

Federal Investments in Climate Change 2023 - 2024:

Empowering Communities for a Sustainable Future

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Table of Contents

Acknowledgments	II
Funding and Contributors	II
Suggested Citation	
EXECUTIVE SUMMARY	III
INTRODUCTION	1
METHODS	2
FINDINGS	4
Figure 1: Distribution of Identified Goals and Priorities of Federal Grants by Main Categories	4
Figure 2: Treemap Summarizing Grant Frequency, Percentage, and Dollars Offered by Federal Agency	
Figure 3: Heat Map of Total Monetary Allocation by Agency and Identified Goals and Objectives	
DISCUSSION	7
Federal Investment Priorities	
Opportunity Areas for Federal Level Climate Change Investment	
Limitations	
CONCLUSION	9
REFERENCES	10
APPENDICES	14
A. Frequencies of Identified Goals and Objectives	14
B. Acronym of Agencies	15

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EXECUTIVE SUMMARY

Introduction

In the United States, climate change has resulted in drastic weather conditions that disproportionately affect vulnerable populations, such as non-Hispanic Black residents and farmworkers (Berberian et al., 2022; El Khayat et al., 2022). It is expected that the United States will see increases in health issues, such as asthma and premature death, loss of labor, and infrastructure problems that can be attributed to climate change-related phenomena like extreme temperatures (U.S. EPA, 2021). Given these challenges, funding has been allocated toward environmental justice (EJ) strategies to protect vulnerable populations. For example, through the Inflation Reduction Act (IRA) billions of dollars have been, and will continue to be allocated over a ten-year period to promote resilient policies that cultivate a sustainable environment where everyone can live, work, and play. Although some of the IRA funds have been distributed, the majority of funding is still pending and is available for eligible community-based organizations (CBOs). As experts in community outreach and advocacy, local CBOs can play a large role in promoting and achieving these EJ goals. The objective of this report is to highlight funding opportunities that local CBOs can engage with in addressing local climate concerns.

Methods

The Central Valley Health Policy Institute research team compiled climate and EJ grants for local CBOs from federal databases. Using categorical analysis, grant goals and objectives were identified and broadly categorized. Funding amount by agency was also aggregated. This report shows the distribution of funding by category, the amount of funding available, and specific priority areas by agency.

Findings

- Out of the total identified goals and objectives of federal climate change grants, 48.1% focus on community and community health, 33.3% concern policy and research, 13.2% prioritize environmental monitoring and risk assessment, and 5.4% emphasize infrastructure initiatives.
- Federal grants seek to provide \$20.7 billion to support climate change and environmental goals for grantees, with the top three contributing agencies being the Environmental Protection Agency (EPA) (\$14.6 billion), U.S. Department of Transportation (DOT) (\$4.8 billion), and Federal Emergency Management Agency (FEMA) (\$1 billion).
- Ten Federal agencies provide climate change and environmental justice grants that CBOs can apply to: EPA, DOT, FEMA, U.S. Department of Agriculture Forest Service (USDA), U.S. Department of Health and Human Services (HHS), Federal Highway Administration (FHWA), U.S. Department of Housing and Urban Development (HUD), National Institutes of Health (NIH), National Endowment for the Humanities (NEH), and Centers for Disease Control and Prevention (CDC).

EXECUTIVE SUMMARY

- Agencies with the most grants include the EPA (n=21), DOT (n=7), and HHS (n=5). The EPA addresses climate change most broadly, emphasizing the development or improvement of climate change
- policy, networking of communities/organizations towards climate change, and the enhancement of community-centered policy, activities, advocacy, and/or opportunities.
- The majority of federal grants aspire to involve community feedback and collaboration in EJ and climate change infrastructure funding.

Discussion

Within federal agency grant opportunities, nearly \$20.8 billion dollars could be acquired towards enhancing climate change policy and outreach among vulnerable communities. Federal agencies seek to address climate change and EJ from multiple angles by improving community centered climate policy, connecting communities for climate change goals, and assessing environmental hazards through funding. Federal agencies have created opportunities for community engagement in addressing climate change, with a majority of funding committed to Community and Community Health (48.1%) and Policy and Research (33.3%). Grants to local organizations can play a crucial role in boosting EJ messaging, thus increasing community participation in climate policies. Grants to municipalities and other government and private entities also have the opportunity to meaningfully engage the community through partnership with CBOs. Additional activities for climate advocacy by CBOs may further extend the benefits of EJ efforts to underserved populations—bridging gaps in climate science, EJ efforts, and policy.

INTRODUCTION

Climate change effects include increased extreme weather patterns and rising sea levels. Such drastic effects in climate and weather disproportionately impact vulnerable populations, as outlined by the Environmental Protection Agency's (U.S. EPA) 2021 report on Climate Change and Social Vulnerability in the United States. Communities socially vulnerable at the face of climate change concerns include those of low socioeconomic status, children, older adults, pregnant women, certain communities of color, Indigenous peoples, vulnerable occupational groups, people with disabilities and those with preexisting or chronic medical conditions (White et al., 2023). Such vulnerable populations experience more challenging health impacts than non-vulnerable populations. Non-Hispanic Black individuals, for instance, are at higher risk for complications due to differences in 2.5 μ m particulate matter (PM2.5) exposure, with many studies showing that many non-Hispanic Black residents live in communities with higher PM2.5 and ozone concentrations (U.S. EPA, 2021).

In terms of health implications, it is expected that the U.S. will experience higher asthma diagnoses among children from air pollution, as well as increases in mortality and morbidity, and 1 to 1.8 billion workforce hours will be lost annually in the 2050s due to extreme temperatures (U.S. EPA, 2023; Ebi et al., 2021; Zhang & Shindell, 2021). Additionally, working conditions for U.S. farmworkers can become hazardous due to extreme heat and drought during intense wildfire seasons. Wildfires also release harmful pollutants such that PM2.5 can cause respiratory diseases, cardiovascular disease, and premature death (Becerra, 2023). Furthermore, rising temperatures and increasing dramatic precipitation events expose populations to potential flood hazards that are likely to become inevitable over the next 30 years across the continental United States. The frequency of these events may continue to rise depending on the trajectory of future greenhouse gas emissions (Swain et al., 2020). Beyond health and labor concerns, communities may face infrastructure and residential issues like traffic delays, flooding, and property damage (U.S. EPA ,2021). Seasonal wildfires and water-related concerns threaten the livelihoods of Californian communities (Carreras-Sospedra et al., 2024; Huang & Swain, 2022).

To overcome the disproportionate challenges climate change brings, environmental justice strategies can rely on effective and resilient policies to support vulnerable communities. The EPA defines environmental justice (EJ) as:

...the just treatment and meaningful involvement of all people...in agency decisionmaking and other Federal activities that affect human health and the environment so that people: are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices. Via health equity-oriented EJ policy, communities can experience improved health outcomes (U.S. EPA, 2024). For instance, one systematic review observed a protective effect, such as improved general health, higher birth weight, and lower mortality, when adding more green space in communities with low socioeconomic status (SES) than those of high SES in European countries (Rigolon et al., 2021). This increase of green space within a vulnerable community improved the health of its residents, thereby showing EJ as an effective health equity strategy.

Community-based organizations (CBOs) can serve as conduits toward achieving EJ goals. As experts in community outreach and advocacy, they may elect to create communitycentered EJ goals and engage communities in EJ-enhancing activities. For instance, CBOs in Fresno County have contributed to advocacy for increased community green space. Organizations such as Fresno Building Healthy Communities (FBHC) (Central Valley Policy Institute, 2023), and the Central California Environmental Justice Network (CCEJN) in Fresno involve residents of low-income areas in decision-making processes advancing EJ work. FBHC secured a \$6.6 million grant for parks and recreation (Dillard, 2024; Calix, 2020). Through the Inflation Reduction Act (IRA) CCEJN were awarded \$500,000 to build upon and expand existing programs and relationships with residents, researchers, and regulators to create campaigns capable of producing meaningful environmental and public health results (US EPA, 2023). The ability of the local CBOs to engage overburdened communities is a cornerstone to EJ to provide marginalized groups a chance to take part in government decision-making processes (Washington State, Department of Ecology, 2024).

The involvement of CBOs in such initiatives demonstrates their ability to effect meaningful change, especially when supported by federal funding. Historic federal investments, like the Bipartisan Infrastructure Law (BIL) and the IRA, have supported the transition to cleaner energy systems and climate-resilient communities, enabling CBOs to access grants that meet local needs and promote collaboration. Funding is delivered by a specific deadline or on a rolling basis. Many of these federal investments in climate change highlight policy developments and community-centered initiatives, thus advancing EJ efforts by involving communities in the decision-making process. Given the crucial role that CBOs can play in addressing local climate concerns by utilizing such funding, this report outlines current and future opportunities, as well as a discussion of past funding and how it compares to current climate funding.

METHODS

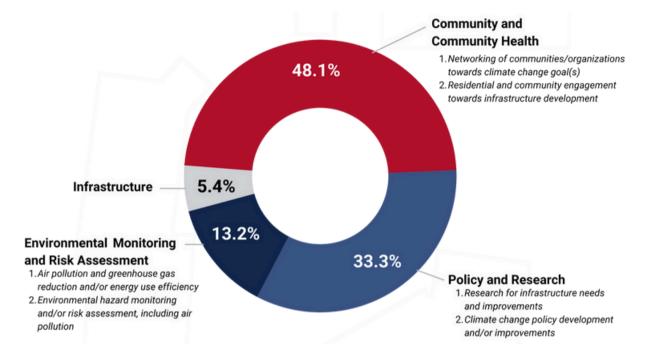
Data was collected from the U.S. federal government grant database (grants.gov) between December 2023 to April 2024. Climate change and EJ-related grants were scanned and collected. The following keywords, among others, were used during the search process: "Climate Change", "Environmental Justice", "Air Pollution", "Extreme Heat", "Climate Resilience", "Community Change", and "Climate Adaptation." The research team organized grant opportunities on a spreadsheet—summarizing grant goals and objectives, required activities, target audience, intended applicant, and the submission deadline. Grants were included if the deadline for submission was after April 2024 or considered ongoing or rolling applications.

A team of reviewers scanned the grants to determine inclusion and exclusion. Inclusion criteria included grants that had been disbursed or were in the process of accepting applications in which the guidelines allowed for CBO applicants or included requirements of collaboration or community engagement with CBOs. Excluded grants were those that did not involve CBOs as potential collaborators or applicants and those that were dedicated only to infrastructure. A categorical analysis was used to determine common priorities across the grants. The process involved assessing each grant's goals and objectives. A list of goals and objectives were generated for funding from each agency and results were recorded on a spreadsheet.

To assess the broader goals of federal climate funding, all goals and objectives were organized using ChatGPT, which generated a list of suggested categories (Open AI, 2024). Researchers reviewed the ChatGPT suggestions and made edits reflecting the EPA's definition of and goals for EJ (U.S. EPA, 2024). The four main categories are: Community and Community Health, Environmental Monitoring and Risk Assessment, Policy and Research, and Infrastructure. Figure 1 shows the distribution of identified goals and objectives by category. Figure 2 shows the maximum amount of dollars available from grants by agency. Additionally, it summarizes the frequency of grants and the percent number of grants. Finally, Figure 3 shows the frequency of identified goals and objectives by agency in a heat map. Illustrations were generated via Google Sheets and Flourish.

FINDINGS

Figure 1



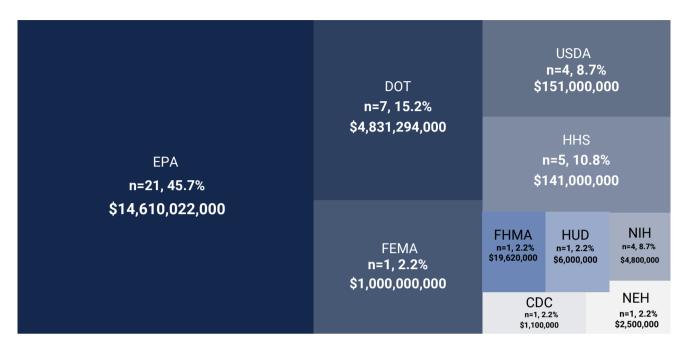
Distribution of Identified Goals and Priorities of Federal Grants by Main Categories

Note. Categories are bolded. The top two most frequently identified goals and priorities are numerated.

A total of 27 goals and objectives were identified, including the following examples: (1) Climate change policy development and/or improvements; (2) Networking of communities/organizations towards climate change goal(s); (3) Addition of greenspace -Residential/community and school neighborhoods. A complete description of goals and objectives identified, frequencies of mention (f), and overarching categories were organized into a table in Appendix A. Figure 1 illustrates the distribution of federal grant goals and objectives across each of the of the main categories. The largest portion of goals and objectives, 48.1%, is dedicated to Community and Community Health. This includes key areas such as networking of communities/organizations towards climate change goals and infrastructure improvements in residential areas. Policy and Research encompasses 33.3% of grant goals and objectives, focusing on climate change policy development and infrastructure research, and planning for climate change needs. improvement, Environmental Monitoring and Risk Assessment, which includes air pollution and greenhouse gas reduction, as well as environmental hazard monitoring, accounts for 13.2% of these goals and objectives. The fewest grant goals and objectives are categorized under the Infrastructure category, accounting for less than 6% of the total priorities. However, it is important to note that infrastructure initiatives may fall outside the scope of CBOs' work and, therefore, the team's grant search. These initiatives are generally reserved for local agencies and private companies with greater capacity and resources.

Figure 2

Treemap Summarizing Grant Frequency, Percentage, and Dollars Offered by Federal Agency



There were 10 federal agencies offering grants that support climate change goals within the scope of this review. These agencies include the Environmental Protection Agency (EPA), Department of Transportation (DOT), Health and Human Services (HHS), National Institute of Health (NIH), United States Department of Agriculture (USDA), Centers for Disease Control and Prevention (CDC), Federal Highway Administration (FHWA), Federal Emergency Management Agency (FEMA), Housing and Urban Development (HUD), and National Endowment for the Humanities (NEH). In total, 46 grants relating to climate change and environmental justice for CBOs. Figure 2 shows the total amount of funding, percentage of overall funding, and the number of grants. The EPA provides the largest share of grants, accounting for 45.7% (n=21) of the total grants identified. The U.S. Department of Transportation (DOT) and the U.S. Department of Health and Human Services (HHS) each offered the next highest number of grants at 15.2% (n=7) and 10.8% (n=5) respectively. Grants from the remaining 7 federal agencies collectively accounted for 28.4% of the total investments.

Federal grants hope to invest up to \$20,767,336,000 into climate change and environmental justice. As shown in Figure 2, the EPA (n=21), aims to invest the most money at \$14.6 billion. Much of this federal funding comes from investments like the BIL and IRA, which drive emission reduction efforts. The EPA receives significantly more funding through federal policy compared to other federal agencies. The DOT (n=5) and FEMA (n=1) have the next largest pools of available funding at \$4.8 billion and \$1 billion, respectively. FEMA particularly focuses on hazard mitigation planning efforts, offering only one grant targeted towards CBOs. Although the HHS offers the third highest number of grants (n=5), it

Figure 3

Heat Map of Total Monetary Allocation by Agency and Identified Goals and Objectives

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	EPA	ې مې DOT	, ^{در ارو} FEMA	_ي ره ^{اري} USDA	5141,0 HHS	ج ^{ېم,6} ۲ FHWA	_{يو6} ,000 HUD	` ₅ 4,90 NIH	" NEH	CDC	Total Count
Climate change policy development and/or improvements	16	3			2			2			23
Networking of communities/organizations towards climate change goal(s)	9			1	1			1			12
Environmental hazard monitoring and/or risk assessment	6				1			1	1	1	10
Residential and community engagement towards infrastructure development	3	4			1	1	1				10
Enhancing community-centered policy, activities, advocacy, and/or opportunities	8							1			9
Air pollution and greenhouse gas reduction and/or energy use efficiency	5	1				1					7
Increased access to energy efficient and/or clean air technologies - residents/communities	3	3			1						7
Research and/or planning for climate change priorities & needs	3				1			1	1	1	7
Research for infrastructure needs and improvements	2	4		1							7
Financial support or assistance for low SES communities/individuals	3				1		1				5
Preventative Health education and/or support to vulnerable population(s)	2				2		1				5
Research and/or planning for climate change hazard prevention			1					2	1		4
Climate change/environmental justice education and/or advocacy	2				1						3
Business, commercial, and industrial infrastructure improvements		1			1	1					3
Addition of greenspace - Business/commercial locations and industrial sites				2							2
Addition of greenspace - Residential/community and school neighborhoods				2							2
Climate change-related displacement/sheltering			1		1						2
Preventative Health - Childhood health	1				1						2
Research for climate change/environmental hazard impact on vulnerable population(s)								2			2
Supports for forest landowners (underserved)				2							2
Public transit & highway use		1									1
Addressing chronic health conditions, challenges, and/or disease								1			1
Increased access to energy efficient and/or clean air technologies - businesses, commercial, industry		1									1
Infectious disease outcomes								1			1
Preventative Health - Preconception Health					1						1
Identified Goal and Priority Per Agency	63	18	2	8	15	3	3	12	3	2	129

FREQUENCY OF EACH IDENTIFIED GOAL AND PRIORITY



contributes the fifth highest funding amount at \$141 million. This is relatively small compared to the top three funded agencies: EPA, DOT, and FEMA. The remaining 7 agencies, including the USDA, HHS, FHWA, HUD, NIH, NEH, and CDC, contribute a combined total of approximately \$326 million towards various areas of climate change reduction.

Among the total goals and objectives identified, 17.8% (f=23) indicate that grants aim to develop or improve climate change policies, 9.3% (f=12) are directed towards networking communities and organizations to achieve climate change goals, 7.8% (f=10) are intended to implement or support environmental hazard monitoring and risk assessment, 7.8% (f=10) aim to enhance community-centered policies, activities, and advocacy, and 7.0% (f=9) promote opportunities related to climate change and environmental justice. The full list of grant goals and objectives with their frequency and percent frequency can be found in Appendix A.

Each federal agency offers grants aligning with one or more goals and objectives focusing on a specific climate challenge/need, as displayed in Figure 3. For instance, a particular grant from the EPA may cover both climate change policy development and environmental health monitoring, thus being counted towards both goals and objectives. This accounts for the difference between the number of grants (n) and the total goals and objectives count per agency (f). This analysis allows us to quantitatively identify the primary issues that federal agencies aim to address through their grant programs.

The EPA has the most identified goals and objectives (f=63) across n=21 grants, therefore covering climate change issues most broadly. EPA-funded grants largely emphasize the development or improvement of climate change policy (f=16), networking of communities/organizations towards climate change (f=9), the enhancement of community-centered policy, activities, advocacy, and/or opportunities (f=8), and environmental hazard monitoring and/or risk assessment (f=6). The agency with the next highest number of identified goals and objectives is the DOT (f=18) across n=7 grants, followed by HHS (f=15) across n=5 grants. Like the EPA, the DOT prioritizes community investments, specifically targeting climate change policy development (f=3), infrastructure improvements for residential areas (f=4), and increased access to clean energy systems (f=3). To support infrastructure grant programs, the DOT emphasizes research for infrastructure needs and improvements (f=2), and initiatives supporting preventative health education for vulnerable populations (f=2).

DISCUSSION

Federal Investment Priorities

The goal of this work sought to find and describe funding opportunities for climate change-related projects that may support activities by CBOs. When looking into federal grants, it was found that nearly \$20.8 billion dollars could be acquired for climate change

and EJ matters. At the forefront of this work is the EPA, which hopes to contribute over \$14.6 billion dollars towards various climate change and EJ matters. Such matters include climate change policy development and improvement, networking of communities/organizations towards climate change goals, and enhancing community-centered policy, activities, advocacy, and opportunities. CBOs can choose to apply for EPA funding that best aligns with both organizations' goals and objectives. CBO projects funded by the EPA may even enhance community-centered EJ strategies and activities.

Furthermore, many federal agencies prioritize the connection between policy and community-level action. While the majority of grants develop or improve climate change policies, networking of communities and organizations toward climate change goals, residential engagement toward infrastructure development, and environmental monitoring remain top federal priorities. Federal agencies have created opportunities for community engagement in addressing climate change. With federal investments totaling over \$20 billion, a majority of funding is committed to Community and Community Health (48.1%) and Policy and Research (33.3%). With these grants, CBOs can play a critical role in implementing community-driven solutions that benefit residents.

The \$20 billion investment in community-centered climate initiatives marks a significant investment of EJ-related funding for CBOs. For the 2021 fiscal year, a survey of 130 U.S. nonprofit organizations estimated spending between \$7.8 and \$9.2 billion annually on programs and activities that address climate change, with only 7% of funding provided by government sources (Shrestha et al., 2023). As discussed, the U.S. government has made a larger commitment to increase funding for CBOs through the BIL and IRA. With the increase in financial support and the emphasis on developing and improving climate change-related policy and community-centered strategies, federal agencies can maximize already existing efforts in EJ efforts by developing a network of informed decisions.

Opportunity Areas for Federal Level Climate Change Investment

Federal agencies may consider opportunity areas for climate change investments to benefit public health. One possible way involves improving communications about climate change to the general public. Climate change messaging has historically focused on promoting awareness through statistical and factual evidence (Peters et al., 2022). However, such messaging must be tailored to specific groups with a trusted messenger acting as the conduit of scientific knowledge (Howarth et al., 2020). Knowing how to engage a target audience is necessary for strategic climate change are more likely to get involved than people who are concerned about climate change are more likely to get involved than people who are doubtful, but equally likely when compared to people who are outright dismissive. (Leiserowitz et al., 2021). A smaller study found that compelling stories of lived experiences about climate change impact can sway individuals identifying as political moderates and conservatives (Gustafson et al., 2020). Another possible method of group-specific communication for value-centered approaches is the Value, Problem, Solution,

Action (VPSA) model developed by The Opportunity Agenda (TOA). This model offers a way to deeply reflect about communicating messages that are specific to a target audience's values (TOA, 2024). For instance, research shows that messaging emphasizing the negative cognitive effects of air pollution on children promoted overall support across generations for a transition to cleaner energy amongst U.S. participants (Kotcher et al, 2019). With these considerations, framing climate change as a public health issue can encourage community participation, reduce disparities, and inform people about its near-term health impacts.

Limitations

Given the scope of the grants identified in this report, there are notable limitations to consider. First, the data primarily emphasizes grants for CBOs but may not encompass all federal funding. Grants addressing critical issues such as wildfires and droughts might be allocated to agencies who may directly handle wildfires and drought. As such, the estimated total of \$20.7 billion may be an underestimate of all federal funding allocated towards climate change, as only specific grants were included in the analysis, as outlined by the Methods section. The application of categorical analysis on grant funding has been studied when identifying possible gender differences in NIH grants for specialized fields of medicine (Eloy et al., 2013; Svider et al., 2014). However, this method applied to climate change and community collaboration seems novel to the research team's knowledge. With the novelty of the method, no content expert was available for consultation of methods.

CONCLUSION

In summary, federal investment offers an unprecedented opportunity for communities to participate in climate change-related mitigation and adaptation efforts. Specifically, these funding opportunities seek to engage communities in the climate adaptation and planning process. Prioritizing diverse community planning ensures that the specific needs of at-risk populations are addressed. As wildfires and drought conditions pose a risk for vulnerable Californian communities, federal climate change investment can provide opportunities for disadvantaged residents to be advocates and advisors for community-centered climate change policy. For example, engaging in local government meetings, workshops, and serving on advisory boards allows residents to share their experiences and propose tailored solutions for their needs. Moreover, addressing community needs may further ease previous distrust around climate change concerns, while increasing local capacity. Finally, despite opportunities being offered on a one-time funding basis, there are opportunities to learn from previously funded projects. Review of successes and lessons learned from other federally funded opportunities may offer insight for future projects that engage with communities to improve local climate change impacts. By including communities in the climate change process, gaps between science, EJ efforts, and policy can be closed, allowing for improved climate change impacts among vulnerable populations.

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APPENDIX A:

Frequencies of Identified Goals and Objectives

List and frequency of identified goals and objectives in federal grant opportunities for grants searched from December 2023 to April 2024.

Category	Frequency (f)	Percent Frequency	
Community and Community Health(f=62)	Networking of communities/organizations towards climate change goal(s)	12	9.30%
	Residential and community engagement towards infrastructure development	10	7.80%
	Enhancing community-centered policy, activities, advocacy, and/or opportunities	9	7.00%
	Increased access to energy efficient and/or clean air technologies - residents/communities	7	5.40%
	Financial support or assistance for low-SES communities/individuals	5	3.90%
	Preventative Health education and/or support to vulnerable population(s)	5	3.90%
	Climate change/environmental justice education and/or advocacy	3	2.30%
	Supports for forest landowners (underserved)	2	1.60%
	Preventative Health - Childhood health	2	1.60%
	Addition of greenspace - Residential/community and school neighborhoods	2	1.60%
	Research for climate change/environmental hazard impact on vulnerable population(s)	2	1.60%
	Preventative Health - Preconception Health	1	0.80%
	Addressing chronic health conditions, challenges, and/or disease	1	0.80%
	Infectious disease outcomes	1	0.80%
Policy and Research(f=43)	Climate change policy development and/or improvements	23	17.80%
	Research for infrastructure needs and improvements	7	5.40%
	Research and/or planning for climate change priorities & needs	7	5.40%
	Research and/or planning for climate change hazard prevention	4	3.10%
	Climate change-related displacement/sheltering	2	1.60%
Environmental Monitoring and Risk	Environmental hazard monitoring and/or risk assessment, including air pollution (PM2.5, etc.), GHGs (CO2, methane, etc.), environmental hazards (migration displacement, drought risk, wildfire risk, etc.), etc.	10	7.80%
Assessment (f=17)	Air pollution and greenhouse gas reduction and/or energy use efficiency	7	5.40%
Infrastructure(f=7)	Business, commercial, and industrial infrastructure improvements	3	2.30%
	Addition of greenspace - Business/commercial locations and industrial sites	2	1.60%
	Public transit & highway use	1	0.80%
	Increased access to energy efficient and/or clean air technologies - businesses, commercial, industry	1	0.80%
	TOTAL	129	

APPENDIX B:

Agency Acronyms

Table showing expanded federal agency acronyms

CDC	Centers for Disease Control and Prevention
DOT	U.S. Department of Transportation
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
HHS	U.S. Department of Health and Human Services
HUD	U.S. Department of Housing and Urban Development
NEH	National Endowment for the Humanities
NIH	National Institutes of Health
USDA	U.S. Department of Agriculture Forest Service