Protecting Public Health in Response to Climate Change:

Recommendations from the Public Health Network

Developed by the membership of the
New Mexico Public Health Association

Synthesized and prepared by
Environmental Health Associates Inc. [EHA]

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This document is the synthesis of a series of workshops conducted at the April 2005 New Mexico Public Health Association Annual Meeting held at the Indian Pueblo Cultural Center in Albuquerque, NM. The opinions and recommendations expressed are those of the membership of NMPHA and meeting attendees. The document was reviewed at the 2006 NMPHA Annual Meeting.

The mission of NMPHA is to promote the physical, social, emotional well being of individuals and populations in New Mexico by

- *Serving as a forum for professionals and workers to share approaches, research, and applications that promote the health of individuals and populations;*
- *Advocating for policy changes and actions that promote the health of individuals and populations.*

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1. Public Health Perspective of Climate Change

In 2004, the American Public Health Association Annual Meeting incorporated a focus on climate change for the first time. In April 2005, the New Mexico Public Health Association (NMPHA) followed-up on this initiative by not only focusing their annual meeting on climate change, but incorporating working sessions to identify issues of public health importance that could potentially result not only from climate change, but from strategies developed to respond to climate change.

1.1. Why is the Public Health Perspective Important?

Climate change-associated threats to public health such as those from increased viral and bacterial disease, from rising ocean waters, and from stresses to agricultural production and ecosystem stability have been widely discussed and generally accepted in both the public health community and in the larger climate change community. However, public health professionals have generally not been involved in efforts to develop an adequate response to climate change at either the local, national, or global levels.

At the NMPHA meeting, participants were asked to discuss the issue of climate change and public health from a broader perspective with two key goals:

o to identify roles for the vast public health network in responding to climate change, and

o to identify unanticipated potential threats that might result from responses to reduce carbon emissions.

1.2. Incorporating the Precautionary Principle in the Response

Identification of potential threats utilized a precautionary principle approach to ensure that any actions to stem carbon emissions would be designed to also ensure protection of public health. Inclusion of such an analysis in the planning stages promotes development of not only a sustainable energy future, but of sustainable and healthy communities in the process.

Ultimately, incorporating a precautionary principle approach to meet the challenge of global climate change provides an opportunity not only to protect, but to actually improve public and community health. Actions that foster safe work environments, equitable access to resources, and economic development also reduce disparities that contribute to poorer health outcomes, and in some cases increase risk of developing disease.

2. Key Recommendations from the Public Health Perspective

The following recommendations synthesize the discussions of the working groups at the 2005 NMPHA annual meeting. Each is discussed in more detail in the following pages, with specific examples of success identified:

Recommendation 1. *The responses developed to address climate change in and of themselves need to be evaluated to assure that no adverse public health impacts result.*

Recommendation 2. *Developing responses to climate change provides an opportunity to reverse adverse health effects in low SES communities through improving economic opportunities, livability of the built environment, and sustainability of communities.*

Recommendation 3. *The respect and presence of public health professionals in nearly all communities and the respect they hold in the public eye provides an excellent opportunity for climate change initiatives to link to an existing and effective infrastructure well-positioned to implement broad-reaching social change in at least the following ways:*

> **Recommendation 3.1.** *Public health institutions and professionals are positioned to "lead by example" through modeling conservation strategies.*
>
> **Recommendation 3.2.** *Public health professionals are well-experienced in promoting institutional and behavioral change. As such they provide an excellent infrastructure for educating on strategies necessary to reduce carbon emissions.*
>
> **Recommendation 3.3.** *Public health is experienced in establishing effective monitoring systems to assess and respond to anticipated adverse health effects associated with climate change such as spread of infectious disease.*
>
> **Recommendation 3.4.** *Public health has developed iterative program evaluation strategies that can enhance the efficacy of climate-change strategies through developing data-driven modifications to improve outcomes as programs develop, and ensuring metrics for program success are agreed to by all participants.*

Recommendation 1. The responses developed to address climate change in and of themselves need to be evaluated to assure that no public health impacts result.

Strategies designed to reduce carbon emissions and promote sustainable energy sources carry the potential for unintended health consequences. As in traditional technologies, many of these risks could be borne by those of color, those of low socioeconomic status, and the elderly. These populations are already at higher risk for many diseases for reasons not completely understood, but at least in part due to access to health care, increased exposure to pollutants, poorer nutritional quality, and potentially greater occupational exposures to pollutants. Many of these groups have already been victims of environmental and economic injustice resulting from the siting of polluting facilities in their neighborhoods and minimal economic opportunities. These factors further decrease the socioeconomic status and increase health disparities. To avoid repeating mistakes of the past, new strategies to address climate change should consider the following:

- Pollution and water use associated with manufacturing and disposal of renewable energy-related equipment such as photovoltaics or with processes such as biomass production should be assessed prior to deciding on appropriate alternative technologies.
  - o Work environments associated with alternative technologies should be evaluated to ensure safety of the workforce.

- Burdens of alternative strategies on individuals should be evaluated to ensure equitable distribution of costs, especially for those of low socio-economic status who are already at higher risk for disease.

- Siting of transportation hubs should ensure equitable access for all sectors of the population.
  - o To encourage communities of low socioeconomic status to use mass transit, hubs should be conveniently located.
  - o However, consideration should be given to ensure that those communities do not experience increased traffic safety risks or respiratory health risks by running mass transit through neighborhoods where children play, or from siting of commuter hubs such that they increase traffic in those neighborhoods.

- Costs of renewable energy and mass transit should not unduly burden the elderly or those of low socioeconomic status, further contributing to economic injustice and increasing the risk of health disparities

Recommendation 2. **Developing responses to climate change provides an opportunity to reverse adverse health effects in low socio-economic status (SES) communities through improving economic opportunities, livability of the built environment, and sustainability of communities.**

Low SES communities and communities of color have been demonstrated to have a higher prevalence of a number of diseases, leading to the belief that these communities are at higher risk for developing disease. The basis for these disparities in health status are not fully understood, but thought to reflect factors such as limited access to health care and disease prevention programs; disproportionate exposures to hazardous wastes from industrial facilities sited within these communities and/or workplace exposures (environmental injustice); poorer housing quality; fewer economic opportunities (economic injustice); and poorer nutritional status. The response to climate change presents opportunities where the economic and environmental injustices of the past can begin to be reversed through policy initiatives directed at providing economic opportunities for these communities through renewable energy initiatives. Thus the response to climate change could have a net result of improving health status in these communities through improving economic and environmental conditions as follows:

- Preferentially siting renewable energy production facilities within disadvantaged communities to provide economic incentives that allow growth of sustainable communities. (*With the caveat that the facilities are clean with safe workplaces.*)

- Providing incentives for capital investment of new technologies within economically disadvantaged communities.

- Providing *affordable* mass transit to open doors to occupational and educational opportunities limited by lack or expense of transportation.

- Siting of transit stations within walking distance of lower SES neighborhoods as further incentive to reduce energy consumption & associated emissions.

Recommendation 3. The respect and presence of public health professionals in nearly all communities provides an excellent opportunity for "leading by example" through modeling conservation strategies.

From shot clinics, to WIC programs, to prenatal care, to flu vaccines, public health clinics have a presence in nearly all communities. Public health departments are seen as entities that investigate disease, provide useful information to improve the quality of life for individuals and their communities. Due to the nature of their work, public health departments and their staff are seen as respected individuals dedicated to improving their communities. This trust and the association with improving health make public health institutions ideal role models for demonstrating changes in patterns and behaviors associated with energy consumption. By engaging public health in modeling proposed initiatives, the strategies would be visible to a large segment of the population who visit the clinics, and the link to public health would lend credibility and trust to the strategies.

- Public health departments and staff could initiate high-profile behavior-change programs, well publicized within their offices and in the press. Their involvement would provide a high profile venue for introducing new ways of managing energy to the community, often reaching those who might not be engaged in other venues.

- Promote institutional as well as individual change using the same modeling across public health agencies and their staffs.

Recommendation 3.1. Public health professionals are well-experienced in promoting institutional and behavioral change and as such provide an excellent infrastructure for educating populations on strategies necessary to reduce carbon emissions.

From tuberculosis, to AIDS, to tobacco use, to prenatal exposure to alcohol, the public health community has a long history of effectively changing behavior to protect health and improve quality of life. Public health has an established and well respected infrastructure that could benefit implementation of any climate change initiatives through communicating the need for change effectively to the public. Public health professionals, through their experience in their communities are aware of what has worked in getting messages across in the past.

- Involve public health in development of strategies to address climate change.
- Utilize the public health infrastructure to communicate changes to the public.

Recommendation 3.2.   Strategies should include effective monitoring systems to assess and respond to anticipated adverse health effects associated with climate change such as spread of infectious disease.

Public health has a history of registering and tracking disease outbreaks within communities and throughout the world. This infrastructure could benefit climate change initiatives by identifying monitoring needs and developing effective methods of data collection.

- Enlist public health community to identify monitoring needs. These should include both direct impacts on public health associated with climate change, such as infectious disease, as well as more indirect indicators of health problems including availability of food supplies and threats that could endanger those supplies catastrophically.

- Identify potential threats to air and water as a result of climate change, appropriate early warning indicators, and public health responses necessary to avoid health impacts. Examples might include back-up sources of safe drinking water and distribution systems in the event of floods contaminating existing supplies.

> **Environmental Public Health Tracking**
> *Planning and Capacity-Building Activities—*
>
> NCEH is funding NMDOH to develop a statewide environmental public health tracking system (EPHTS) that is (1) capable of linking health effects data with human exposure and environmental hazards data and (2) standards-based and capable of integration with data from other states and other national data sets…….
> http://www.cdc.gov/nceh/publications/statefacts/nmfactsheet.htm

Recommendation 3.3.   Public health has developed iterative program evaluation strategies that can enhance the efficacy of climate-change strategies through developing data-driven modifications to improve outcomes as programs develop, and ensuring metrics for program success are agreed to by all participants.

By using participatory evaluation methods utilized in public health program evaluation, methods to evaluate both the process for development and implementation of the response to climate change can be developed, as well as appropriate metrics for gauging success. Utilizing iterative methodologies, plans can be developed whereby programs are continuously reviewed and modified based on metrics agreed to by all participants. In this manner, change need not be static, and time and resources need not be wasted on ineffective strategies.

- Develop evaluation strategies at the beginning of change response development so data are collected throughout and meet the stated goals of the project.

Guidance for Workshop Participants

Information on the following two pages was provided to workshop participants to frame the topic and clarify the intended goals of the workshop process.

The Role of Public Health in Climate Change

In the course of the meeting, we have tried to introduce the data supporting that climate change is real, that the need for policies to reduce carbon emissions is critical, to identify sources of carbon emissions, and to inform you of impacts likely in New Mexico and the Southwest as well as actions already in progress or proposed to begin reducing carbon emissions.

The public health community has not been active in this debate. Yet the public health community has much to contribute both in identifying direct public health assessment and monitoring needs associated directly with climate change such as increases in infectious disease, or response to extreme heat, cold, flood, or drought effects. The public health community, however, also can provide insight into less obvious health effects associated with climate change, as well as with the proposed strategies to mitigate change.

The proposed strategies such as increased energy and resource efficiency; alternative sustainable energy production; and improved transportation reducing fossil fuel combustion are all actions that have direct benefits to public health through reducing environmental contaminants associated with a variety of adverse health impacts including respiratory, developmental, and cardiovascular disease.

But we believe public health professionals can also contribute more to the discussion. Their awareness of the dynamics influencing individual and community health; of factors such as socioeconomic disparities and environmental and economic injustices; of systems to effectively monitor and respond to changes in disease patterns; of how to change risky behaviors can all serve to inform policies from a perspective unique to the discussion.

In the workshop topics defined below, bring your public health eyes to the problems and help us define the roles for the public health community. Discuss the topics, learn from each other, and hopefully leave with new insights you can take to your community to help pave the way for change.

WORKSHOP GOALS:

For each of the 6 workshop topics below, try to think about the following questions. Some of the questions may fit more comfortably within some of the topics and be a bit less obvious a fit in others. Facilitators should be able to help in focusing the discussion.

For each topic area:

1. How would you assess the health impact of proposed strategies in this topic area?

    a. Do you see a potential for negative direct health impacts

    b. Secondary health impacts, i.e. a change in social, economic, or behavioral indicators that could positively or negative impact health?

2. What would you use as indicators of change, positive or negative?, or are there other environmental, economic, political, or other indicators you think would indicate change?

    a. e.g., would an increased unemployment level in a community be a predictor of an adverse effect you are concerned about?

3. What policies would you perceive as promoting or being barriers to change?

    a. e.g. if a policy subsidized gasoline prices by 50% at the pump, would you see that as a barrier with health implications as well?

4. What education or outreach needs do you see?

    a. From the public health experience of changing risky behaviors what message needs to get to where?

5. Who needs to be at the table for successful policy development in this area?

Workshop Topics Descriptions for Participants

Identification of Faciliatators

Summaries on the following six pages were developed by the facilitators to help meeting participants choose a workshop with a focus of interest. All workshops had scribes who transcribed the discussion. Although the topics were diverse, the workshops yielded many common themes which were then synthesized into the recommendations in this report and reviewed by participants and attendees at the 2006 annual meeting. This document has incorporated comments received in those reviews.

Framing Ethics in Climate Change

Facilitators: **Alexis Kaminsky and Stan Euston**

Ethics can be understood broadly as the values that guide human action. What is ethical is based on socially agreed upon principles and practices. In environmental health, ethics has been framed around precaution, protection, and prevention with regard to how to care for the public and the environment. For instance, development of public sewer systems protects human health as microorganisms from waste are contained.

Ethics also provide language and mechanisms for evaluating action. Assessments of risks and benefits are central to determining the ethicality of proposed actions (e.g., the risks of ignoring human causes of climate change hurt everyone and everything) but are complicated by divergent value systems, resources, and power (i.e., what values are the most important and to whom, what is the responsibility of those with greater resources to address the problem at hand, what might be the unanticipated consequences of particular decisions—who is helped and who is hurt). Thus questions of justice, due process, and inclusion are inescapable.

So, to the group: What are the ethical considerations or questions related to climate change? How do we negotiate the multiple values (e.g., economics, health, environment, immediate benefit, long term sustainability) that are brought to bear on the problem of climate change? How can the knowledge and skills of public health professionals influence this conversation? What constitutes an ethical process for generating policies and action to address climate change? How do we know that it has been achieved?

Global Warming and Climate Change are Environmental Justice Issues

Facilitators: Richard Moore and John Fogarty

Global warming affects everyone and everything, and the issue is arguably one of the most important issues affecting the world today. The world's over-dependence on fossil fuels, accompanied by a rapid growth in deforestation, has led to a warming of the earth's atmosphere, and the results are already being seen. Unpredictable weather patterns, flooding, droughts, rising sea levels and frequent and more intense weather are just a few signs of global warming.

The impacts of global warming are dramatic. As sea levels rise, entire communities are rendered homeless, having to start new lives. As temperatures soar, more people die from heat strokes. As storms increase in intensity, people's houses are destroyed. While such calamities affects everyone, certain communities, particularly those with the least amount of resources available to them - low-income, communities of color and Indigenous peoples - bear the brunt of the impacts. For them, it is much harder to cope with a changing climate and for many, a changing climate is a matter of life and death.

One of the biggest injustices of climate change is that those least responsible for contributing to climate change - those who 'benefit' the least from fossil fuel based economy - are the hardest hit by climate change. As such, climate justice aims to build a global movement that places impacted communities at the center of the solution.

What strategies for change can also reduce environmental and economic injustice? How can policies promote environmental and economic justice? What will be the indicators of positive and negative impacts to low-income, communities of color, and indigenous peoples? What are the educational needs? Who should be at the table in developing policy?

The Health Effects of Global Warming

Facilitators: David Coffey and Ron Voorhees

1. The first threat to health is from extreme weather conditions including intense cold and heat, drought and large storms.   For example, a Sierra Club Report noted that 700 people died from heat in Chicago in 1995, predicting that by 2020 global warming could cause an up to 145% rise in mortality in NYC. "Other major cities could suffer similar problems."[1]   Weather stress to agriculture ". . . may mean up to 300 million additional victims of malnutrition world-wide *each year*."[2]

2. Extreme floods and droughts may worsen to threaten everyone, especially the very poor. "As the atmosphere has warmed over the past century, droughts in arid areas have persisted longer, and massive bursts of precipitation have become more common. . . . causing death by drowning or starvation, promot(ing) . . . emergence, resurgence and spread of infectious diseases."[3]   By 2020 "Global warming will likely put as much as 65% of the world's population at risk of infection , , ,"[4]

3. In addition, these weather conditions will interfere dramatically with the availability of safe drinking water through draughts and floods, further increasing the disease burden on all creatures.

Some people see benefits to global warming because places that are now too cold could warm. My grandmother would say that it is "truly and ill wind that blows no one any good" but knowing that even terrible storms might provide riches for some – she never welcomed such events. When you consider the whole planet and the terrible strains that already exist in all its systems, when you consider the great numbers of people, flora and fauna who will be harmed, then the negative health impacts of increased global warming are cumulative and overwhelming.

How can we stay hopeful in these circumstances? Someone as said that we don't become hopeful by knowing facts and being able to predict outcomes. We become hopeful by acting, by doing what we can. What can we do?

1. http://www.sierraclub.org/globalwarming/health/weather.asp

2. Ibid.

3. Paul Epstein, associate director of the Center for Health and the Global Environment at

   Harvard   Medical   School
http://archives.cnn.com/2000/NATURE/07/17/global.warming.enn/

4. (http://www.sierraclub.org/globalwarming/health/weather.asp

Transportation, Public Health, and Global Warming

Facilitators: Louise Pape and Judith Espinosa

Combustion of fossil fuels in transportation is the third highest source of carbon contributing to climate change and global warming, contributing approximately 26% to atmospheric carbon.   Emissions from transportation have long been linked to respiratory and cardiovascular disease, and long the target of public health concern. The public health community, therefore, is perfectly positioned to contribute to the development of new initiatives for cleaner fuels, to identify barriers to change on a personal, community, and national level, and to provide input on indicators of success from a public health perspective.

The debate on alternatives to fossil-fuel based transportation needs to consider health benefits of proposed alternatives, potential health risks of those changes, barriers to change at a personal, community, and national level, and what initiatives can facilitate the change to more appropriate and sustainable transportation choices.

Potential alternatives proposed include a mix of individual and societal choices. On an individual level, reductions in commuting frequency and volume; increased walking, cycling scooter use; and car pooling are potential options that have their own health benefits and risks.   At a societal level, development of effective mass transit systems, electric/solar vehicles, hybrid vehicles, smart cars, and biofuels all provide opportunities for increased energy efficiency.

From a public health perspective, what public health benefits are risks might be associated with these changes, what might the public health community do to encourage change, and what indicators of success might we look for? Who should be involved in developing effective policies and strategies for change? Are there any potential pitfalls to be aware of in shifting our focus, e.g. either physical, behavioral, or societal health indicators?

Sustainable Energy and Public Health

Facilitators: Jill Cliburn and Ben Luce

Background: New Mexico has abundant renewable energy resources, including solar, wind, geothermal, fuel wood, hydropower, other biomass and waste-to-energy. The state also has strong reserves of natural gas (often considered a transition fuel) and uranium (whose development is controversial). It is a leading coal state and could support so called clean-coal initiatives. New Mexico's geology offers areas that seem useful for underground carbon sequestration, although this option is not proven.

It is impossible to discuss sustainable energy in New Mexico without recognizing the important role that fossil fuels now play in the state's economy. How will the state make the transition from oil/gas/coal development and use to more sustainable choices? What guidelines can policy makers use to decide if/when investments in new renewable resource technologies might be more beneficial than investments in fossil pollution control or carbon sequestration? And, with more than enough renewable resources to choose from, what policy criteria can we use to determine our best mix within the range of renewables?

Other policy questions relate to the diversity and scale of energy systems. The projected timeframe for climate change calls for a large-scale response (e.g., completely transforming electric and natural gas utilities and/or adding new energy service providers within 30 years). Yet policymakers have options to develop a mix of resources: diverse in terms of scale, geography, ownership, etc. How can public health professionals help to facilitate this decision-making process?

The current trend in energy development for New Mexico includes energy exports. New Mexico exports fossil resources and it exports electricity generated from fossil resources. Some wind-generated electricity is exported, too, and the prospects for renewable energy exports are great. What criteria can policy makers use to guide energy-export industries? What criteria can they use to guide new energy RD& D and new industrial development around energy? How should New Mexico energy policy (including climate policy) relate to that of the Western region?

Energy policy decisions directly and indirectly affect peoples' lives. Drawing on their experience with public education and outreach, can public health professionals recommend ways to engage the public in policy making and implementation of sustainable energy strategies? These ways may include both the "talk" (helping to pass legislation) and the "walk" (helping to drive the marketplace) of a sustainable energy transformation.

Finally, what recommendations can public health officials make to help facilitate a climate stakeholders process? Are there individuals or types of individuals who should be involved? technical background that should be considered? decision-making processes or "tests" that could help support the decision-making process? (For example, some states have used societal cost tests, adding proxy costs to fossil fuels to represent hidden health costs, etc.) And what kinds of measures would help to indicate how well the process and the resulting strategies will have worked?

Energy & resource efficiency, public health & climate change

Facilitators: Johnnye Lewis and Patricia Newell

Energy production is the major contributor to global warming. Strategies to reduce that contribution need to address not only a shift to cleaner, sustainable production, but also to focus on reduced consumption through efficient use of both energy and natural resources.

Energy efficiency can result from retrofitting existing structures, from improved design characteristics in new construction, from reuse of materials already manufactured, and from recycling of manufactured goods back into the production process. Improving lighting efficiency alone results in a 30% savings of energy consumption, energy efficient construction can yield a 60% savings in energy.

Behavioral change alone in use of existing resources and energy systems are used can account for substantial savings. Albuquerque Public schools in 2003 reduced energy costs by $400,000 (15%) through a simple behavioral change program of turning off lights and computer monitors in 31 of 127 schools.

The roundtable discussion will explore 1) how energy efficiency strategies can maximize positive and minimize negative health impacts; 2) how positive or negative impacts should be tracked/monitored; 3) how public health should be incorporated in developing policies to increase energy and resource efficiency; 4) what public awareness or health education activities might facilitate change or mitigate against potential problems, and how the public health community might contribute to those; and 5) who are key stakeholders to include in the discussion to ensure that energy and resource efficiency policies incorporate public health?