Community-based Climate Change programs in Montana and Wisconsin Land Grant Universities

Paul Lachapelle, Montana State University
Greg Wise, University of Wisconsin
What is our role as CDers in climate change adaptation and mitigation education and outreach?
“Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. ...It is extremely likely (95% CI) that human influence has been the dominant cause of the observed warming since the mid-20th century. Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system.” --IPCC 2013
Atmospheric $\text{CO}_2$ (ppm)

For 650,000 years, atmospheric $\text{CO}_2$ has never been above this line ... until now 1950.

Source: NOAA; comparison of atmospheric samples contained in ice cores and more recent direct measurements
Source: NOAA; National Snow and Ice Data Center; NASA
Impacts on Communities

Climate change makes many existing diseases and conditions worse, but it may also help introduce new pests and pathogens into new regions or communities.

--National Institutes of Health

Climate change will affect certain groups more than others, particularly groups located in vulnerable areas and the poor, young, old, or sick.

--US Environmental Protection Agency

The projected rapid rate and large amount of climate change over this century will challenge the ability of society and natural systems to adapt.

--US Global Change Research Program

Current and future impacts of climate change on human society are and will continue to be overwhelmingly negative.

--Oxfam

Climate change threatens the basic elements of life for people around the world. The impacts of climate change are not evenly distributed – the poorest countries and people will suffer earliest and most.

--Stern Review on the Economics of Climate Change

Sources:
www.niehs.nih.gov/research/programs/geh/climatechange/
www.epa.gov/climatechange/impacts-adaptation/society.html
www.globalchange.gov/usimpacts
www.oxfam.org.uk/what-we-do/issues-we-work-on/climate-change
www.hm-treasury.gov.uk/d/closed_short_executive_summary.pdf
Estimated % of adults who think global warming is mostly caused by human activities, 2014

Source: Yale Project on Climate Change Communication: www.environment.yale.edu/climate-communication/
“God’s still up there. The arrogance of people to think that we, human beings, would be able to change what He is doing in the climate is to me outrageous ...[Global Warming is] the second-largest hoax ever played on the American people, after the separation of church and state.”

“These global warming studies [are] a bunch of snake oil science.”
--Governor Sarah Palin, February 8, 2010

“Al Gore’s not going to be rounding up Jews and exterminating them. It is the same tactic, however. The goal is different. The goal is globalization... and you must silence all dissenting voices. That’s what Hitler did. That’s what Al Gore, the U.N., and everybody on the global warming bandwagon [are doing].”
Wide Partisan Differences Over the Environment, Dealing With Problems of Poor, Strengthening Military

% rating each a top priority for the president and Congress in 2015 ...

<table>
<thead>
<tr>
<th>Issue</th>
<th>Rep</th>
<th>Dem</th>
<th>Ind</th>
<th>R-D diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dealing with global warming</td>
<td>15</td>
<td>54</td>
<td>39</td>
<td>-39</td>
</tr>
<tr>
<td>Protecting the environment</td>
<td>35</td>
<td>66</td>
<td>48</td>
<td>-31</td>
</tr>
<tr>
<td>Dealing with problems of poor and needy</td>
<td>40</td>
<td>70</td>
<td>52</td>
<td>-30</td>
</tr>
<tr>
<td>Improving the educational system</td>
<td>52</td>
<td>77</td>
<td>67</td>
<td>-25</td>
</tr>
<tr>
<td>Supporting scientific research</td>
<td>33</td>
<td>51</td>
<td>39</td>
<td>-18</td>
</tr>
<tr>
<td>Dealing with role of money in politics</td>
<td>33</td>
<td>51</td>
<td>43</td>
<td>-18</td>
</tr>
<tr>
<td>Improving roads, bridges and transit</td>
<td>34</td>
<td>52</td>
<td>41</td>
<td>-18</td>
</tr>
<tr>
<td>Addressing race relations</td>
<td>45</td>
<td>62</td>
<td>43</td>
<td>-17</td>
</tr>
<tr>
<td>Dealing with nation’s energy problem</td>
<td>37</td>
<td>51</td>
<td>47</td>
<td>-14</td>
</tr>
<tr>
<td>Reducing health care costs</td>
<td>64</td>
<td>70</td>
<td>59</td>
<td>-6</td>
</tr>
<tr>
<td>Making Medicare system sound</td>
<td>55</td>
<td>58</td>
<td>67</td>
<td>-3</td>
</tr>
<tr>
<td>Improving the job situation</td>
<td>70</td>
<td>72</td>
<td>63</td>
<td>-2</td>
</tr>
<tr>
<td>Dealing with global trade issues</td>
<td>29</td>
<td>31</td>
<td>31</td>
<td>-2</td>
</tr>
<tr>
<td>Reducing crime</td>
<td>62</td>
<td>64</td>
<td>51</td>
<td>-2</td>
</tr>
<tr>
<td>Reducing the influence of lobbyists</td>
<td>41</td>
<td>42</td>
<td>46</td>
<td>-1</td>
</tr>
<tr>
<td>Strengthening the nation’s economy</td>
<td>75</td>
<td>74</td>
<td>75</td>
<td>+1</td>
</tr>
<tr>
<td>Making Social Security system sound</td>
<td>65</td>
<td>62</td>
<td>70</td>
<td>+3</td>
</tr>
<tr>
<td>Reforming the nation’s tax system</td>
<td>60</td>
<td>45</td>
<td>45</td>
<td>+15</td>
</tr>
<tr>
<td>Dealing with issue of immigration</td>
<td>60</td>
<td>45</td>
<td>53</td>
<td>+15</td>
</tr>
<tr>
<td>Defending country from terrorism</td>
<td>87</td>
<td>71</td>
<td>74</td>
<td>+16</td>
</tr>
<tr>
<td>Dealing with moral breakdown</td>
<td>58</td>
<td>42</td>
<td>48</td>
<td>+16</td>
</tr>
<tr>
<td>Reducing the budget deficit</td>
<td>72</td>
<td>55</td>
<td>68</td>
<td>+17</td>
</tr>
<tr>
<td>Strengthening the U.S. military</td>
<td>71</td>
<td>41</td>
<td>51</td>
<td>+30</td>
</tr>
</tbody>
</table>


PEW RESEARCH CENTER
<table>
<thead>
<tr>
<th>Threat</th>
<th>U.S. %</th>
<th>Canada %</th>
<th>Europe %</th>
<th>Middle East %</th>
<th>Asia/Pacific %</th>
<th>Latin America %</th>
<th>Africa %</th>
<th>ALL COUNTRIES %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global climate change</td>
<td>40</td>
<td>54</td>
<td>54</td>
<td>42</td>
<td>56</td>
<td>65</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Int’l financial instability</td>
<td>52</td>
<td>45</td>
<td>63</td>
<td>54</td>
<td>49</td>
<td>49</td>
<td>54</td>
<td>52</td>
</tr>
<tr>
<td>Islamic extremist groups</td>
<td>56</td>
<td>41</td>
<td>55</td>
<td>41</td>
<td>47</td>
<td>31</td>
<td>56</td>
<td>49</td>
</tr>
<tr>
<td>Iran’s nuclear program</td>
<td>54</td>
<td>44</td>
<td>56</td>
<td>41</td>
<td>44</td>
<td>39</td>
<td>41</td>
<td>44</td>
</tr>
<tr>
<td>N. Korea’s nuclear program</td>
<td>59</td>
<td>47</td>
<td>52</td>
<td>17</td>
<td>46</td>
<td>38</td>
<td>39</td>
<td>42</td>
</tr>
<tr>
<td>U.S. power and influence</td>
<td>23</td>
<td>23</td>
<td>20</td>
<td>36</td>
<td>42</td>
<td>33</td>
<td>21</td>
<td>27</td>
</tr>
<tr>
<td>China’s power and influence</td>
<td>44</td>
<td>34</td>
<td>38</td>
<td>17</td>
<td>29</td>
<td>23</td>
<td>26</td>
<td>27</td>
</tr>
<tr>
<td>Political instability in Pakistan</td>
<td>37</td>
<td>22</td>
<td>31</td>
<td>9</td>
<td>24</td>
<td>20</td>
<td>25</td>
<td>22</td>
</tr>
</tbody>
</table>

Change Agents Capitalize on Opportunities

• Trends raise reasonable questions—but uncertainty
• Decision are often made in the face of uncertainty
• Focus on risk and vulnerability under a range of scenarios
• Don’t debate the reality of climate change
• Understand the difference between weather and climate
Wetter, So What?

- Midwest projected to become wetter
- Increase projected for fall-winter-spring
- Heavier, more frequent rainfall
- So what?
  - new areas that are flood-prone;
  - infrastructure vulnerability;
  - emergency management challenges;
  - natural resource management considerations, etc.
Hotter, So What?

• Warmer winter nights
• Summer and autumn show less change
• So what?
  – more frequent icing conditions;
  – fewer days of winter recreation
  – greater heat stroke vulnerabilities
2014 Wisconsin Extension Needs Assessment and Response

Teachable moments

- Heavy rain events/floods
- Drought
- Heat waves
- Extreme cold
- More fall/winter/spring precipitation
- More frequent ice storms
- Rising ground water levels

Programming responses

- Disaster preparedness
- Ag production/food systems
- Environmental education
- Public health
- Municipal infrastructure & land use planning
- Energy efficiency
- Tourism development
- Business resiliency
The MSU Extension Climate Science “Working Group” Objectives

1. **Inventory** current climate programming.

2. Design and implement a **survey** of Extension faculty to determine interest and demand for future climate programming.

3. Identify opportunities and develop **recommendations**.
Survey Overview

• Modeled after similar effort at North Carolina Cooperative Extension

• Direct request (June 2014) from Extension Director to respond

• 24% response rate
Current or potential climate change programming in Extension is **not relevant** to my program area.

72% disagree or strongly disagree that climate change programming is not relevant to their program area.
There is not enough applied information available regarding current or potential climate change programming in Extension.

65% agree or strongly agree there is not enough applied information available.
Fear of negative consequences from supervisors, County Commissioners, or target audience (12%, 16%, and 23%, respectively)
How willing are you to participate in professional development opportunities?

94% are somewhat or very willing to participate in professional development opportunities

Not at all willing: 6%

Somewhat willing: 59%

Very willing: 35%
Recommendations

1. Establish a formal MSU Extension Climate Science Team
   a. Membership open to all MSU Extension faculty and staff
   b. Provide leadership for programming efforts, training, resource development, grant opportunities, interdisciplinary programs, and developing a communication plan

2. Support continued professional development and programming in the area of climate science.
   a. Convene climate science training for MSU Extension specialist and agents.

3. Adopt the MSU Extension Climate Science Program Framework as a means to define program areas related to climate science and outline the goals of the MSU Extension Climate Science Team.
Montana State University Extension
Climate Science Program Framework

MSU Extension (MSUE) improves the lives of Montana citizens by providing unbiased research-based education and information that integrates learning, discovery and engagement to strengthen the social, economic and environmental well-being of individuals, families, and communities. Among the many critical issues MSUE addresses are Montana’s vulnerability to water shortages, extreme weather events, and increased fire frequency and pest outbreaks. Climate variability, its impacts on natural resources, and the mitigation practices implemented by Montana’s citizens are at the core of these issues. Energy efficiency, improved soil health, and cropping system resiliency are a few examples of the educational programs currently conducted by MSUE Faculty directly or indirectly related to climate change and variability.

Over the last two centuries, and particularly in the last 50 years, there has been an unprecedented increase in the atmospheric concentration of carbon dioxide (CO₂) and other greenhouse gases. The scientific consensus is that change in atmospheric composition has increased earth’s capacity to retain heat, leading to global-scale warming of the oceans and the atmosphere, changing precipitation patterns and regional weather trends. These global changes are impacting Montana’s agricultural production systems, natural ecosystems, economy, and general well-being.

Historically, Montana’s citizens have successfully responded to variations in environmental conditions, trade, policies, and technologies. However, the challenges created by climate variability are new and require innovative approaches to research and education. In this context, MSUE will develop climate science programming based on needs identified by its stakeholders. This programming will be conducted in the most respectful and supportive way possible. Our goals are:

1. To **increase the number of MSUE faculty and staff with the skills and knowledge** necessary to address the effects of climate variability and its impacts.

2. To **create opportunities to engage in, discuss, plan and implement educational programs** about climate science, climate change, impacts, adaptation, and mitigation.

3. To **design and deliver science-based research, relevant educational resources, and engaged leadership programs** on climate science, climate change, impacts, adaptation, and mitigation to the people and communities of Montana.
Next steps

• Organize a regional Extension Climate Conference (w/ USDA Climate Hubs) in Dec. 2015 (live stream)
• Pursue Scholarship
• Draft IACD Position Statement
Community Development Society
Book Series

COMMUNITY VISIONING PROGRAMS
Processes and Outcomes
EDITED BY NORMAN WALZER AND GISELE F. HAMM

THEORY, PRACTICE, AND COMMUNITY DEVELOPMENT
EDITED BY MARK A. BRENNAN, JEFFREY C. BRIDGER, THEODORE R. ALTER

SOCIAL CAPITAL AT THE COMMUNITY LEVEL
AN APPLIED INTERDISCIPLINARY PERSPECTIVE
EDITED BY JOHN M. HALSTEAD AND STEVEN C. DELLER
Anyone think these are opportunities for community action?

- Higher dew points = heat-related mortality = demand for shelters
- Greater rainfall = soil erosion threats = better planning
- More invasives = challenges for forestry and farming
Two Cases

Interested in climate change and the agricultural and other businesses:
1. Understand risks & opportunities
2. Identify business-specific strategies
3. Create a *Rapid Climate Change Strategy for Farms and Business*

A formal climate planning for the county:
1. Understand climate impacts
2. Assess vulnerability
3. Identify adaptation opportunities
4. Plan for adaptation
5. Create Climate Change Action Council
6. Identified sixty-four impact scenarios
7. Budgeted $1.2M
<table>
<thead>
<tr>
<th>Actions</th>
<th>Cautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhance understanding</td>
<td>Community’s differ</td>
</tr>
<tr>
<td>Identify decision makers</td>
<td>Tune in to public discourse</td>
</tr>
<tr>
<td>Discuss risk and vulnerability</td>
<td>Should you engage in the debate</td>
</tr>
<tr>
<td>Include trend projections</td>
<td>Connect/integrate with other initiatives and</td>
</tr>
<tr>
<td>Raise awareness</td>
<td>programming</td>
</tr>
<tr>
<td>Build capacity</td>
<td></td>
</tr>
</tbody>
</table>
Why avoid the political debate?

• Support climate change mitigation and adaptation
• Opinions don’t matter as much as results
• Polls show that most believe climate change is real—focus on that
• Adaptation AND mitigation addresses the causes anyway
  – Plan to accommodate extreme rainfall in ways that protect our homes, farms and waterways (adaptation)
  – We can help communities with renewable energy generation, energy efficiency programs and encouraging conservation (mitigation)
Position Statements from Professional Associations and Organizations

American Association for the Advancement of Science
"The scientific evidence is clear: global climate change caused by human activities is occurring now, and it is a growing threat to society." (2006)

American Medical Association
"Our AMA ... supports the findings of the Intergovernmental Panel on Climate Change’s fourth assessment report and concurs with the scientific consensus that the Earth is undergoing adverse global climate change and that anthropogenic contributions are significant." (2013)

American Meteorological Society
"It is clear from extensive scientific evidence that the dominant cause of the rapid change in climate of the past half century is human-induced increases in the amount of atmospheric greenhouse gases, including carbon dioxide (CO2), chlorofluorocarbons, methane, and nitrous oxide." (2012)

The Geological Society of America
"The Geological Society of America (GSA) concurs with assessments by the National Academies of Science (2005), the National Research Council (2006), and the Intergovernmental Panel on Climate Change (IPCC, 2007) that global climate has warmed and that human activities (mainly greenhouse-gas emissions) account for most of the warming since the middle 1900s." (2006; revised 2010)

U.S. National Academy of Sciences
"The scientific understanding of climate change is now sufficiently clear to justify taking steps to reduce the amount of greenhouse gases in the atmosphere." (2005)

Nearly 200 worldwide scientific organizations that hold the position that climate change has been caused by human action and urging a response: opr.ca.gov/s_listoforganizations.php; climate.nasa.gov/scientific-consensus/
Geological Society of America Position Statement Process
Geology and Public Policy Committee (GPPC)

Start
Recommendation for new position statement (PS) submitted to GPPC by GSA member, GSA division, GPPC member, or GSA Council member

- GPPC vote on recommendation
  - Approved*

Proposal drafted by GPPC member(s); includes list of potential ad hoc panel members and Chair, GPPC liaison(s) and person(s) recommending PS

- GPPC vote on proposal
  - Approved
  - GSA ExCom/Council vote on proposal
    - Approved

*At any point in the process GPPC or GSA Council may elect to take some other action on the proposal or draft/revised position statements.

Proposal

Drafting
Ad hoc panel assembled by panel Chair, with assistance of GPPC Chair and liaison(s) as needed

- Ad hoc panel drafts PS and submits to GPPC

Comment & Editing

- Draft review by GPPC
  
Content objection, proposed revisions sent back to ad hoc panel for technical concurrence

- Ad hoc panel considers all comments and edits draft PS accordingly; submits revised draft to GPPC for review

Finalization

- GPPC vote on revised draft PS (GPPC may also elect to form an internal ad hoc panel to edit text for clarity before vote)
  
- GSA ExCom/Council vote on proposal
  - Approved

End

No content objections, GPPC vote on draft PS

- Approved

Draft PS posted on GSA website, published in GSA Connection and GSA Today, and transmitted to GSA Council for preliminary comments

PS is finalized and published on GSA website and in GSA Today.

This process is for new or substantially revised position statements. Position Statements have expiration dates from 3-5 years after approval by GSA Council, although they may be revised at any time.

ver. 1.4 DWS 5-24-11
IACD Draft Position Statement on Climate Change

Multiple independent lines of evidence make it clear that climate change is occurring, and rigorous scientific research demonstrates that the greenhouse gases emitted by human activities are the primary driver. Moreover, there is strong evidence that ongoing climate change will have broad impacts on society, including the global economy and on the environment.

The IACD recognizes that climate change will have profound impacts on communities with the likelihood of negative consequences affecting those most vulnerable. The IACD also recognizes that rapid societal responses, particularly addressing needs of communities and of those most vulnerable, can significantly lessen negative outcomes.
Questions

• What is our role?
• How can we better collaborate?
• Should CDS develop Position Statements?