Reframing Climate Change: A Public Health-based Climate Change Framework

I. Introduction

In 2009, the heads of the national science academies in the U.S., UK, Japan, Mexico, Russia, Brazil, Canada, Germany, India, Italy, China, South Africa, and Russia signed a joint statement stating that climate change is anthropogenic and is occurring at a much faster rate than previously anticipated. Despite the serious environmental and public health effects the planet is due to face as a result of climate change, the U.S. has yet to fully mobilize and address climate change.

For the most part, climate change has been framed as an environmental problem. It has become more political with time, and has also become a legal and economical problem. Climate change cannot only be a problem for environmentalists because it will affect the entire population. Paul Epstein, a doctor and one of the authors of Changing Planet, Changing Health recalled a trip to Rio de Janeiro for what would later become the first Earth summit. At the summit, one of the delegates asked him and his colleague why—as doctors—they were attending the “environmental meeting.” Dr. Epstein’s experience illustrates how climate change is seldom seen as a health issue. However, as more research has been conducted, it has become clear that human health will not be spared from the devastating effects of climate change.

This paper focuses on how to reframe climate change as a public health problem, in order to engage the larger American public and allow for more effective mitigation and adaptation policies. The foundational principles of public health make it well suited to handle a problem like climate change and will not only allow for more inclusive strategies to combat climate change, but may provide new legal strategies to address climate change.

II. Human Health Effects of Climate change

The health of the natural environment cannot be separated from that of human health; the two are mutually dependent on each other. In 2009, the Environmental Protection Agency (EPA)—while citing its authority to protect public health from the effects of climate change—found “global warming poses public health risks including increased morbidity and mortality due to declining air quality, rising temperatures, increased frequency of extreme weather events, and higher incidences of food and water borne pathogens and allergens.” As the country gets warmer, air quality decreases due to stagnant air masses. Stagnant air masses were partly responsible for the high urban ozone levels in 1983 and 1988. Such conditions affected lung functioning, and increased the number of asthma related hospital visits. Heat waves—another cause of stagnant air masses—also create numerous problems. Heat waves cause the greatest number of weather related deaths in the United States.

Big storms and hurricanes, floods and wildfires are a part of this country’s environmental history. Nevertheless, the frequency and intensity of extreme weather events is increasing. In 2005, over 2,000 Americans were killed during the hurricane season. The number of deaths was double the average number of lives lost in hurricanes in the U.S. in the last 65 years. Additionally, large wildfires have seen an almost fourfold increase in recent decades while heavy rains, which can lead to flooding, have also increased in recent decades.
New York, Chicago, Washington DC, Milwaukee, and Philadelphia face severe flooding. These cities have older sewage systems that combine both sewage and storm water. Such systems may not be able to handle the volume of heavy rains, which will force sewage to leak into waterways and contaminate them.

The injuries and deaths directly caused by extreme weather events are always of concern, but the indirect effects can sometimes have more dire consequences. Mental health consequences such as depression and post-traumatic stress disorder can wreak havoc on communities after an extreme weather event. Both direct and indirect effects of extreme weather events have to be taken into consideration when attempting to deal with climate change. It is also important to note that all these health effects will differ in severity given the vulnerability of the each population. Poor communities, the young and the elderly are likely to suffer disproportionately from the health effects of climate change.

III. Reframing The Issue

“Framing—whether intentional or not—involves selectively emphasizing certain dimensions of an issue over others, setting the context for perception and discussion around specific causes, risks, policy actions and cost/benefits that might result from these actions. How an issue is framed suggests to the audience both the diagnosis and prognosis for the problem. Thus, the framing of an issue will suggest how the American public should act in response to that issue. Framing has been used to divide Americans along party lines, with regard to climate change. Republicans have opted to frame climate change as scientifically uncertain and have characterized it as having serious economic consequences that would result from taking action. To counter this, Democrats have used a Pandora’s box approach where the images presented are those of cities under water, polar bears on disappearing pieces of ice, and essentially a world in chaos. Democrats also use a public accountability frame where they encourage the end of the war on science. This framing has not served the American people, and Americans remain “locked in a perceptual divide over climate change, particularly along partisan and ideological lines.”

The problem with the public accountability framing and the alarmist framing used in Pandora’s box, is the negativity it suggests. It lends credence to climate skeptics and it has been termed liberal alarmism. Furthermore, the public is likely to feel a sense of fatalism, especially when the alarmist ideals don’t offer specific recommendations on how to combat the issue. Essentially, such an emphasis on the catastrophic destruction of climate change in areas geographically removed from the American public can lead to less concerned and less hopeful people. This is problematic because feelings of hopelessness are linked to rationalization of inaction and ignoring the problem.

In a 2011 study, participants were assessed on how they responded to three distinct climate change message frames: 1) a traditional environmental frame, 2) a national security frame and 3) a health frame. The first frame emphasizes the risk to various ecosystems, the second frame emphasizes the threat to U.S. national security and the third emphasizes the risk to human health. The participants in the study were divided into six categories termed “Global Warming’s Six Americas.” This information was based off an earlier study that found that American climate change perceptions can be divided into 6 distinct categories running along a continuum. The six categories were the alarmed (18%), the concerned (33%), the cautious (19%), the disengaged (12%), the doubtful (11%) and the dismissive (7%). The alarmed were engaged in the issue and felt and were looking for ways to be proactive on the issue, while the dismissive deny the existence of climate change and are looking for ways to stop society from acting. In the study, the participants would read a message presented in one of the three frames and they would indicate which parts of the message made them feel hopeful and which parts made them angry. Ultimately the study—consistent with other studies of the same issue—found that a diversity of audience segments respond positively to an emphasis on the public health consequences of climate change and the health benefits of action. Additionally, the health frame generated the least amount of anger in all segments, and the most amount of hope among the cautious, disengaged, and dismissive groups.

These studies suggest that a reframing of climate change would be extremely beneficial to the cause. Another study in 2010 tested people’s reaction to an essay about climate change framed as a public health issue. The study used the six segments—global warming’s six Americas—and found clear evidence that the alarmed and concerned segments responded positively to the essay, mixed evidence that the cautious and disengaged responded positively, and no evidence that the doubtful responded positively. All segments shared the belief that good health is a great blessing. Reframing climate change does not suggest the new framework will immediately engage all members of society. However, a human health framework localizes the issue. It takes it from the abstract and helps people make connections to the issues they already know. This new framework allows people to connect climate change with “already familiar problems such as asthma, allergies, and infectious disease experiences in their communities, while shifting the visualization of the issue away from remote arctic
IV. Creating a Public Health-based Climate Change Framework

Reframing climate change does not solve the problem; in fact it is only one half of a larger solution. Once a public health-based framework is created, the public health community has to be able to deal with this new issue, and the public health community is making significant strides. World Health Day in 2008 was themed “Protecting Health from Climate Change” and in the United States, National Public Health week in 2008 was titled “Climate Change: our Health in the Balance.” Nonetheless, the public health system needs to do much more work in order to cope with climate change. Fortunately, well-established principles of public health suggest that it is inherently fit to deal with an issue like climate change.

There is not a single definition of public health accepted by all. Public health has been defined as “society's obligation to ensure the conditions for peoples health.” Charles-Edward A. Winslow defined public health as “the science and the art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene and the organization of medical and nursing service for the early diagnosis and preventive treatment of disease.” The institute of medicine states “public health is what we, as a society, do collectively to assure the conditions for people to be healthy.” These definitions suggest that public health is forward looking, in that prevention and preparedness are key to the practice. Additionally, public health is premised on the idea that the health of populations is more important than the health of individuals. These well-established principles of public health suggest that it is inherently fit to deal with an issue like climate change.

The three levels of public health prevention –primary, secondary, and tertiary—can easily be transferred to climate change mitigation and adaptation. Primary prevention is about preventing the onset of injury and illness, while secondary prevention controls the advance and burden of disease by aiming to diagnose it early. Tertiary prevention aims to reduce the effects of the disease once it is diagnosed. In climate change, primary prevention is reducing greenhouse gas emissions, and taking other necessary steps to stop or slow climate change impacts. Secondary and tertiary prevention are adaptation measures and they “anticipate and prepare for the effects of climate change, and thereby to reduce the associated health burden.” In this public health framework, preventative measures are taken to reduce greenhouse gas emissions to protect human health. Thus, you are not preventing remote islands from sinking, or saving endangered species but reducing greenhouse gas emissions to protect the health of loved ones. Climate change mitigation is about reducing future risks of climate change impact, and a public health framework comes equipped with such forward-looking mechanisms. This is unlike an economic and political framework that would have a more difficult time taking steps today, for tomorrow.

Preparedness is a relatively new phenomenon in public health. The threat of terrorist attacks and new diseases such as SARS, and the avian flu, and natural disasters have led public health professions to ensure they are prepared for such issues. Preparedness is often a consequence of scientific uncertainty. This may be one of the most crucial elements of a public health-based climate change framework. Climate change reform is often curtailed by scientific uncertainty. Although there is widespread consensus that climate change is human caused, the biggest opponents to climate change policies cite scientific uncertainty as a reason for inaction. Public health preparedness deals with situations that can't be predicted with precision, but still necessitate a public a health response. There is a lot that scientists still have to discover about climate change, and it is hard to predict with precision all of its causes and impacts. Nevertheless, “the notion that steps to protect the public from the threats of climate change cannot await full scientific certainty, and the use of margins of safety to ensure safer conditions are consistent with prevailing public health practice” (internal quotations omitted). Public health allows taking action in times of scientific uncertainty, and would allow mitigation and adaption policies even in the face of climate skeptics.

Public health is also well equipped to tackle climate change because a win for climate change, is often a win for public health. Obesity is a national public health problem. One of the ways to address obesity is to encourage physical activity, by promoting walking, bicycling, and public transit, all of which contribute to a reduction of greenhouse gases by reducing travel by cars. Additionally, reducing greenhouse gases from polluting industries will also lead to cleaner air and thus better respiratory and cardiovascular health, which positively contributes to a more physical lifestyle. The co-benefits in this situation will also help with issue fatigue. People can be encouraged to walk more and take public transit for the sake of their health, and not for climate change per se. Ultimately, the public health system has established principles that provide it with the tools necessary for the impending health impacts of climate change.

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A. Challenges to a Public-health Based Climate Change Framework

The idea of public health-based climate framework becomes more appealing when it becomes evident that some of the founding principles of public health align with the needs of climate change mitigation and adaptation. But the readiness of public health communities has to be assessed on more than just a theoretical field. There are federal, state and local public health agencies; a whole network of organizations and all their resources vary greatly. There is not one entity in charge of all public health, and so it is difficult to gauge the preparedness of the public health community. However, one thing is clear and that is the public health system is often underfunded and overburdened, and this new framework would require the system to handle an entirely new issue.

Climate change is a unique problem, in that it is a global issue, but the health effects of climate change will be felt at the local level. Following hurricane Katrina, it was the gulf coast cities that were left to bear the burden of the hurricane. Thus, it is local public health agencies that need to be prepared to deal with climate change impacts. When addressing climate change from an environmental framework, towns and cities are often at a disadvantage. Their successes at reducing greenhouse gas emissions will always be small, and many regulations to reduce greenhouse gas emission such as vehicle and fuel regulations are under federal control, and beyond the reach of the cities. Thus state and local environmental agencies are often limited in the action they can take to mitigate climate change. Policies from local public health agencies however, are not dictated by federal policies. Local public health agencies have a larger scope within which to undertake climate change mitigation and adaptation policies.

To determine if local public health agencies were ready to tackle climate change-related health problems, the Environmental Defense Fund, George Mason University and the National Associate of Country and City Health Officials (NACCHO) developed a survey to look at how directors of local public health agencies perceived climate change and any actions they were taking in response to it. 133 directors were surveyed and interviewed. Most of the directors felt that climate change was a threat to their cities and 70% felt they had already experienced climate change in the past 20 years. The majority of the directors recognized the threats to health of their constituents from climate change; in fact more than nearly 70% believed their towns had already experienced climate change in the past 20 years. Nonetheless, most of the directors didn’t feel adequately prepared to deal with the public health effects of climate change. In addition, less than a third of the directors believed their state agencies, and the CDC had the sufficient expertise to assist them in their mitigation and adaptation policies. This study illustrated that many local health officials are aware of the impact of climate change on human health. Although, they lack the resources to address the issues—they do believe that it is important. Local public health departments are the “first line of defense” when it comes to protecting the health of the people. Consequently, public health agencies—specifically at the local level—will need more funding and a larger percentage of the funding will have to be allocated towards further research on the health effects of climate change. Essentially, the public health system cannot adequately embrace a new climate change framework, without an increase in resources.

V. Implications of a Public Health-based Climate Change Framework

As mentioned earlier, a health based climate change strategy is not meant to stand-alone and should not detract from other strategies. This is an additional, and critical strategy. This new framework will have many implications—both legal and non-legal—for the public health system. Firstly, this new framework will move people to take action. The argument for reframing climate change is premised on the idea that people will respond more favorably to climate change mitigation and adaption if the issue is framed as one affects human health. Secondly, this new framework shifts some of the responsibility from environmental agencies and organizations to public health agencies and a myriad of other organizations. This opens up the floor to all types of actions to address climate change. The public health system often functions by making ties with other community organizations, because achieving the health of populations cannot be confined to agency offices, labs, political arenas or even the courtroom. Public health agencies are better equipped to make communities ties, in an effort to protect the health of the community from climate change. The power of public health agencies often rests in the local communities and such agencies open the door to a diverse group of government and non-government institutions and the more people involved—the better the chance of success.

A. DDT: A Case Study

DDT provides a great example of how reframing an environmental issue as a public health one can lead to great successes in ameliorating the problem. When DDT was used as a pesticide, many studies illustrated the harm the pesticide was having on wildlife, such as the bald eagle. However, it wasn’t until DDT was connected with an increase in cancer risk in humans that federal action was taken to ban the pesticide. The toxic effects of DDT
were known since it was first used, but the effects were considered to be acute. DDT was also very popular during wartime when many soldiers were dying from tropical disease. The first studies focused on how DDT would accumulate in the fat of animals, but the studies were considered “inconclusive because of their questionable transfer from animal-studies to man.” Essentially multiple studies on the effects of DDT on birds, mosquito larvae, ducks and duck eggs were conducted and they all illustrated that DDT was toxic. It was Rachel Carson’s book *Silent Spring* that introduced the public to the effects DDT was having on the environment. *Silent Spring* is more commonly known as a representation of the beginning of the environmental movement, but her book also introduced the public to the cancer risk of DDT. The book drew huge public interest in the cancer-related research and effects of DDT. “The cancer risk of DDT became a main issue, although the influences on the nature were more serious.”

The DDT ban was largely due to the American Public’s outrage at the cancer risk involved in the use of the pesticide. It was ultimately the Environmental Defense Fund, and the Environmental Protection Agency that fought and won to ban DDT, but it would not have been possible without the support of the American public, especially when against a powerful group like the agriculture industry. DDT affects environmental and human health, similar to climate change. The opponents to the ban of DDT were a powerful group with many resources, similar to the fossil fuel industry in the United States. Scientists were always aware of the environmental effects of DDT, but once Rachel Carson broke down the information barrier between the science and the public—the health effects also became known. Using a public health-based climate change framework allows the public to see the health effects of climate change, and gives them a chance to be outraged at the danger their health is in. DDT provides a lesson on how reframing or presenting another side of an issue can be very advantageous.

In addition to achieving a similar result to the DDT case, a public health-based climate framework can also encourage more legislation addressing climate change. As people start to better understand the health effects of climate change, and as the issues shifts from a remote geographic location to peoples home, they will be more inclined to act and force their representatives to address the issues. DDT moved from mosquito larvae and bird eggs into every American home when it became clear that exposure to the pesticide increased the risk of cancer. Americans then mobilized and forced their representatives to get rid of the carcinogenic chemical.

**B. Native Village of Kivalina: A Case Study**

This framework can also have a significant impact on enabling plaintiffs to hold private companies accountable for their greenhouse gas emissions. In *Native Village of Kivalina v. Exxon Mobil*, the village of Kivalina—a federally recognized tribe of Inupiat Native Alaskans—brought an action against ExxonMobil and other energy producers for their contribution to global warming. Kivalina consists of approximately 400 residents and is situated on the tip of a six-mile reef in Alaska. “The villagers of Kivalina depend on the sea ice that forms on their coastline in the fall, winter, and spring each year to shield them from powerful coastal storms. But in recent years, the sea ice has formed later in the year, attached later than usual, broken up earlier than expected, and has been thinner and less extensive in nature. As a result, Kivalina has been heavily impacted by storm waves and surges that are destroying the land where it sits.” If the village is not relocated, it may cease to exist because the erosion caused by the strong storms threatens the infrastructure of the city. The case was dismissed, and without any legislative or executive action to protect the people of Kivalina, they have no way of protecting their home. The village of Kivalina is being harmed by the actions of others, and the courts have left Kivalina without a legal recourse to address their harm.

A public health-based climate change framework may have changed the outcome in *Kivalina*. Kivalina’s first claim was based on federal common law nuisance where they argued that greenhouse gas emissions from the energy producers constituted a substantial and unreasonable interference with public rights, including the rights to use and enjoy public and private property in Kivalina. Kivalina also argued that the energy producers conspired to mislead the public about the science of global warming. This argument stated that the energy producers used false scientific information, which in turn stemmed political action, “that would require the defendants to change the way they do business” and that harmed the village of Kivalina. The court never addressed that claim, because they never reached the substantive issues as the case was dismissed. A public health-based climate change changes the outcome for the federal common law nuisance claim and possibly the fraud claim.

The Ninth Circuit stated, “The salient question is whether Congress has provided a sufficient legislative solution to the particular issue to warrant a conclusion that the legislation has occupied the field to the exclusion of federal common law. Put more plainly, how much congressional action is enough?” (internal quotation marks omitted). Essentially, the court did not want to step into the role of the legislature, and decide what levels of carbon dioxide emissions were reasonable. The court—looking at this as an environmental problem—was looking at the question the wrong way. The court was asking how much Congressional action regulating greenhouse gases is enough, when they should have been asking how much congressional action protecting the health of Kivalina is enough? Had they asked this question, the answer may have been Congress has not done enough to...
The court will not step into legislative territory by protecting the health of Kivalina, because the legislature has not yet to do so. The legislature has not occupied the entire field of climate change-related health effects. One can make the argument that the legislature has occupied the field when the issue is greenhouse gases. However, it is more difficult to make the argument that the legislature has occupied the field when the issue is human health effects.

When it comes to the fraud question, the science offered by the energy industry and other climate change skeptics is analogous to the information offered to the public about cigarettes from the tobacco industry. “Tobacco organizations have eerie doppelgangers in the climate change industries.” However, climate change fraud causes have a harder battle to fight because standing is more problematic. Climate change fraud cases are under common law fraud where “the major challenge for climate change plaintiffs is drawing a concrete and particularized nexus between the deception and their injuries.”

Smoking didn't have this problem because it was much easier to make a connection between material misrepresentations from tobacco industries, and people’s decision to start smoking. All that was needed in the tobacco fraud cases was a plaintiff who was sick from smoking. Making the link between the climate change misrepresentation, and the actual injury is difficult because there are so many “factors at play in both the consumer and political choices related to climate change, [which] make[s] it difficult to argue that greenhouse gas emissions would be lower but for the industry consciously sponsoring misinformation.”

The key to achieving the same result as the tobacco cases is to make the misrepresentation about health. It is true that misrepresentations from the industries, in addition to political and economical questions all have a role to play in greenhouse gas emissions. However, a link can be made between the fraud perpetuated by the industries, and the right and power of people to protect their health. In Kivalina, the argument would be the energy producers misrepresented the prevalence of climate change so that the people of Kivalina would refrain from acting to protect their health. If you're simply talking about lowering greenhouse gases, you can argue that political and economic goals affect the emissions—therefore affecting Kivalina—and so the energy industry cannot be solely responsible. With health, however, if the industry misrepresents the effects of climate change, the public will not take steps to protect their health, and they won't fight for political and economic policies that do so. The industry, politics and economics all play a role in levels of greenhouse gas emissions, but the injury in fraud cases is not the emissions but the inability to protect your health. That particularized injury—the inability to protect one’s health—can be linked directly to the fraud perpetrated by the energy industry, whereas emissions in general can be linked to many diverse sources.

VI. Conclusion

The United States has to start addressing climate change, and at a much faster rate. Without making any changes to our behavior and policies, the power of mitigation and adaptation policies is significantly reduced. A public health-based climate change framework hopes to increase the speed at which Americans respond to climate change by conveying climate change as an issue that will affect everyone. The divide between Americans created by politicians is not fair to the people. The political ideals of a few are restricting many Americans from having the ability to protect their health and to fight for better policies. Climate change will undoubtedly affect the environment and its ecosystems. Climate change will also affect human health. Whether Americans don't believe climate change is anthropogenic or whether they want to save polar bears should be a decision each individual gets to make independently. A public health-based framework opens the climate change conversation to people who had been left out when it was just an environmental problem. It allows people an additional and crucial lens to view the problem so they can make informed decisions. Once Americans see the potential health effects of climate change, they are more likely to push for policies that will reduce climate change helping both the environment, and humans.


[vi] Karl et al., supra, note 3, at 90.

[vii] Id. at 94.

[viii] Id. at 94-95.


[x] Nisbet, supra, note 18, at 18.

[xi] Id. at 13.

[xii] Id. at 22.

[xiii] Id. at 19.

[xiv] Myers, supra note 19, at 1107.

[xv] Id. at 1107.

[xvi] Id. at 1105.


[xviii] Myers, supra, note 19, at 1105.

[xix] Id. at 1109.

[xx] Id. at 1109.


[xxii] Id. at 7.

[xxiii] Id. at 9.


[xxv] Id. at 2.

[xxvi] Id. at 2.

[xxvii] Id. at 3.


[xxix] Id. at 436.

[xxx] Id. at 435.

[xxxi] Id. at 437.

[xxxii] Id. at 437.

[xxxiii] Id. at 437.


[xxxv] Edward W. Maibach et al., Climate Change and Local Public Health in the United States: Preparedness, programs and perceptions of Local Public Health Department Directors, 3(7) Plos One 1, 2 (2008) [hereinafter Climate change and Local Public


[xxxviii] Id.

[xxxix] Id. at 16.


[xiii] Id. at 87.

[xli] Id. at 97.


[xlv] Id.


[xlvii] 696 F.3d at 856.

[xlviii] Dubats, Supra, note 60, at 516.

[xlix] Id. at 528.

[l] Id. at 527-28.

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