

## How can emergency managers address our warming climate? Relying on the basics—An essay

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### ABSTRACT

Global warming is changing our world dramatically and generating new risks. We, as emergency managers, need to accept the science and begin applying our unique set of tools to the problem—the same risk reduction approaches that we apply to earthquakes, floods, and terrorism. We have the capabilities to reduce risk, maybe not by addressing the change agency, but by focusing on identifying and reducing the adverse impacts. And, funding may be available.

Recently, I was addressing a group of emergency managers and offering my opinions concerning natural events that would be the most disruptive to Northwest communities. I mentioned the usual—earthquakes, flooding, winter storms . . . and I included climate change. Before the end of my climate change introductory sentence, I was hit with a barrage of comments—this is not a concern of our community. Where is the consensus? We do not have the tools to address this issue.

I was surprised by the strength of the reaction. After several month of wrestling with this issue, I have come to the conclusion that we, as emergency managers, not only have the tools in our arsenal, but that we are just the group to lead the charge.

Global warming is changing our world dramatically and generating new risks. We, as emergency managers, need to accept the science and begin applying our unique set of tools to the problem—the same risk reduction approaches that we apply to earthquakes, floods, and terrorism.

If we accept the hazard, we can determine the risk, mitigate where possible and prepare, respond and recover where we cannot yet mitigate, and lastly hold exercises to clarify the impacts and propose risk reduction measures. These tried and true capabilities are as relevant to climate change as to other risks we address day-to-day. There may even be funding available.

### HAZARD IDENTIFICATION

First of all, we must accept the science that the world is warming and this will present a big change, especially for the younger among us. Not accepting climate change as a primary hazard and all of the accompanying secondary hazards will not make it go away. There is a consensus among science associations that the climate is changing and that we are responsible, and that major organizations including the Pentagon, British Petroleum, and major property and causality insurance companies are developing mitigation strategies.

And, when you think about it, it makes perfect sense. Over the past half century, we have been putting heat trapping carbon molecules into our atmosphere with an accumulation over millions and millions of years. These molecules are trapping heat, trapping energy. And, with all of that new energy added to the atmosphere, it does not take a rocket scientist to see a near future with an increase in the number and strength of high energy events—hurricanes, tornadoes, floods.

Think back to high school physics and the “First law of thermodynamics.” Energy creates work—storms

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can be thought of as work. And, what this first law does not address and what is especially worrisome are thresholds. At certain points, ice melts, enzymes are not produced and living things die, sea level rise to a where a port is flooded, and ocean currents change.

If you do not believe that our world is warming and that there will not be severe impacts to this change, do not read on, place this article on the shelf and revisit the topic next year. Our University of Washington Climate Impacts Group forecast models are proving very conservative, and they are continually being revised to reflect more rapid rates of change.

#### RISK ANALYSIS

What is the risk? To determine risk we will need a definition that will work for climate change and there are definitions. Let us use the one at the root of our emergency management profession. One that was developed during World War I (WWI) and that I used in the 1970s while working with the Federal Disaster Assistance Administration, in a program we called the "Hazard Identification Capability Assessment/Multi-Year Development Plan" or HICAMYDP (which we pronounced "Hic-a-ma-dip").

Here, risk is a function of the hazard (the science of change), vulnerability (impact, consequence), and capabilities (available tools and approaches).

Beginning with the hazard, we need to address global warming for what it is, a unique hazard and not within the context of other hazards and certainly not as a secondary hazard to flooding, coastal hazards, and landslides. In Alaska, the State Department of Homeland Security references "Permafrost Hazards." This euphemism is counter productive and not only masks the problem but clouds the search for risk reduction measures. It points your risk analysis in the wrong direction.

Looking at global warming within the context of flooding, for instance, will mask such secondary hazards as drought. In the Northwest, the Cascade Mountains are not very high and global warming is melting the few remaining glaciers, reducing snow fall and snow accumulation. These impacts are increasing winter discharges and reducing summer flows. With

our well-drained soils, the lack of summer moisture may be our most significant consequence of climate change.

We can reduce risk by addressing the hazard of climate change, and as emergency managers we need to support the reduction of greenhouse gases, and in the case of the Northwest support conservation measures that keep water in the watershed longer such as forests, wet gardens, wetlands. However, as emergency managers, we are not scientists or engineers and our experience lies more in reducing vulnerabilities than in altering the characteristics of the hazard. We have extensive experience in reducing the consequences of hazards. We have bought flood prone homes, reduced the number of unreinforced masonry structures, and isolated hazardous wastes. We as emergency managers can similarly help our communities live with this new change.

#### THE FOUR PHASES OF EMERGENCY MANAGEMENT

Mitigate and where you cannot mitigate prepare, respond, and recover.

There are four phases of emergency management and there are risk reduction opportunities in each.

On December 26, 2004, the most damaging recorded tsunami decimated the coastlines of many Indian Ocean countries. Thousands of structures were destroyed. We are emergency managers and as emergency managers we saw this disaster through our unique lenses and recognized opportunities to mitigate and rebuild on higher ground not only to address future tsunamis but also to address a secondary hazard of global warming—sea level rise.

#### EXERCISES

We have the capabilities to reduce risk, maybe not by addressing the change agency, but by focusing on identifying and reducing the adverse impacts. Since we became a profession, we have relied on exercises to develop and test approaches and to raise difficult questions. To begin your risk reduction process, consider inviting your local university to develop a climate change scenario for your community. Invite community stakeholders and run a table top exercise. The objective of the exercise might be for stakeholders

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to identify adverse impacts and mitigation measures. Depending on our exercise objectives, we usually phase exercises around the event, such as the day before the event (testing preparedness), the day of the event (testing response objectives), and after the event (recovery).

However, with global warming the event has begun so you might phase the exercise in 15-year increments and have your university scientists phase their scenario accordingly. You might post the after-action report on a community sponsored web site, and solicit comments.

To conclude, climate change does not need to be a political football. The evidence is all-around us and we have the capabilities, expertise, and experience to reduce this risk.

And, funding may be available. A good argument could be made to use federal emergency management

agency (FEMA) predisaster mitigation funds or even DHS Urban Areas Security Initiative grants to fund climate change driven exercises. And if you do not see a connection between national security and climate change read National Security at the Threat of Climate Change ( [securityandclimate.cna.org](http://securityandclimate.cna.org) ). Also, Hazard Mitigation Plans should be updated to reflect the unique effects associated with our changing climate and Pre-disaster Mitigation grants may be available. King County Washington has produced an excellent guidance document for communities. (<http://www.cses.washington.edu/db/pdf/snoveretalgb574.pdf>)

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