007; B. D. Phillips et al., 2016). At the community level, probabilistic-based projections for hazards are unreliable, as the frequency of disaster events in each small jurisdiction over a reasonable timeframe is difficult to quantify (Davies, 2015). Communities are far more knowledgeable about their members' requirements and resources than even local municipal planners, leading to the conclusion that communities themselves must not only be involved in, but also be the focal point of building community resilience (D. Aldrich, 2011; D. P. Aldrich & Meyer, 2015; Norris et al., 2008).

Over the past 20 years, there has been considerable research into resilience by utilizing the community as a unit of measurement, not only as a social variable, but also as a functional participant in all pillars of DEM (D. P. Aldrich & Meyer, 2015; Brudney & Gazley, 2009; Schafer et al., 2008). Communities possess local knowledge and experience that governance oversight lacks at both the municipal level and in higher levels of government (King, 2000; Norris et al., 2008; R. W. Perry & Lindell, 2003).

Research has debunked long-held myths that citizens freeze, panic, or otherwise become helpless in the face of danger; they are the true first responders (D. Aldrich, 2011; Stallings & Quarantelli, 1985). Neighbors, friends, and family members are most responsible for rescuing victims from collapsed buildings after earthquakes (D. Aldrich, 2011), caring for the injured (R. W. Perry & Lindell, 2003), and communicating needs to authorities (Brudney & Gazley, 2009).

Researchers have been investigating the nature of the relationship between community organizations, local governance, and community resilience for decades. One theme that emerges from the literature is that of voluntary organizations, either formal faith-based groups or informal groups (e.g., clubs, faith-based, sports teams) that have played considerable and occasionally outsized roles (Brudney & Gazley, 2009; B. D. Phillips et al., 2016). In 2008, Schafer et al. argued that since the knowledge and resources for true first responders existed in communities, those communities – specifically embedded organizations – should be part of the emergency management planning process. The authors argue for a collaborative process, not

one that negates the necessity for government-style command and control in times of disaster, but inclusive coordination to determine the needs of the community (Dynes, 2006; R. W. Perry & Lindell, 2003). The authors further note that top-down governance is likely to not only misunderstand, but also miss entirely the strengths of community and potentially undermine the efforts of local citizens to respond (Schafer et al., 2008). Brudney and Gazley (2009) found that when community organizations were included in the planning process and supported by funding, the overall emergency preparedness level in the county increased, reducing vulnerability and the immediate requests for assistance in the event of a disaster. Environmental organizations engage with local and national governance in discussions related to climate change and how best to protect local at-risk locations from environmental degradation (Reams & Irving, 2019). Researchers have used this proven association between environmental organizations and national governance as a benchmark to evaluate potential models for community organizations to participate in DEM governance (A. J. Davies & Davies, 2018; Dynes, 2006). The literature demonstrates a strong correlation between levels of community resilience and the involvement of community organizations, scientific professionals, and municipal authorities in discussions concerning the most appropriate measures in a community (Henstra, 2010; Reams & Irving, 2019). The key element is the inclusion of community organizations, as the research demonstrates that trust in government is a key indicator of how well the government's message is received and adopted. For that trust to be established and maintained, the parties in a relationship must communicate; therefore, a review of the emergency management-related communication follows.

Communications

The field of communications is vast and deep, covering the most basic human interactions to the most complex international negotiations. To provide an academic literature frame for this research, a few key elements were selected for inclusion. These elements do not cover the full extent to which communications theory is involved in emergency management but are the most applicable. Specifically, the value of trust and credibility, the fiduciary duty of public agencies, and crisis communications within the context of a pandemic are key to understanding the role of messaging and its acceptance. An understanding of the literature is necessary to evaluate the existing state of communications and to provide recommendations to enhance emergency preparedness messaging.

Message Formulation & Foundational Theory

In emergency management, as with other public agencies and corporate entities, reputation is essential for message acceptance. Emergency management agencies employ a variant of situational crisis communication theory (Coombs & Holladay, 2002; Meyer-Emerick, 2015) to support their organization's communication message. The Red Cross, as a prolific dispenser of preparedness information in DEM, have long understood the value of managing crisis communications because they regularly deal with events from the local to the global scale (Sisco et al., 2010). The Red Cross is effective across global crises because it is trusted and maintains impartiality through strong commitment to its founding principles.

Communications as a discipline contains multiple theories and structures for the effective passage of information and the multitude of elements involved in developing, delivering, and

evaluating communications. This review is limited to the extent to which trust in communications influences acceptance – a narrow but important focus. Milleti's work on communication referred to trust as source credibility (Blanchard-Boehm, 1998), a measurement of the level of trust attributed to the author or conveyor of information. This does not exclude the importance of other elements, such as content and style, channel aspects, and frequency attributes. Nilsen (2012) argues that when examining the experiences of people who are homeless, disaster preparedness for the vulnerable is lacking. Specifically, the dissertation examined the relationship between community service groups and the community they serve, as well as the messages, trust, and external supports from government agencies (Nilsen, 2012). Similar to the findings in the household preparedness literature, research into public policy implementation and trust (Wilson, 2016) supports the idea that communication within and across community group strengthens trust in both the organizations and the message, and the fostering of healthy relationships (Dynes, 2006; Levac et al., 2012). There is a wide body of literature on trust in communication, supporting the assertion that establishing trust in a relationship in advance of an emergency or disruption greatly increases the probability the message will succeed (D. P. Aldrich, 2012; Longstaff & Yang, 2008; Meyer-Emerick, 2015). When considering what to send in a message, emergency management agencies must adapt to the medium; certain social media platforms allow for more descriptive information, whereas others are designed for rapid and concise communications (Martini, 2014; Murphy, 2007). Formulating a key public information message must consider where the population is, essentially ensuring the message is transmitted to reach the broadest population possible, while considering that segmentation may be required based upon the recipient's ability to understand and respond. There is much research into digital government and the adoption of online messaging, both as a standalone capability and as a complementary option to existing mediums (Clarke, 2019). Governments learn at a much slower pace, and their adoption rates are significantly lower than for corporations, not-for-profits, and citizen/community organizations (Wigand, 2010). This difference may become a gap between the use of social and online media by the population and the extent of use, including frequency, adopted by all levels of government, placing an additional barrier to reaching recipients, especially in times of disruption or disaster. It is important, then, to understand the policy implications of communicating the message, as well as the efforts and rationale behind the message.

Public Policy – Communicating the Message

Governments have a responsibility to keep the public safe from harm and communicate information necessary for people to make decisions that contribute to their safety and that of their communities. Governments at all levels have attempted to convince, persuade, or order citizens to take precautionary measures in the event of a disaster or in an emergency (J. A. Perry, 2018; B. D. Phillips et al., 2016; J. Phillips, 2009). Between the invention of the transistor and the advent of the internet, radio was the only medium that provided time sensitive updates and the provision of immediate emergency management information to the public (R. W. Perry et al., 2001; Thomas et al., 2009). Regular updates through newspapers, brochures, and the advent of Emergency Preparedness Week all assisted the municipal governments in Canada communicating messages to the public.

The advent of the internet changed everything. Governments in Canada have an online emergency management presence, and at the local level, municipalities have links to their emergency plans and some form of organizational structure for crisis management (Henstra, 2010; Pancer et al., 2019). However, there are distinct gaps in both the quality and quantity of information available (Kim et al., 2015; Plance, 2018). The coordinated use of social media is often haphazard across similar regions, with adjacent cities and counties offering dissimilar digital engagement (Martini, 2014). A message about the probability and severity of an event does not influence action; without corresponding information regarding what actions to take and the location of resources, information about an event is inconsequential (D. P. Aldrich, 2012; Bourque et al., 2013).

The goal of a municipality's emergency management system is to respond to and recover from a significant disruption in normal life. Critical infrastructure and the protection of life remain the two most important responsibilities of the system (Haddow et al., 2011). To reduce the demand for emergency services at the onset of an event, municipalities strive to build resilience within their populations, deploying scarce resources to where they are needed most and will have the greatest impact, which is known as critical infrastructure (Rodríguez et al., 2007). To meet the resilience goal, municipalities communicate information related to developing skills, having supplies, local neighborhood centers, contact numbers, and an assortment of other valuable advice. This advice is intended to ensure that citizens are well prepared to manage the initial period after a crisis and are aware of where to find accurate and timely emergency information from municipal officials. Municipalities, as well as other levels of government, are keen to include information for private industry as well, to facilitate their resiliency and aid in the recovery phases post-event (Committee on Private-Public Sector Collaboration to Enhance Community Disaster Resilience et al., 2011). The message drives success: the content should prompt citizens and industry to become more resilient, and thus less of an immediate burden to emergency services. Within the subfield, there is a great interest in crisis communications (the timely and influential messaging after the hazard), where tragedy has struck, and the time of need.

Crisis Communications

Most recent research into the use of social media in emergency management has been in the field of crisis communications. There have been many studies on the use of crowdsourcing, peer-to-peer assistance, and volunteer group participation (D. P. Aldrich & Meyer, 2015; Harrison & Johnson, 2019). U.S. federal agencies and the Government of Canada have been making considerable infrastructure investments to facilitate crisis communications. In Canada, the "Alert Ready" system of mandatory SMS messages has been utilized for everything from Amber Alerts for missing children to tornado warnings. However, there has been limited scholarly examination of pre-event preparedness messaging, leaving a noticeable research gap (Paton & Johnston, 2001; Rodríguez et al., 2007). Limited articles are available on public agencies utilizing social media to communicate emergency preparedness information in advance of an event (Martini, 2014; Mintz & Woolridge, 2008). Some lighthearted but exceptionally well-crafted communications from US federal agencies, including preparations for a zombie apocalypse, have been utilized to prompt citizens to prepare (Fraustino & Ma, 2015). Without academic investigations and data analysis, determining the variables responsible for

successful communications within pre-event emergency management is not possible. To understand how this messaging interacts with the community, it is necessary to understand the constituent parts of a community and their linkages.

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