The Effect of Climate Change on Disaster Preparedness

A Discussion Paper for Community Resilience *June 2015*

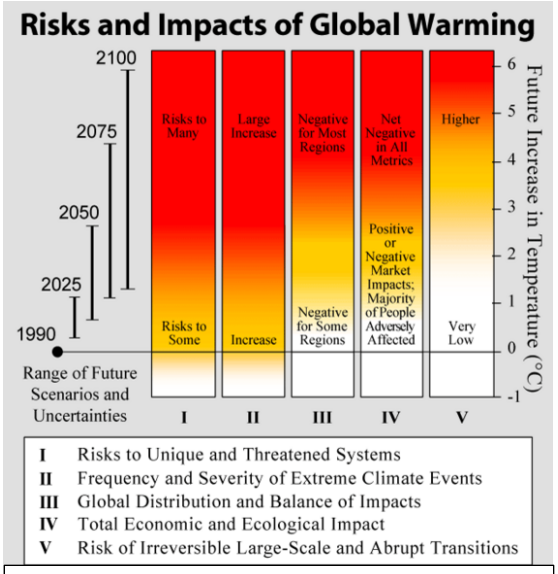
Brief: The socio-economic impacts of climate change continue to grow incrementally with each incident. Higher temperatures, changing landscapes, rising seas, increased risk of drought, fire and flood, stronger storms with greater storm damage, increased heat related illness and disease and higher economic losses are all directly related to climate change. Disaster preparedness will not prevent the effects of climate change, but can drastically reduce the impacts upon people and community.

Planning for Climate Change:

Climate change's effects can include intensified wildfires, higher sea levels, extreme rainfall, windstorms, diseases spreading to new areas, heat waves and more. The all-hazards emergency management community plans for just that — all types of emergencies, whether manmade or natural. Changing climate and weather patterns automatically lend themselves to increased planning and new mitigation actions **(Pittman, E., 2010)**

The Intersection of Climate Change, Government and Preparedness:

How government decides to address climate change sets the tone for climate change agenda across its agencies, organizations and even their private sector. If government takes an aggressive approach, and sets a clear and actionable agenda, the people will rally around that agenda and the benefits will be evident. If, however, government takes a lukewarm approach, or denies the current or future impacts of the dramatic change in our climate, then agencies and other government emergency managers are limited in their ability to address and plan for those impacts. (FEMA LLIS.gov, 2014)



Ete.cet.edu

Disaster Preparedness Problem:

The majority of communities large and small are not prepared for disaster events.

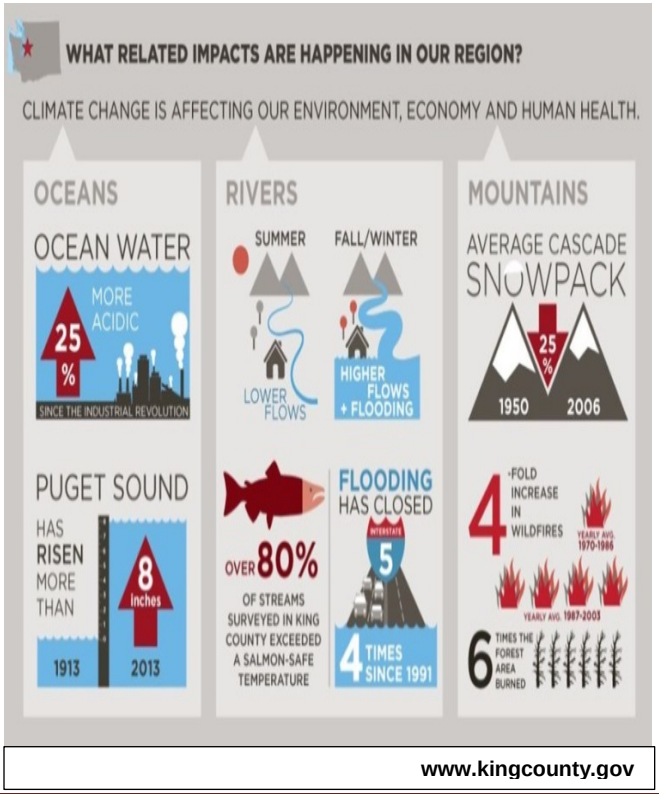
- Economic instability has affected the ability of communities to address disaster planning and to fully staff emergency management offices.
- Climate change/global warming politics versus scientific information has created doubt in

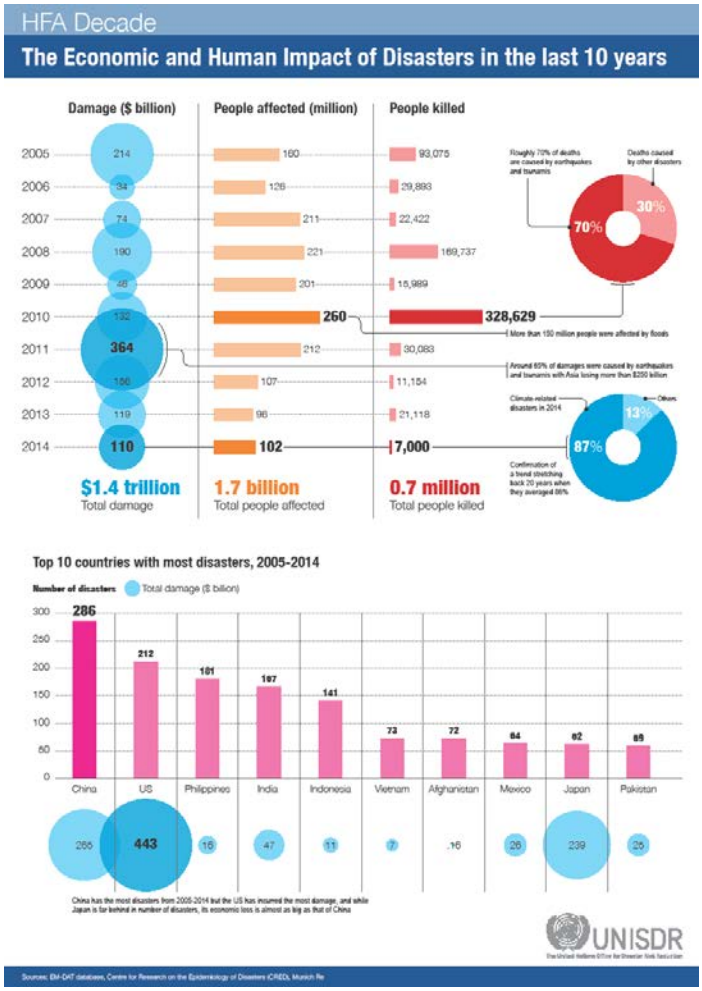
the public and elected officials resulting in sluggish disaster preparedness activity in citizens and communities.

- Individuals' high expectations of assistance from emergency responders may inhibit individual preparedness.

Impacts of Climate Change:

In 2012, the United States suffered more than two-thirds of the world's disaster damage from storms, drought, fire, and earthquakes, including the worst drought in a generation, freakishly strong thunderstorms, and the largest Arctic ice melt on record. Collectively, these mounting disaster risks expose us to a dangerous "new normal," in which climate change is likely to sustain or worsen the scale of disasters. **(Wright, A.M. 2013)**





Climate FAQ's:

The top 10 warmest years on record have all been recorded since 1998 with 2014 the warmest year ever recorded worldwide. "14 of the 15 warmest years on record have all occurred in the 21st century." **(Shukman, D. 4 December 2014)**

50% of the world's population lives within 35 miles of the coast. Sea levels have risen 4-10 inches in many areas of the world

70% of the electricity in the Pacific Northwest is supplied by hydroelectric. Decreased stream flows will reduce the hydroelectric supply stressing electric suppliers.

Observations:

- Over the past 50 years, the amount of rain falling in the most intense 1% of storms has increased 20%.**(Shukman, D. 4 December 2014)**

- Periods of very heavy precipitation have increased in every region of the country except Hawaii since 1958 - That's been particularly bad in the Northeast and Midwest, which have seen 71 percent and 37 percent increases in very heavy precipitation, respectively.
- Minor coastal flooding along the Atlantic, Gulf, and West Coasts only occurred less than once per year at any given location in the 1950s, it now occurs on average about once every three months.

- Warmer temperatures have increased the range of Vector Borne Disease carriers (mosquitos, ticks, and rodents),

- Warmer surface temperatures in the oceans have been related to more frequent and stronger storms. **(Shukman, D. 4 December 2014)**

- Increased frequency and severity of drought as well as severe winter events due to warmer surface temperatures of the oceans.

- Since 1970, the demand for heat has decreased while the demand for cooling has increased.

En.db-city.com

Citizen Expectations and Preparedness:

Communities without a clear agenda that do not make urgent the need to address climate change will see the same indifferent attitude in their population. (FEMA LLIS.gov, 2014)

In a recent Citizen Expectation Survey citizens were asked when they expected to be personally impacted by a flooding event. At least 50% of the population is not expecting a flooding impact for 10 years or greater, even though they have experienced a presidential flooding declaration every 3 years on average. These time expectations may be extremely significant when discussing whether citizens are preparing or not for disaster events. **(Wallace & Inocencio, 2013)**

Do You Have A Family Emergency Plan?

Yes – 51.10% No – 48.90%

(Wallace, C. & Inocencio, A., 2013)

In the same Citizen Expectation Survey, nearly 49% of respondents indicated they did not have Family Emergency Plan for disaster events. 51% of respondents claimed to have a Family Emergency Plan, yet only 35% of those claiming to have a plan indicated their plan includes a designated meeting place and methods to communicate, leading many to believe they are more prepared than they actually are. **(Wallace, C. & Inocencio, A., 2013)**

Recommendations:

The emphasis must be on how to get communities to prepare for disaster beginning today.

- Enhanced community education efforts describing the impacts of climate change upon site specific areas in order to personalize the issues - to address "What's in it for me?" **(Cna.org, 2010)**

- Enhanced efforts to educate elected officials and community executives and leaders on the possible effects of climate change upon people, infrastructure and the economy. **(Cna.org, 2010)**

- Concerted efforts towards all hazard planning with an emphasis on the effects of climate change to include all stakeholders.

- All planning efforts should incorporate preparedness, mitigation, response and recovery into all aspects of the plan (Cna.org, 2010)

- Enhancement of social media capabilities and processes to obtain a greater ability to reach specified communities in the areas of: warning, education, information dissemination and investigation

Additional Resources

Cna.org, 2010, *Why The Emergency Management Community Should Be Concerned About Climate Change*, Retrieved on May 5, 2015 from: http://www.emergencymgmt.com/emergency-blogs/managing-crisis/Catastrophic-Planning--Often-Neglected-but-Vital.html

FEMA LLIS, 2014, retrieved on May 7, 2015 from https://www.fema.gov/join-llisgov

Pittman, E. July 19, 2010, Emergency Management Magazine, Emergency Managers Warm To The Idea Of Climate Change Retrieved on May 05, 2015 from: http://www.emergencymgmt.com/disaster/Emergency-Managers-Climate-Change.html?page=2&

Shukman, D. December 4, 2014, BBC News, Science & Environment, retrieved on May 7, 2015 from: http://www.bbc.com/news/science-environment-30311816

Wallace, C. & Inocencio, A., 2013, *Grays Harbor County Citizen Expectation Survey Preliminary Results*. Retrieved on May 02, 2015 from: http://www.co.grays-harbor.wa.us/info/DEM/Index.asp

Wright, A. M., May 13, 2013, *Looking Back to Get Ahead: FEMA's Strategic Foresight Initiative on Natural Disaster Preparedness,* New Security Beat, Retrieved on April 20, 2015 from http://www.newsecuritybeat.org/2013/05/ahead-femas-strategic-foresight-initiative-weighs-natural-disaster-preparedness/