

Testimony of Elizabeth Gibbons
Executive Director, American Society of Adaptation Professionals
Before the House Committee on Science, Space, and Technology Hearing: “Working Towards Climate
Equity: The Case for A Federal Climate Service”
Wednesday, April 21, 2020

Chairwoman Sherrill, Ranking Member Bice, and Members of the committee, thank you for the opportunity to testify about the state of climate change adaptation, the role of federal agencies, and the opportunities and obligations we have before us to address the impacts of climate change through the collective action of the federal government, and state, regional and local leaders.

I am heartened by the renewed energy and enthusiasm of this Committee and the Biden-Harris Administration to address the impact climate change is having on people across the United States and the urgent need to prepare our communities, ecosystems, and economies to weather and withstand increasing impacts in the future.

While I am heartened by this new enthusiasm, I am here today to insist that the enthusiasm for action be met with an earnest intention and effort to learn what is needed to accelerate action from the adaptation professionals working on this topic every day and from the communities actively employing adaptation and resilience strategies to combat the dire impacts of climate change.

It is essential for lessons learned by adaptation professionals to be recognized and central to expansion of existing programs and incorporated from the beginning into the design of new federal programs. Therefore today, you will hear me speak about the role of adaptation professionals, how ASAP, as a network of those professionals is working with sister networks to disseminate best practices and accelerate action, what key best practices and changes we have seen in the past several years of work, and how federal agencies do and should support these grounded efforts to accelerate just and equitable adaptation across our country.

As you read through the extent of my testimony, I want to emphasize the following points:

1. Climate change adaptation is a rapidly growing and sophisticated professional practice.
2. The climate adaptation profession is standardizing its values and practices and new adaptation programs should align with these field spanning standards.
3. There are strong networks in place, from national to regional, which must play an important role in the design of climate services and programs and in the delivery of climate services from the federal to the local level.
4. A robust climate adaptation and resilience marketplace is emerging and there are important roles for federal agencies and programs to play to ensure service providers and services seekers from all economic and racial backgrounds have access to the same high quality, actionable climate data and information.
5. Federal programs play a critical role in the infrastructure of the adaptation field and there are opportunities for existing programs and new programs and services to accelerate the implementation of just and equitable adaptation solutions across the country.

Introduction

My name is Beth Gibbons and I serve as the Executive Director of the American Society of Adaptation Professionals. I live in Southeast Michigan on the ancestral lands of the Anishinaabeg: Three Fires People who are Odawa, Ojibwe, and Potawatami and Wyandot, today called Ypsilanti, Michigan.

I have spent the last twenty years working on community development and a decade focused specifically on climate change adaptation in the United States. In my career it has been a privilege to serve as the program manager for the NOAA Regional Integrated Science and Assessment (RISA) Program for the Great Lakes Region (GLISA) and the Director of University of Michigan's Climate Center. When I left working in the public sector, six years ago, I did so because I saw an acute need for coordination and support to the growing ranks of climate change adaptation professionals across North America. As recently as 10 years ago there was no U.S. organization focusing on accelerating and standardizing the climate change adaptation field. Thankfully, that is no longer the case.

Climate Change Adaptation - Characteristics & Principles of the Field

From how we build our bridges to when we plant and harvest our corn, all of it is changing. Climate change has changed and will continue to change how our natural world behaves and how we structure our social, environmental, and economic decisions. Climate change adaptation is the field which holds and addresses these questions. Through adaptation and resilience we can build stronger, more prepared communities, ecosystems, and economies. To achieve success we must ensure that equity and environmental justice be centered in all work that adaptation professionals do. Successful adaptation is holistic and requires coordination from the federal to local level and across multiple sectors and disciplines.

At ASAP, we use an inclusive network approach to defining who an adaptation professional is. An adaptation professional is any individual who is using future climate information in their day to day work. ASAP membership is broad and inclusive because we believe we need voices from all solution corners to join in discovering and replicating strategies that will serve all our communities. ASAP members are leaders and changemakers with diverse backgrounds and types of expertise and our network includes those whose knowledge comes from lived experiences of adapting to climate change, to young people seeking to move themselves and their communities out of harm's way, to people with decades of formal education and professional expertise in preparing cities, restoring natural ecosystems, and caring for the wellbeing of individuals in the face of climate impacts. The diverse disciplines which our members represent and diverse sectors and scales that our members work within are representative of the same trends across the full adaptation field.

Amidst the support ASAP creates for this diverse community we also actively measure our success at building and standardizing the adaptation field of practice. ASAP applies a field building model to measure the growth and maturity of the adaptation field. The field building model uses five phases of field building: Framing, Innovating, Scaling, Standardizing, Mainstreaming. Today the adaptation field is moving from a phase of 'scaling' to simultaneously standardizing and mainstreaming.

Phases of Field Building

Framing: Conceptual framing and isolated practice examples.

Innovating: Connecting innovators and fostering the proliferation of practices. Practices are fragmented and often considered “proprietary” at this stage and need to be tested and vetted among communities of innovators.

Scaling Implementation: Alignment of practitioners around shared goals, best practice methods, tools, and identity; scaling practitioner ability and readiness to implement.

Standardizing: Practices are highly standardized and incorporated into formal training, credentialing, and certification systems. Practices are considered “commodities.” Reward systems reinforce desired behaviors.

Mainstreaming: The field is widely acknowledged and accepted. Contributions from this field inform and influence other fields of practice. Contributions from the field influence decision making of organizations outside of the field.

The federal government has a critical role to play in propelling the adaptation field from a phase of scaling to standardization. That central role is the continued generation and dissemination of highly credible data and usable and useful climate information. I will share more with the Committee on the applications of climate, weather and other demographic data in adaptation planning shortly.

Values and Principles of the climate change adaptation field

As ASAP has sought to advance the sophistication of climate adaptation practice, we have also worked to ensure the adaptation field is grounded in principles of equity and justice. This grounding means we train and equip adaptation professionals to recognize nature has intrinsic value; that creative, innovative and transformative problem solving are essential; that individuals and communities on the front lines of experiencing climate change hold expertise that need to be centered in all adaptation and resilience planning and decision making; and that we address climate change with recognition of the grave injustices of the past and seek to develop and implement solutions which repair past harm and allow all people and communities to live safe and fulfilled lives.

As the federal government considers how to strengthen existing climate services and potentially develop new climate service programs, I hope that those programs will take time to consider the Code of Ethics that over 700 individual adaptation professionals and 22 organizations, employing over 75,000 employees have read and accepted as the guiding principle and values of the adaptation field. (ASAP Code of Conduct and Living Guide on the Principles of Climate Change Adaptation). Embracing these principles will include agencies recognizing how their services will best meet the needs of communities and individuals and also how the resources of each agency can fit with another

NOAA needs to understand the value of individual communities and people, EPA must recognize the importance that standardized climate data and information sources provides; NFIP and FEMA must embrace that need for transformative problem solving before and after disasters occurs to that we can

mitigate future impacts and ensure people impacted by climate change are able to recover in a place and by means which ensure long term resilience and well-being.

The Role of Networks in Advancing Climate Adaptation & Resilience

Over the past decade important adaptation-focused regional and national networks have emerged as vehicles of sharing best practices, transferring and scaling, aligning on values of the field, and producing guidance for practitioners within the public sector but also cross-sectorally. While ASAP represents just one of these practitioner-led networks, others focus on regional climate collaboration (both greenhouse gas mitigation and adaptation) and endeavor to address adaptation issues at the metropolitan and landscape scales, where more often, social, economic, infrastructural, and ecological systems operate. As we know, hazards such as flooding and wildfires do not recognize jurisdictional borders, and the cascading effects of these events impact communities across metro regions and often across states. Sharing data and resources to address climate hazards allows jurisdictions to employ best practices at the local level and coordinate across boundaries to implement improvements to the metropolitan area as a whole. This is the scale at which we must address land use, transportation, ecosystem services, and racial and social equity issues. ASAP maintains a list of sub-national adaptation networks available here: [ASAP Local & Regional Hubs](#) and sample of these networks includes:

- National practitioner networks include my home institution, ASAP, the Urban Sustainability Directors Network, and US Climate Action Network.
- State-level networks include the Alliance of Regional Collaboratives for Climate Adaptation (ARCCA) in California, which includes 7 regional adaptation collaboratives operating throughout the state.
- Over 3 dozen regional climate adaptation networks have formed across the country including the Southeast Florida Regional Climate Change Compact (the Compact), the New Hampshire Coastal Adaptation Working Group, and regional collaboratives in Illinois, Indiana, New York, North Carolina, Ohio, and Texas.

Why these groups are important

With limited federal funding, these national, state, and regional networks have accelerated adaptation efforts in the US through improvements in practitioner capacity and expertise, knowledge and resource sharing, and advocacy at multiple scales. They are nimble, coordinated, innovative, and highly motivated to address the adaptation needs of local communities. In California, regional collaboratives have mobilized to coordinate with public health officials to safeguard communities against wildfire smoke, accelerate living shoreline projects to combat sea level rise, and promote the use of reflective surfaces to mitigate the urban heat island effect.

Although regional and national networks vary in scope, size, and membership, there are still many commonalities to the experience of building and sustaining a climate adaptation network, or of integrating adaptation into existing networks such as the National League of Cities (NLC), Local Government Commission (LGC) and others. Many adaptation practitioners have championed climate challenges for decades with severely constrained staff capacity and funding to actualize their plans, policies and programs. These leaders and their networks would benefit tremendously from federal resources that enable them to build upon existing efforts to create resilient communities throughout the country.

Role for federal programs:

- Support the staffing, coordination, and administration of these networks
- Enhance coordination between networks to utilize best available practices across the country
- Accelerate implementation and rollout of adaptation plans and programs locally, regionally, across states, and nationally as needed
- Support existing racial and social equity efforts with proven benefits for all residents and communities

Communities are already experiencing the harmful and even deadly impacts of climate change - from wildfires and floods to extreme heat events. The urgency to adapt to climate change is clearer now than ever before and requires swift and coordinated action. The most efficient path forward is to strategically invest federal resources to enhance existing networks and efforts, building upon the deep and ongoing community engagement, capacity building, planning, and implementation efforts underway.

Best Practices & Evolution of the Climate Adaptation Field

Driven by increasing climate disasters and strengthened by a growing number of professionals doing the work, the climate change adaptation and resilience community has continued to make steady progress improving practice, delivering climate services to communities and other end users, and strengthening the connectivity and learning networks between and across sectors so that this critical work moves forward and our shared ecosystems, economics and communities become more resilience to climate change impacts. As discussions of how federal programs could and should support climate adaptation and resilience practices, I recommend that policy makers make note of these advancements as they will be building blocks for how we develop new programs and refine and improve existing ones:

Climate adaptation professionals use historic and future climate information to observe current climate impacts, overcome uncertainty, and plan for future impacts.

A common barrier to using climate information is overcoming two factors: uncertainty of the data and future climate information being unavailable at a granularity which end users need for their decision making. To address this mismatch in the certainty and geographic relevance of future climate information, climate service providers and adaptation professionals now use a combination of historic information, derived from historic local weather data and future climate information to build a narrative about the change in climate which is already occurring and then leading toward conversations about what will change in the future.

Using this approach a stakeholder is able to see the change that is already occurring in their place and ask themselves if their system is able to withstand the current state of change and then begin to consider the possible upcoming changes and make decisions about how to modify a social service, embark on an ecological restoration initiative or design a new bridge based on the current information and appetite for risk, presented in the future climate scenarios. Furthermore, the climate service community has vastly improved how it delivers information about existing climate change and upcoming change to make the information meaningful and decision relevant. Rather than presenting information on averages, information on extremes is shared; rather than talking about annual change, seasonal trends are offered. This is important because we plan our systems based on how we live our place - seasonality. And we expect our systems, especially social and physical infrastructure - to be resilient in our times of crisis, which is at the extreme.

Lessons for federal programs:

- Climate information needs to have two key characteristics: Useability and usefulness
- Many places still lack climate information useful for adaptation planning and implementation, including downscaled climate information
- Historic weather data plays a key role in understanding our current thresholds for accommodating change
- Coupling local and future information is an effective way to reach people otherwise skeptical of climate change.

Effective climate adaptation programs and processes must place community needs first and recognize community knowledge, traditional ecological knowledge, and lived experience as expertise co-equal to western science.

Climate change adaptation professionals have been evolving our expectation and understanding of what authentic community engagement and community-based assessment, planning and implementation looks like. This approach is a build on the application of locally relevant historic data I described above. In early adaptation planning it was common for a climate service provider or adaptation profession to bring future climate information to a community and ask them ‘what are you going to do about it’. This approach was met with skepticism, frustration at being forced to face new and complex problems, and/or disinterest, as impacts were often spoken about as something occurring in 50 or 100 years.

Today, adaptation professionals use a more sophisticated approach of respectfully gathering information from a community or stakeholder group about their current experiences. This approach places the people who live in their place, know their own community, river system, forest, or coastline to express how those systems are being impacted by changes in weather over time. This approach will illuminate where in a city regular nuisance flooding occurs during a storm event, what fish populations are changing in lake or river overtime, and how bluesky flooding is impacting the economy in a beach town. Traditional Ecological Knowledge and cultural knowledge held by Indigenous People is exceptionally valuable in this context. Using the example of street flooding during rain events, once an adaptation professional has noted that this is an existing issue they can use historic weather data (from a local station) to validate those experiences by showing an increase in heavy rain events (extreme precipitation) and then embarking on a conversation about how the various community stakeholders including the municipal government, a neighborhood association and individual property owners can take actions to address this impact.

Because the adaptation field is becoming more conditioned to seeing diverse forms of knowledge as necessary in assessing climate induced risk it also is making the field more competent at engaging non-governmental entities (CBOs, Tribal governments, businesses, institutions and individuals) in the scoping and implementation of solutions. Incorporating diverse forms of knowledge also means approaching climate change as part of a complex and interconnected set of challenges (and opportunities) that a community must address. By beginning a climate adaptation planning process with the values and priorities of the community an adaptation profession is able to identify where climate change will bolster or threaten those priorities and integrate climate change as a consideration in the planning processes underway.

Lessons for federal programs

- Climate service and adaptation programs must be designed to reach and meet the needs of communities and stakeholders.
- Recognizing, valuing, and applying local knowledge, traditional ecological knowledge, and all forms of expertise is critical to build plans and programs that communities want, welcome, and will sustain.
- There is a need for federal support for an assessment of the state of adaptation needs and implementation. This national-scale assessment would gather best practices from all places into a single report, highlight successful strategies, and serve as a guidepost for public and private services to build standards of practice.

More climate adaptation and resilience assessments, plans, and project implementation is being done by private sector firms. And more climate services are being sought by corporations.

Growth of Private Sector Service Providers

As the adaptation field is increasingly aware of its role in addressing injustice and delivering climate assessment, planning and implementation approaches and strategies which are grounded in community knowledge, the sectors performing climate adaptation work is rapidly changing. The climate adaptation and resilience marketplace is growing quickly and more private firms are offering a range of services including:

- Climate Change Adaptation & Resilience Services,
- Climate & Resilience Risk Assessment & Analysis,
- Climate Adaptation & Resilience Planning,
- Adaptation & Resilience Design,
- Engineering & Construction,
- Disaster Preparedness and Response Planning,
- Climate Adaptation & Resilience Equipment & Systems.

The increasing role of the private sector as climate change adaptation service providers is a very positive step for our field with the vast majority of climate service and adaptation firms doing this work advancing effective and equitable adaptation. These businesses are eager to advance work through partnerships with other firms, public institutions, academic institutions and they need and deserve strong federal support to keep the market growing. Previously, either federal and state agency programs (NOAA's Climate Program Office), public university outreach offices (University of Wisconsin Extension), or non-profit organizations (EcoAdapt or Geos Institute) provided needed climate adaptation services. Today natural resource, municipalities, states, and federal agencies are all hiring private consulting firms to perform these services. This increase in demand for climate services is because the impacts of climate change are with us today and communities, business, and individual home owners are recognizing the need to adapt. I see the increase in the private sector engagement in the adaptation field as a good thing for the growth of practice, acceleration of delivery of services, and an opportunity to introduce more innovation into the field and there are also risks this change poses and important implications for the role of the federal government in participating in the climate service landscape: We know that the private market is not effective at delivering services equitably across all places and economic landscapes, and systemic racism will lead to Black and Indigenous Communities being underserved by private climate service providers.

We also know that the need to respond to impacts from climate change today and those quickly approaching outstrips the current supply of services.

Role for Federal Programs

- Federal resources can support strong public programs that will ensure all people and ecosystems across America have access to high quality data and excellent climate adaptation services.
- Incentivize partnerships between public and non-profit organizations, and established private companies that have decades of experience delivering climate services with new-comers to ensure transfer of best practices in data use, community engagement, and climate services.
- Support a workforce assessment to quantify the market size and demand for climate adaptation services.
- Invest in -- and increase consistency of -- education and training for climate change adaptation and climate resilience workers.

Growing Demand for Climate Risk Assessments by Corporations

In addition to the rise in private sector service providers, there has been a more recent increase in the number of corporations seeking climate services in order to incorporate climate change impacts and risks in their corporate disclosure processes. This trend is linked to the 2017 release of The Task Force on Climate-Related Financial Disclosures (TCFD) recommendations by the Financial Stability Board (FSB). These recommendations seek to develop consistent climate-related financial risk disclosures for use by companies, banks, and investors in providing information to stakeholders. Based on a recent study by WSP Global, over 300 investors with nearly \$34 trillion in assets under management are asking companies to report under TCFD. ([Advancing Meaningful Climate Action Through TCFD Disclosures A brief study by WSP](#))

Greater corporate engagement in the market will accelerate innovation and allow for more climate adaptation and resilience firms to grow and thrive. Additionally, corporate disclosure of climate risk is a likely way for more individuals and institutions to become aware of the current risks climate change poses and to prepare to take action. However, there are downsides to this trend as well: Corporations may identify potential risks and select a pathway of disinvestment from risky assets. This disinvestment would leave workers and the local and regional economies behind, exposed to those identified climate threats and facing increased economic hardship. Without high quality climate data consistently available to all stakeholders and decision makers, it is possible for corporations to receive a privately developed climate risk report which is different from the risk or vulnerability assessment that a municipality has generated. This potential mismatch in corporate risk identification and municipal risk/vulnerability assessment could easily trigger distrust of the information across a community and raise the attention of municipal bond holders and insurers. At ASAP we are in the process of developing a white paper highlighting these risks and other ‘Unintended Consequences of TCFD’ and would be happy to share it with this esteemed Committee upon its completion, later this Spring.

Role for Federal Programs

- Support the transfer of best available climate science from public institutions to private service providers to ensure all members of the adaptation field are using the same high quality, federally

backed climate data. (See the recommendation below on a sustained assessment to develop climate standards).

- Support an assessment of the climate adaptation and resilience marketplace to understand how the private sector is serving communities and prepare to increase resources for communities on the front lines of climate change and prioritize federal funding for climate services to Black, Indigenous, Rural, and Low-income communities which are systemically underserved by market-based services.

Federal Program Success

While much of the progress made in adaptation and resilience over the past four years took place with minimal federal support, it would be absolutely unthinkable for us to be where we are today in terms of the sophistication of available data, integration of climate data with social metrics, and general experience of the climate adaptation field and workforce, were it not for the myriad federal programs that have supported climate adaptation over the past two decades. In response to calls from the 116th Congressional House Committee of the Climate Crisis and in support of the Biden-Harris Transition Team, ASAP members have twice compiled lists of critical climate programs over the past two years, I am grateful to point this Committee to those resources for extended description of the benefits of various agency programs and opportunities to strengthen those programs.

- [ASAP 2019 Policy Recommendations to the House Select Committee on the Climate Crisis](#)
- [ASAP 2021 Policy Priorities](#)

Some of the most notable contributions from federal agencies include the creation of data and information dissemination portals (NOAA Climate Resilience Toolkit and Climate Explorer, EPA ArcX, and The Third National Climate Assessment, which was notable for its engagement of non-governmental authors and boasting a robust public roll-out), visualization tools (NOAA Digital Coast), and regional administration and coordination support for peer learning and network events.

A Snapshot of Regional Adaptation Support by Federal Programs

Beginning in 2013 climate adaptation professionals have gathered for a bi-annual conference, hosted by EcoAdapt called the National Adaptation Forum. This national conference is complemented by a series of regional events, which allow for adaptation professionals, many of whom cannot travel to a national conference due to budgetary constraints or other considerations, to convene and share best practices on climate adaptation in their own region. Since 2014 federal partners have played essential roles in supporting these regional adaptation fora through funding, coordination, and hosting the events.

- In New England in 2014, 2016 and 2018 EPA Region 1 supported the Eastern Climate Preparedness Conference which has convened adaptation professionals from the D.C. Metro Region through Maine.
- Since 2016 The Carolinas Regional Integrated Sciences and Assessments has hosted the bi-annual Carolina's Climate Resilience Conference, bringing together practitioners, researchers, and community organizations from across the Carolinas.

- Beginning in 2014 the Great Lakes Regional Integrated Sciences and Assessments Center began hosting a bi-annual Great Lakes Adaptation Forum for practitioners across the eight states of the Great Lakes Region and provinces of Ontario and Quebec.
- Beginning in 2018 the Southwest Climate Adaptation Science Center launched its regional Southwest Adaptation Forum offering a space for researchers and practitioners from Southwest Region to convene and advance their aligned work.

While this support may seem like a light touch it provides the backbone of administration, coordination which is needed for practitioners to be able to accelerate their work by sharing proactive with one another, aligning on best practices, and moving toward consistent practices, discussions which are especially salient when hosted at a regional level, because of the shared experience of specific climate driven impacts. Following the 2018 Regional Adaptation Fora, ASAP conducted an assessment of the value of these conventions and found evidence that **Regional adaptation conferences are moving the needle for adaptation professionals and the field.** Each of these conferences helps individual adaptation professionals, and the field as a whole, advance in the sophistication, quality, and volume of adaptation practice, and contributes to career development for adaptation practitioners; and **Cross-regional sharing enhances national cohesion and field development.** The shared relevancy of many topics across RAFs demonstrates a cohesiveness in the adaptation field and underscores the value to practitioners of engaging in national conversations to share needs, promising practices, and successes to overcome capacity barriers and accelerate the pace of field evolution across North America.

Lessons for Federal Programs

- Federal support for peer to peer learning and networking events is a highly valuable contribution to the adaptation field and an effective mechanism for improving and accelerating adaptation practice.

Opportunity & Need for Federal Action

In addition to the lessons and roles for federal agencies identified in my earlier remarks there are priorities that the ASAP membership recently developed and delivered to the Biden-Harris Administration via colleagues at the White House, EPA and NOAA. In summary of my own statements on the state of the adaptation field and role of the federal government and in recognition of the contributions of active adaptation professionals, the following is an overview of how the federal government can support the dissemination of effective, equitable, and just adaptation action.

Treat climate change as a crisis and prioritize justice and equity in crisis response.

It is imperative to act with urgency and resolve to stop the root causes of climate change and to get money and resources in the hands of the people who are on the frontlines of climate change so they can adapt to irreversible impacts. To do this well, federal agencies and climate service programs must:

- Acknowledge the root causes of unequally distributed climate impacts, namely systemic oppression and centuries of unequal investment. Address injustices, especially racial and economic injustices, at their core whenever possible to remove these barriers and create the conditions needed for individuals, communities, and systems to be able to adapt.
- Create dedicated funding streams for the people and communities on the frontlines of climate change and evaluate and eliminate challenges faced by frontline communities in accessing existing resources and services.

- Commit to fair decision-making processes by centering the needs and experiences of those on the frontlines of climate change in policies and programs.
- Ensure that all individuals and communities have power in the processes and decisions that may affect them.

Engage networks and community leaders in the design and development of changes to federal programs and the establishment of new programs.

Local and regional conditions must be considered in order to effectively adapt to the cascading and compounding impacts of climate change. The differences across regions and communities, from geographic characteristics and climate risks to economic conditions and political will, demonstrates how a one-size-fits-all approach will not be effective. Existing networks translate broad climate information to models and recommendations that are most relevant to, and usable by, their members and constituents. These networks should be leveraged to inform federal programs and ensure the greatest return for federal dollars invested towards climate resilience.

Establish standards for climate data and mandate use of future climate projections.

Using locally relevant climate data and climate projections and considering the full range of possible climate outcomes is foundational to effective adaptation.

- Convene a process with adaptation professionals, communities, scientists, and other key stakeholders to design guidance on standards and support a sustained assessment for climate change.
- Allocate adequate resources to existing programs that provide climate data, information, and technical assistance for all sectors and scales to support decision makers with locally relevant data, guidance on the integration of climate projections into decision making processes and setting standards and codes.
- Take legal and policy action to establish standards for disseminating and using climate data and information, requiring the use of forward looking climate information in government programs and investments, and requiring climate risk and vulnerability assessments.

Position public adaptation and resilience programs to complement the growing market of private adaptation and resilience services.

As a strong private market emerges for climate services it is necessary to eliminate the typical pitfalls of market-driven economics - namely the discrimination of low-income, rural, and communities Black and Indigenous and People of Color. Federal resources can support strong public programs that will ensure all people and ecosystems across America have access to high quality data and excellent climate adaptation services.

- Incentivize partnerships between public and non-profit organizations, and established private companies that have decades of experience delivering climate services with new-comers to ensure transfer of best practices in data use, community engagement, and climate services.
- Support the transfer of best available climate science from public institutions to private service providers to ensure all members of the adaptation field are using the same high quality, federally backed climate data. (See the recommendation below on a sustained assessment to develop climate standards).

- Support an assessment of the climate adaptation and resilience marketplace to understand how the private sector is serving communities and prepare to increase resources for communities on the front lines of climate change and prioritize federal funding for climate services to Black, Indigenous, Rural, and Low-income communities which are systemically underserved by market-based services.

Support the development and training of the climate change adaptation and climate resilience workforce.

Climate change adaptation and climate resilience is a rapidly growing area of employment. Jobs span a large number of industries in every sector. In order to ensure equitable access to adaptation and resilience jobs, quality job performance, and consistent adaptation and resilience outcomes from work performed, governments need to collaborate with industry, labor, and education stakeholders to:

- Define the climate change adaptation and climate resilience workforce. This requires modifying or adding to occupation codes and classifications to integrate climate change adaptation and climate resilience workers, studying workforce needs and shortages, articulating adaptation and resilience career pathways, cultivating a shared identity for workers, and setting standards to ensure equitable access to entry level and career-building opportunities.
- Invest in -- and increase consistency of -- education and training for climate change adaptation and climate resilience workers. This includes identifying skills and competencies, developing targeted training and apprenticeship programs, increasing incentives for uptake of existing education products, and developing consistent evaluation standards for all education products. Investments in worker education, training, and solutions must be accessible to those on the frontlines of climate change.

Further Reading on the policy priorities of the adaptation and resilience professional community and standards for the field of practice:

- [American Society of Adaptation Professionals 2021 Policy Priorities](#)
- [Recommendations to the House Select Committee on the Climate Crisis](#)
- [Living Guide on the Principles of Climate Change Adaptation](#)
- [American Society of Adaptation Professionals Justice Equity Diversity & Inclusion Statement](#)