Climate Master Research Results

Sarah Mazze, Bob Doppelt, Jean Stockard and Abbie Shaddrick
Climate Leadership Initiative, Institute for a Sustainable Environment
University of Oregon
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Results Summary

In a 2007 pilot in Eugene, Oregon, the University of Oregon's Climate Leadership Initiative trained 50 community members who conducted 600 hours of volunteer outreach reaching 1250 people through a program we developed called the Climate Master program. A portion of those outreach hours consisted of performing household "climate consultations" in 85 homes.

Results from a pre- and post-survey of the most active program participants showed an increase in energy efficient purchases and energy saving behaviors, use of alternative transportation, purchase of local foods, volunteering with organizations involved with climate change and talking to others about climate change, along with a decrease in purchase of disposable goods and meat eating. Through these actions and others, participants reduced their personal greenhouse gas emissions by an average of 4,317 pounds, or approximately two tons. According to self-reports in interviews and program evaluations, the actions also led to an increased sense of wellbeing, empowerment and good health for participants, with some saying the program changed their life. The pool of survey respondents included both those who participated in the 30-hour Climate Master training course and those who received household consultations from Climate Masters. Forty-two people responded to both the pretest and posttest regarding greenhouse gas (GHG) emissions and climate-related behavior, while 135 people participated in the program at the level of survey respondents. Another 1100 were reached through outreach efforts by Climate Masters like tabling, public speaking and distributing compact florescent lightbulbs, the impact of which were not measured.

Research Description and Goals

The Climate Leadership Initiative (CLI) set out to identify effective methods for increasing public understanding of climate change and for engaging households and individuals in reducing their greenhouse gas (GHG) emissions or carbon footprint, with the end goal of developing an easily replicable model for use around the region and nation.

Households are the end-users of most energy production and the source of most greenhouse gas emissions via home energy use, food, travel, and embodied energy in products that households purchase. Because households can quickly and easily change their behaviors without waiting for changes in policy or technology, potential exists for tremendous impact as individuals' actions collectively reduce a community's emissions. Moreover, citizen involvement builds demand for low-emission products, services and policy, which often are not effective without sufficient public backing. Yet the public's understanding of climate change is low and few know what they can do about the problem of climate change. To address these issues, CLI began a yearlong pilot project called the Climate Master program (previously the Neighborhood Climate Council, then

Community Climate Stewards) in Eugene, Oregon in 2007 to test and refine outreach strategies that could be easily replicated nationwide.

Our project goals were to educate households and trigger action to reduce household greenhouse gas emissions. Broadly, we intended to design a model that would:
1) substantially increase public understanding of climate change;
2) support household and individual efforts to measure and reduce energy use and GHG emissions;
3) through 1 and 2, build the market for climate friendly products and technologies;
4) through all of the above build public support for robust climate policies.

Specifically, we aimed to conduct household consultations for 200 households in one year and to reach others through less intensive outreach. Without any empirical data to base goals on, our initial aim was to see how close the program could come to attaining a 20% reduction in personal GHG emissions for active participants – those participating in the class or receiving household consultations. We attained a 23% reduction from the Eugene per capita of 8.6 tons per person, as determined by the City's greenhouse gas emissions inventory. Using CLI's estimation of a "typical" Eugene resident, which includes air travel and general consumption, participants achieved a 15% reduction from 13.6 annual tons emitted. This suggests that our initial speculative goals were roughly on target.

Program Development

The Climate Leadership Initiative (CLI), part of the 501c3 The Resource Innovation Group, is a climate change research and technical assistance program affiliated with the University of Oregon's Institute for a Sustainable Environment. CLI developed the Climate Master (CM) program though a yearlong pilot project, which resulted in a clear strategy that can be replicated in communities across the region and the nation. The CM program includes two primary components: 1) Climate Master, a ten-week long 'train-the-trainer' course modeled after nationwide Master Recycler and Master Gardener programs; and 2) household "climate consultations," which include personalized household audits and site-specific recommendations. We initially had a neighborhood focus and a third major component to the program, one-time events in our two target neighborhoods. We dropped the neighborhood focus in response to widespread interest in the program from the community at large, paired with the challenge of communicating through the narrow channels available when attempting to reach individual neighborhoods. We had very low attendance at the one-time educational events and so ceased holding those as well.

In the Climate Master class, participants received 30 hours of free training in exchange for 30 hours of education and outreach in the community on climate change and reducing personal greenhouse gas emissions. The class focused primarily on reducing GHG emissions from the home and yard, food and transportation choices, and consumption and waste. Household consultations, conducted by the Climate Master participants, consisted of a one to two hour visit to a recipients' home in which they received tailored strategies for reducing their personal and household GHG emissions. Climate Masters asked for a signed commitment by the residents to take several actions of their choice to reduce their GHG emissions. Several weeks later, CLI contacted the consultation recipients to see if they had followed through on their commitments

and if they needed any further support. Climate Master class participants conducted other forms of outreach such as tabling and speaking at events, distributing compact florescent lightbulbs to their neighbors, and more (see Appendix B).

The foundation of the CM program is built upon research on behavioral and social change, in particular that of community based-social marketing, as well as the strengths and weaknesses of various social and behavioral change programs. CM effects change by engaging and educating early adopters, who then make direct, one-on-one contact with friends, neighbors and other community members. While these early adopters understand the need to address the issue, we found that they need motivation, information and support to move beyond intention to action. Moreover, early adopters are often influential in their local community, politics and economy and therefore create a ripple effect when they change their behavior. As such, we have designed a program that meets the needs of residents at all levels of interest and motivation, builds upon the existing expertise and networks within a community, and is proven to lead to greenhouse gas emission reductions.

Evaluation

We used multiple evaluation strategies for determining the success of our outreach model. The primary component of our evaluation strategy was a detailed pre- and post-survey in which participants provided information on their attitudes toward and level of understanding of climate change, data needed to compose a "carbon footprint" for their household, actions they have taken to reduce their person greenhouse gas emissions, and the source of their knowledge and skills around climate change/greenhouse gas emission reducing activities. People took the survey when they joined the Climate Master class, participated in a household carbon emission audit, or attended an event. We collected follow-up data at the end of the one-year pilot project for all who took the initial survey.

We also asked permission to access these individuals' utility accounts so that we can track the home energy use of these "active participants." Because some people engaged with the program at the end of the pilot year, we did not expect to see significant changes to their utility data in several weeks or a month. We will collect data from the utilities quarterly in order to see participants' changes over the course of a year.

We did not ask those who spoke with Climate Masters as they tabled at events or conducted other forms of outreach to fill out the surveys or sign a utility release form, as we did not expect them to have sufficient engagement with the program that they would make significant changes based on their involvement. We do not have detailed data on their experience with the program, but rather collected information on the number of contacts we made through outreach.

Results

We found that the CM program achieves the program goals of reducing personal greenhouse gas emissions with the train-the-trainer and household consultation programs. We were unable to measure our impact on public understanding of climate change. Respondents to the survey reported high levels of concern and understanding of the issue and felt a sense of efficacy around some actions to resolve the problem from the start. Therefore, we measured little increase in survey respondents in these areas. On the other hand, we did not survey those participants most

likely to make a change in this area: those who did not participate in the training, nor received a household consultation, but rather encountered Climate Masters during their outreach at public events, etc.

In the pilot year, we trained 50 Climate Masters in two ten-week training sessions. After their training, CMs collectively conducted approximately 85 household consultations and 600 recorded volunteer education and outreach hours in the community. Although this falls short of our goals for household consultations, we are satisfied that with the program in full swing for an entire year, participants could achieve a greater number of household consultations.

Our research found that the Climate Master class resulted in changes in behavior by participants that led to reduced greenhouse gas GHG emissions. Forty-two people responded to both the pretest and posttest regarding GHG emissions and climate-related behavior. Comparison of the GHG emissions of those who responded to both questionnaires with those who only responded to the first one indicated that there were no significant differences on any of the measures, separately or combined. In other words, the subset for which we have pretest and posttest data appears to be similar to the total group providing pretest data.

The tables in Appendix A examine the respondents' reports of their climate related actions at posttest. Table 1 gives the numbers of respondents who indicated they had started an activity since involvement in the program (either through taking the Climate Master or receiving a household consultation from a Climate Master), those who were not engaging in the activity and those who were already doing each of the activities. Many of the participants were already engaged in climate-friendly activities. Across all of the activities listed in Table 1, the participants were already doing 45% of the possible actions. Among the remaining actions – those for which there was a possibility of change – the participants changed their behaviors in over half. Actions with the most change were energy efficient purchases, using alternative transportation, purchasing fewer disposable goods, buying local food, volunteering with organizations involved with climate change and talking to others about climate change, eating less meat, turning off powerstrips to avoid standby power, and putting heaters at lower temperatures. Actions that showed somewhat less change were communications with politicians about climate change, purchasing carbon credits, planting a tree, using alternative energy, and flying less. Note that these actions are those that might require more money to accomplish and, in the case of flying, may be relatively less frequent activities to capture in the time span included in the analysis.

Because not all possible actions were listed for the respondents they were given the possibility of listing other activities. Table 2 gives the list of other actions that were mentioned by respondents and shows a wide variety of approaches from planting gardens to use of household appliances and purchasing habits.

Table 3 translates the information into an estimate of the savings in carbon emissions per year from each of the actions. These estimates only include the people who reported that their actions changed over the time period understudy (those listed as saying "yes" in Table 1). In addition, estimates were not included for several of the activities, such as communicating with others, buying fewer disposable goods and purchasing carbon offset credits. Nevertheless, it can be seen that these actions resulted in substantial savings. For the 42 people included in the analysis, this

reflects an average of more than 2 tons reduced per person in carbon emissions in the pilot year. Approximately 135 people participated in the program at the level of survey respondents, with another 1100 reached through unmeasured Climate Master outreach efforts like tabling, public speaking, distributing compact florescent lightbulbs and other activities. One Climate Master began a "carbon reduction support group," while another, a meteorologist, incorporated information learned in the program into his broadcasts.

Qualitative data, collected through class evaluations, interviews, and less formal conversations, revealed results that were less expected. After the Climate Master training, many participants reported feeling an increased sense of wellbeing, empowerment and good health. Participants reported cost savings from decreased energy use. Many people who took part in the initial pilot projects reported that the program changed the way in which they thought about their climate footprint and altered the way in which they made decisions throughout their day.

In an interview, participant Karin Sutherland said:
> "I took away from it this…more of a grounding of what I can do. For instance, I bought a bike and I started to have such a resistance to driving a car. And I'm completely in love with riding to work and riding for fun."

Paul Moore, another Climate Master participant said in an interview:
> "I have a broader perspective, across the board, from ideas about how buildings are built, to how food is distributed, to how it is grown, to all the vast variety of ways you can reduce energy consumption in households."

Qualitative data also shed light on what aspects of the program are effective. Participants shared that they had known what behaviors they ought to change to reduce personal emissions prior to the class, but that taking the training motivated them to actually make those changes. Others reported that they had lacked some of the skills and information needed to make changes, which the training and interaction with their peers provided. Follow-up with consultees revealed similar sentiments: interacting with and learning from others in a peer to peer situation motivated them to take action to reduce their greenhouse gas emissions.

Conclusion

The pilot demonstrated that trained early adopters are able to successfully reduce their personal greenhouse gas emissions and provide extensive community outreach to boost climate literacy. Based on this research, we have prepared a handbook and curriculum that can be used by communities across the nation that wish to operate their own Climate Master program. We are developing a replication strategy that allows us to train community and government organizations to develop and sustain such programs in their community, with the goal of initiating Climate Master programs nationwide.

Pilot project co-sponsors included Commuter Solutions, Jerry's Home Improvement Center, Eugene Water and Electric Board (EWEB), the EWEB Partners in Education Program, Rexius Sustainable Solutions, South Eugene High School student government, and the Eugene Tree Foundation.

Appendix A: Survey Results

Table 1: Actions Taken After Climate Master Program to Alter CO2 Emissions

		Yes	No	Already Doing	Total
a)	Energy Efficient Purchases	16	2	24	42
b)	Weatherization	6	11	24	41
c)	Use Alternative Energy	7	18	15	40
d)	Use alternative transit	14	4	24	42
e)	Regularly use alternative transit	10	12	20	42
f)	Recycle	5	0	37	42
g)	Compost	4	6	30	40
h)	Fewer Disposable Goods	11	5	26	42
i)	Plant a Tree	5	17	18	40
j)	Buy local food	19	1	22	42
k)	Buy organic food	6	4	32	42
l)	Joined, donated to, or volunteered with organization dealing with global warming	18	10	13	41
m)	Made views on global warming clear to politicians	12	20	9	41
n)	Talked to others about how to reduce or prevent global warming	25	4	13	42
o)	Purchased carbon offset credits	2	33	4	39
p)	Eat less meat	11	5	22	38
q)	Fly less	8	13	15	36
r)	Turn down waterheater	15	16	10	41
s)	Turn off powerstrips to reduce phantom loads	27	12	2	41
t)	Put heater at lower temperature	21	8	10	39
u)	Other Actions to save CO2	11	2	1	14
	Total	253	203	371	827
	Total Percents	30.6	24.5	44.9	100
	Percents excluding those already doing the actions	55.5	44.5		

Table 2: Other actions listed to save CO2

	Frequency
Added garden Space	1
bought a kill-a-watt (p3) meter to measure my appliances load. Am selling my home to downsize. Setup cooking with pressure cooker. Doing household CM Consultations.	1
changed shower head	1
choosing to buy less merchandise	2
cleaned under refrigerator / coils	1
contacted EWEB for an energy and rate audit	1
never use clothes dryer	1
reduced lawn by 80%, some was turned into veg. beds	1
turn off H20 heater when out of town, turn off heat in house and heat office with space heater.	1
turn off light and heat in rooms not used	1
upgraded weatherstripping around doors	1
Use less hot water, shut down computer at night	1
uses an electric blanket & turns off heat at night	1
using thermometer for room temp & buying less	1

Table 3: Carbon Savings from Actions Taken, Average per Action and Total per Action

		Average Additional Carbon Saved	Total Additional Carbon Saved
a)	Energy Efficient Purchases	311	4976
b)	Weatherization	945	5670
c)	Use Alternative Energy	2100	14700
d)	Use alternative transit	1600	22400
e)	Regularly use alternative transit	4891	48910
f)	Recycle	423	2115
g)	Compost	265	1060
h)	Fewer Disposable Goods	NA	NA
i)	Plant a Tree	26	130
j)	Buy local food	730	13870
k)	Buy organic food	600	3600
l)	Joined, donated to, or volunteered with organization dealing with global warming	NA	NA
m)	Made views on global warming clear to politicians	NA	NA
n)	Talked to others about how to reduce or prevent global warming	NA	NA
o)	Purchased carbon offset credits	NA	NA
p)	Eat less meat	884.0	9724.2
q)	Fly less	3509	28072
r)	Turn down waterheater	130.7	1960
s)	Turn off powerstrip	540	14580
t)	Put heater at lower temperature	455	9554.6
	Grand Total		181,322
	Overall Average per person		4317

Appendix B:

Activity	Hours	Contacts
Consultations	250	85 homes
Tabling	150	
Neighborhood Events		45
Art in the Vineyard		145
Eugene Celebration		89
Green Home Show		200
Bike Day		50
Earth Day		25
Holiday Market		50
Walk & Bike		15
Presentations		
Bill Bradbury "Inconvenient Truth" kick-off		300
Sustainability Play-- Cozmik Pizza		120
Our Healthy Planet		10
Church Women United		30
Tom West at Church		28
Scheduling	50	
Flyering	10	
Class Materials	25	
Planning	32	
Web Site, Follow Ups, Miscellaneous	75	
Total	592	1107