

BY JASON F. MCLENNAN



DEEP COMMUNITY RESILIENCE

Preparing for the coming age,
place-by-place

The hurricane and flooding in New Orleans. The F5 tornado in Joplin, Missouri. The magnitude 6.2 earthquake in Christchurch, New Zealand and the devastating earthquake in Haiti. The BP oil spill in the Gulf of Mexico. The earthquake, tsunami and subsequent nuclear crisis in Northern Japan.

Disasters happen and people respond, on both individual and societal levels. In recent years, increasing attention has been paid to the notion of community resilience as the size and number of community disasters has increased globally. We seem increasingly resigned to adapting to disasters rather than avoiding them as their inevitability becomes apparent. The good news is that the dialogue is finally becoming more sophisticated, with a focus on how to prepare in advance for the next crisis and how well our systems might withstand what's to come rather than simply planning to respond after the fact. The word 'resilience' is an important word in the context of community planning, yet to truly become more resilient we must take a step back and examine the very fabric of our communities, identifying our vulnerabilities both culturally and physically and replacing them with more robust and elegant solutions.



Natural disasters can completely devastate a community as in this photo of Joplin, Missouri.

UNDERSTANDING OUR FRAGILITY

Several realities make our societies inherently less resilient than in the past. Overpopulation literally places more people in harm's way, particularly in earthquake and flood zones where much of current population growth occurs. With another billion people likely to be added within the next two decades this will become even more of an issue. Increasingly dangerous technologies (nuclear energy and deep-water drilling come to mind) raise the stakes when problems occur. In our insane quest for cheap energy we are greatly increasing the potential for human based natural disasters with riskier technologies and resource extraction.

The ways in which we have planned and built our cities (especially in North America) also spreads people out over greater distances, creating geographic and cultural separations as well as highly inefficient, expensive centralized transportation, water and waste systems that make potential disruptions harder to fix and put whole communities at risk. Culturally we have become complacent about governments, corporations and technologies stepping in and taking care of us in tough times. As a result we find ourselves

more vulnerable – and sometimes helpless in the face of challenges when they do arise.

The topic of resilience comes up frequently in discussions and debates surrounding climate change, amongst the people that focus on these issues, but is ignored mostly by the public at large. Most experts agree that the rate of natural disasters will continue to rise as the climate continues to change. Yet suddenly it has become politically dangerous to even discuss climate change and the many threats we face to our well being in the public sphere. Emotional partisanship has replaced scientific rationality for most Americans. For communities that need to think about resilience – and I think every community in the world should be having vigorous civil discourse on this subject, very little is being done.

Government, corporate and environmental leaders that are up to speed on these issues all agree that the costs to respond to these catastrophes over and over are simply too high and economically untenable. We can not keep insuring the status quo and rebuilding communities that are ill-prepared for the next disaster down the road. The question remains: how can we

make all of our communities more resilient to inevitable disasters, whether they are natural or man-made?

Clearly, the overall topic of resilience is massive. For the purposes of this article, I have chosen to focus on those aspects of community resilience that I believe we are still capable of achieving – provided we are courageous enough to make some serious changes.

NEW REALITIES CLASH WITH OLD HABITS

Many climate experts now believe that we have already lost the battle against climate change; that it is already too late to reduce emissions in time to avoid significant catastrophic environmental loss around the world. The debate is turning to how we will adapt and thrive in a vastly altered world. Some anticipate the inevitable collapse of civilization as we know it, where warming temperatures and rising seas will flood coastal areas and result in human tragedy on a hitherto unheard of scale.

Meanwhile, politicians offer their rhetoric (if anything at all) without offering real solutions. And challenging economic times make minor hardships feel considerably more dire. Even a modest spike in oil prices sends a shock wave throughout the already tense economy, reminding us how dependent we are on fossil fuels. We find it difficult enough to endure price hikes in boom times; when money is tight, the

effects are much farther reaching. In lean economic times, there is a general shift in the balance of optimism and pessimism. People feel less secure and more afraid because there is less to fall back on, both in our personal accounts and in the public coffers. So if disaster were to strike, we feel less confident in society's ability to support us if we need help.

The typical scenario following a large-scale crisis in the first or developed world goes something like this: a critical event occurs, experts from elsewhere swarm in to rescue the victims, money comes from outside sources (such as FEMA, non-profit NGOs, religious groups, insurance companies, etc.), and the affected community attempts to rebuild itself much like it was before.

However this pattern makes no sense. When we rebuild exactly what was destroyed, we simply return ourselves to the vulnerability of where we started. Yes, it is what we know, but recreating the past circumstances only places us squarely in the path of future disasters. Will New Orleans ever encounter another hurricane? Will Southwest Missouri endure another tornado? Will Northern Japan continue to be affected by shifts in the earth's crust? Of course. So why would these communities return to business as usual in the wake of devastation? Why wouldn't they re-think the way they re-build so that they can be more resilient the next time around?

Western society has become increasingly vulnerable to any disruption.





The age of 'extreme energy' puts more people and the ecosystems that support us at risk.

Third world disasters of any nature typically result in massive human suffering, disease and death – and rarely a return to conditions prior to the event. Things just keep getting tougher for those most disadvantaged around the world. When a disaster is large enough to capture the international stage and media attention, money flows in for a period of time when the story is 'hot', but then quickly recedes to a trickle within a short period of time.

RETHINKING CONCEPTS OF POWER AND STRENGTH

I live just across the water from downtown Seattle on Bainbridge Island, a small community where an abundance of trees and a blustery climate combine for relatively frequent power outages. When the lights and heat go out, we patiently wait for outsiders to fix the problem on our behalf. The local power company quickly obliges, but residents have no control over how long we wait before our energy, water and heat is restored. Those of us without generators (which have their own limits) wait in our homes, relying on the candles and blankets we have on hand, until the bulbs miraculously flicker back on. We are not fond of, nor are accustomed to being in dark, unheated houses, but we adapt because we know it is only temporary.

We're lucky on Bainbridge Island; we rarely deal with disruptions that last longer than 24 hours and almost never more than a couple days at worst. Such

short disruptions almost become enjoyable, romantic breaks from TV, video games and the constant hum of modern life. But every time it does happen, at the back of our minds looms the question – what if it doesn't come back on?

And what if true disaster hits, rendering our centralized systems irreparable and the public emergency response teams unmanned? What would we do if nobody were available to help for extended periods – or at all? Would our community have the capacity to help itself? Have we lost our resilience as a people? Deep down I think we all know the answer. We are perhaps the most individually and culturally helpless society in the world if the complex systems we've built to support us go down due to some sort of disaster.

In comparison, I often think of the resilience of Amish communities. There, neighbors build structures together, whether they are intended for private or communal use. People learn how to fix the tools they use. They grow their own food. They work in trades that will sustain their families for generations. There is no centralized infrastructure to which all systems are tied – and this is a key understanding that needs to be underscored. The Amish are nothing if not resilient.

Let's define this clearly as it has huge importance. The following page outlines categories of resilience.

Resilience - Infrastructure and Cultural Fabric

Resilient Societies have a centralized cultural fabric and a decentralized physical infrastructure. Vulnerable societies have a decentralized cultural fabric and centralized infrastructure that supports it.



Centralized Cultural Fabric

a culture where everyone has a practical role in supporting the community, an understanding of that role and a shared knowledge of how to handle nearly any situation.

In the event of a crisis, this culture dictates that all citizens act as one. What is good for the community is good for the individual. They have no need to wait on FEMA to provide them with food and shelter, as they are their own disaster response team.



Decentralized Infrastructure

a network of small-scale systems and technologies (mostly passive and easily and cheaply fixed), with built in redundancies across a community, which allows for significant resilience in the face of disaster.



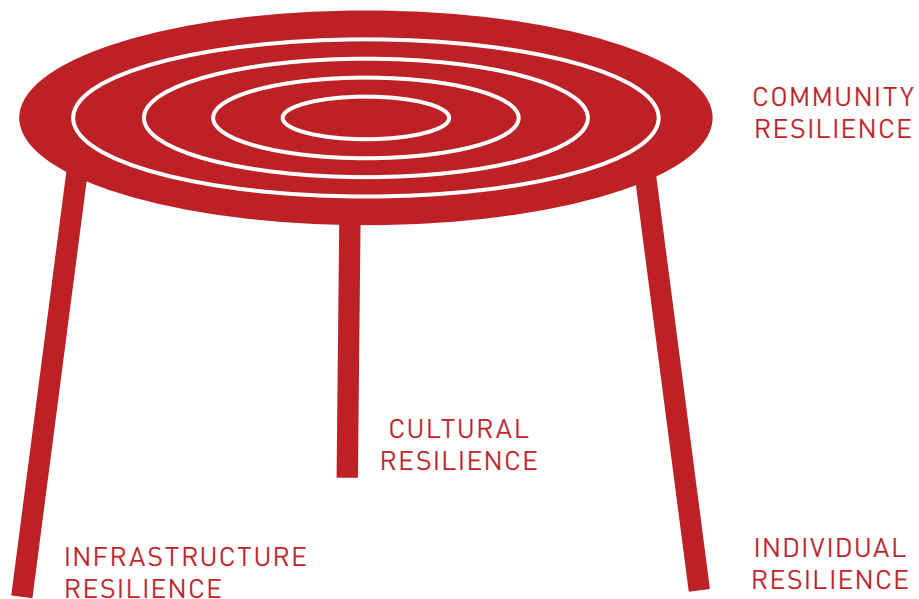
Decentralized Cultural Fabric

a highly loose cultural fabric where people do not know each other nor have strong bonds between families or neighborhoods and a weak tradition of working together to solve problems. This fabric is filled with individuals who do not know how to adapt well to change, have few useful skills and require outside systems to provide them with the basics of food, water, heat, energy and shelter.



Centralized Infrastructure

a large-scale system that provides services to a great many people over great distances, typically expensive to build and maintain and usually fixable only with inputs from far flung places.



In my book, *Zugunruhe*, I refer to the growing agitation I see across all pockets of our society as we unconsciously become aware of our vulnerability. People are feeling restless, knowing on some level that something fundamental has to change in our civilization if we are to correct our course toward a way of living that has a chance for long-term prosperity. I believe this unconscious awareness is the first stage for people pursuing individual resilience. More houses are going off the grid, more workers are telecommuting, more people are growing their own food and supporting local agriculture. (For more on the urban farming movement, see my article on “The Urban Agriculture Revolution: Bringing Food into Living Cities” in the Winter 2010 issue of *Trim Tab*.)

This awareness can not spread quickly enough. We need to resist alarmism while keeping in mind the large-scale consequences of our vulnerability. The longer we take to develop resilience as individuals and communities, the farther-reaching the potentially adverse effects. True, deep, sustainable, community resilience should immediately become a central part of the planning paradigm for cities and towns

across every country. I am not just referring to disaster preparedness - I mean fundamental resilience that begins with the individual and reaches across the community and finally to the community's infrastructure of support.

THE KEY INGREDIENTS OF A RESILIENT COMMUNITY

A truly resilient community is based on three distinct elements: a resilient infrastructure, a resilient culture and resilient individuals. Let's explore the workings of each of these elements in order to understand their contributions to the whole.

Infrastructure Resilience.

In order for a community to function without all-out failure in the face of disaster, it must have the physical infrastructure to support its citizens in good times and bad. Cities should be appropriately dense and walkable so citizens do not need to rely on cars to get essentials they need and to reach others they need to find. The walking/biking scale should define the planning module of our communities – distances should be measured in hundreds of feet not dozens of miles.

Property should be developed on a relatable scale so that there is a proper human-based relationship between people and the buildings where they live and work and less reliance on elevators and systems that require energy to work¹.

Water and waste systems should almost always be gravity fed, and neighborhood scaled – with plenty of redundancy and onsite water storage². Energy systems too should be decentralized, renewable and as simple as possible. The Living Building Challenge provides an overarching vision for truly resilient communities. For more on the Challenge, please visit the International Living Future Institute at www.livingbuildingchallenge.org.

If every element of the built environment following the principles of the Living Building Challenge, the effects of catastrophe would play out on a dramatically smaller scale. Following a storm or earthquake, fewer people would be without power or water because systems would be site-specific and less vulnerable to widespread damage. Repairs can happen more quickly when systems are simple and can be worked on by a few people without special tools. Affected citizens would not require strangers to swoop in from elsewhere to restore the systems that support their way of life; they would have the ability to address their own property- or neighborhood-specific issues. Connections between infrastructure and users would be tighter and more localized, making citizens and communities inherently more resilient. It would be much more difficult for a disaster of any type to shut down a community that relies on a well-planned decentralized infrastructure.

Cultural Resilience.

I referred earlier to the independence of Amish communities; a wonderful example of a resilient culture. The Amish know their neighbors, they care for the weak and elderly, they build and fix what they use,

¹ I've written extensively in previous issues of *Trim Tab* about many topics that support this larger idea. See "The Tyranny of the Big and the Beauty of the Small: How Scale Determines Sustainability in the Fall 2010 issue, "Our Children's Cities: The Logic and Beauty of a Child-Centered Civilization" in the Summer 2011 issue, and "Density and Sustainability: A Radical Perspective" in the Spring 2009 issue.

² See Flushing Outdated Thinking article in the Fall 2009 issue of *Trim Tab*.

TO BECOME MORE
RESILIENT WITHIN OUR
COMMUNITIES, WE
MUST RECOMMIT TO THE
IDEA OF COMMUNITY.



Rebuilding a community is an act of community bond making.

they grow what they eat. By no means am I trying to paint theirs as a perfect community, but certainly they know how to take care of themselves and one another. There is a strong cultural expectation of shared conditions and solutions. This is true of most traditional communities around the world and certainly was true of all cultures prior to the rise of empires and the focus on specialization.

Unfortunately, the Amish or other traditional ways of life are considered by most North Americans to be peculiar – even abnormal, and always ‘backwards’. Instead, the majority of our communities become less resilient and less connected to place and community over time. As we’ve become more reliant on large-scale systems and technologies to take care of us, our new cultural ‘normal’ is further isolating us; we are becoming dangerously disconnected and hopelessly vulnerable in the coming years. Which is not to say that technology has to disconnect us – its potential to connect us in incredibly powerful ways is just now being demonstrated with social movements such as Occupy and the Arab spring, but even the best technology can’t replace knowing and caring for your neighbor in the flesh.



Personal resilience is key to community resilience.

HEDGE FUND MANAGERS BRING MUCH LESS VALUE THAN A PLUMBER OR A CARPENTER IN A TURBULENT WORLD.

To become more resilient within our communities, we must recommit to the idea of community.

We need to interact with our neighbors, check in on those who need extra help, rediscover how to work with tools, and collaborate with one another to get our collective work done.

Each of us should be surrounded not by strangers, but by a tight circle of people who are aware of our patterns and available to lend a hand when in need and obviously our cities need to be designed to facilitate such interactions naturally and effectively.

Attaining cultural resilience requires softening our sometimes fierce commitment to individualism (or at least recast the definition of what it means), which does not serve us as well in the face of hard times. This begs the question: is the Facebook generation capable of caring as deeply for others as it cares for itself? Can we translate greater virtual connections to stronger literal connections?

Individual Resilience.

Attaining individual resilience will take more than looking beyond existential soul searching and gazing at our computer screens or doing yoga. It will require a complete shift in the mindset of what makes us valuable members of our communities and our role and responsibility to ourselves and to others around us.

We have established such a habit of outsourcing everything, that few of us possess even the most basic survival skills. We have divided labor and mechanized systems to a point where most of us know how



Resilience depends on knowing core skills that can sustain us locally... and bring us together as a community.

to do very little that is practical or useful in trying times. When something breaks, we tend to hire a repairperson or, worse, purchase a replacement and simply discard something that was fixable. Interestingly, the most resilient citizens during disasters are typically not the highest paid ‘expert’ members of a community- but are the blue collar individuals that spend their days getting things done with their hands. In the coming world what we value and celebrate may and should change. Hedge fund managers bring much less value than a plumber or a carpenter in a turbulent world.

I don’t mean to suggest that every member of every community must be an expert in every subject. But I do believe that we’ve de-valued those skills that are useful in hard times and that everyone should have something to contribute when called upon. We also need an informed and up-to-date ‘reliance network’ in each community that maps the skills and talents of people that are around us – a skills inventory that can be called upon. Social media and smart phones are perfect for organizing this democratically and organi-

cally – with communities being able to actively monitor what knowledge is missing and what is available. Perhaps this is a ‘killer app that can save lives. Having this knowledge as well as a community triage plan for people tied to their skills can make a huge difference in times of need. There is a direct connection between knowledge and preparedness. When we know what to do, we tend to remain calm. Just imagine how effectively entire communities could respond to a calamity if they didn’t require outside assistance to get them back on their feet. Individual resilience requires a healthy balance of skills, knowledge and resourcefulness.

TAKING THE STEPS TO GET WHERE WE NEED TO GO

Returning our cities, towns and citizens to a place of resilience will take a great deal of effort and foresight that is not currently in our political DNA. Yet I believe the following six actions could get us well on our way:

1. Measure each community’s carrying capacity.

We need to know what we are capable of achieving on our own so that we’re prepared for the coming para-

dig shift. Conducting carrying capacity analysis for a community means identifying what local resources exist, what level of population those resources can support, and how the regional climate enhances or restricts the resilience of the place.

Phoenix, for example, does not offer sufficient local water to accommodate its current population of nearly 1.5 million people. So it pipes water from the Salt Verde and Colorado Rivers to meet municipal needs. In a crisis that cuts off that supply, what contingency plan is in place to provide water to those citizens? More profoundly, should that many people really live in a place ill-equipped to provide the most basic element of survival?

In the modern age, we tend not to develop cities around whether or not local resources are available to support a community. We've discarded the wisdom of nomadic tribes, which settled in areas that offered survivability then moved on before resources could be depleted. In the 21st century, we face the inevitable disappearance of several key resources on which our modern societies depend. It's time to explore and measure just how vulnerable we are, wherever we are, so we might begin a healthy transition to self-sufficiency.

2. Create models of resilient infrastructure.

Living buildings, living neighborhoods and living cities are the answer. The more we shift to this paradigm, the less reliant we will be on outside systems. If the structures where we live and work generated their own power, provided their own water, composted their own waste and gave back to their surroundings, operational disruptions would be less catastrophic. Decentralized solutions that operate at the scale of a district or neighborhood – and sometimes at a building scale, provide much greater resiliency than large centralized systems. Every time a new living building takes shape, we show that this approach is possible, affordable and simply more sensible.

3. Learn from the wisdom of others.

Expanding our skills and deepening our self-sufficiency will require that we collect and learn from the wisdom of others. There are plenty of our contemporaries with whom we can trade knowledge; there are even more

who came before us whose expertise is documented. We can learn new things by watching our neighbors, or we can educate ourselves by researching what's been done in the past. This relates to the easy transmission of ideas.³ Technology enables the quick and ecologically friendly transmission of documents, which allows people to share ideas from across the globe. Developing community based knowledge maps is a great first step. Sharing information with other communities will help us create resilient nations throughout the world.

4. Use the power of education.

Community resilience should be discussed at length in the classroom setting. Exposing children to the importance of these ideas will help prepare them to lead future generations into a new era of self-sufficiency. Practical skills should be taught in schools, as should the philosophy of community connectedness. I like to think of this as a modern take on the home economics courses once considered standard for high school students. Once youth culture enthusiastically adopts these ideas, we're well on our way to engaging in productive resilience discussions.

5. Build strategic reserves.

Each community should assess its distinct needs and build strategic reserves to be used in the event of an emergency. We have set aside federal oil reserves, but shouldn't we provide the same type of back-ups at the state and local levels? This would require an analysis of individual communities' food supplies, water and energy systems, communications channels, shelter availability, etc. Going through this process would force us to evaluate exactly what our usage rates are and think through how we might respond to various emergency scenarios. The goal here is to build up each community so that it can sustain itself in the face of isolation.

6. Scale systems appropriately.

In my opinion, any system that is deemed "too big to fail" is a disaster waiting to happen. Communities require a diversity of systems that are built to site and

³ See "A Revolutionary Reordering of Society: Anticipating Our Heavy-Near, Light-Far Future" in the Fall 2011 issue of *Trim Tab*.



Living Cities are by definition Resilient Cities

neighborhood scales. The simpler they are, the more fixable they will be within the community boundary if problems do arise. Think passive; think low-tech. This rule should apply to systems designed to deliver energy, water, food, culture – virtually anything required to keep a community strong and safe.

REPLACING PANIC WITH OPTIMISM

I want to be very clear: I am not talking about the type of emergency management that starts and stops with a generator hooked up in one's garage. I am making an argument for true, deep, sustainable community resilience that can strengthen local economies and improve people's quality of life. I am promoting connection-building more than fear-mongering. I am attempting to elevate our discussions of disasters to focus more on avoidance than on response. I am recommending proactivity, not reactivity.

We will know we've been successful in our quest for resilience when there is less of a distinction between normal and emergency procedures. Our present-day cities are no sturdier than a house of cards if a critical

input or two is removed. Once they transform into resilient communities with healthy ecosystems and skilled, responsible residents, they will continue to function well even when systems go down. Disruptions will be inconvenient, but not necessarily catastrophic.

One thing that is certain is that significant change to our modern way of life is rapidly approaching. Not acknowledging the vulnerability of our current model leads us down dangerous and delusional paths. Working within a more realistic paradigm that values resilience will allow us to build new, more stable and sustainable communities that will be better prepared to thrive in the face of whatever man or nature throws our way.



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