Expanded Workforce Development Opportunities are Needed for Transportation Sector Climate Adaptation Professionals

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Early investments in climate change research, policy, and planning focused heavily on climate mitigation—efforts to reduce greenhouse gas emissions. As climate change impacts have increased in severity, this focus has broadened to include a greater emphasis on climate change adaptation—efforts to minimize the adverse impacts of climate change through hardening or relocating infrastructure, changing design standards, improving redundancy, and other measures. Adaptation initiatives are essential to the resilience of the transportation system in the face of increasingly severe climate threats; the failure to adapt will result in repair and recovery efforts absorbing an ever-increasing share of limited transportation resources.

The growing emphasis on climate adaptation has created a demand for professionals with a new, interdisciplinary skillset. However, the pathways for developing the skills and competencies for adaptation careers in the transportation field are not well established. The knowledge base for climate adaptation is changing rapidly and the climate adaptation process itself is inherently complex. Training and educational opportunities in climate adaptation are increasing, but remain relatively limited.

To understand current climate adaptation workforce development needs, researchers at the University of Vermont surveyed state departments of transportation and metropolitan planning organizations about training needs and opportunities at their agencies and analyzed a survey issued by the American Society of Adaptation Professionals as part of their mentorship program. The researchers also catalogued climate adaptation graduate and certificate programs at universities around the country to assess whether these programs aligned with identified needs.

Figure 1. The status of climate adaptation training opportunities within different branches at 17 transportation agencies around the country
Transportation agencies are seeking adaptation training across many agency functions. Of the 32 agencies that responded to the training needs and opportunities survey, 17 identified adaptation training as important to the success of multiple branches in their agencies. Some of these agencies are already offering adaptation training opportunities, while many are still looking to identify training opportunities for their staff (Figure 1).

Developing the capacity to support equitable and effective adaptation will require professionals with an expansive set of skills that put the design and management of the transportation system in a larger environmental, social, and economic context. Surveys and reviews of adaptation initiatives and higher education offerings revealed convergence around four core competencies that are important for climate adaptation professionals (Text Box).

Skepticism about the need for climate adaptation remains a barrier. Over 45% of agencies that responded to the needs and opportunities survey did not believe that adaptation training was important to their agency, and many adaptation initiatives cite climate skepticism as a barrier to adaptation.

Policy Implications

Transportation agency leaders and policymakers can take several actions to grow climate adaptation capacity within the transportation sector, including: 1) continuing to build support for climate adaptation within their agencies and jurisdictions; 2) prioritizing broad-based training in climate literacy and region-specific climate threats; 3) providing resources and time to support staff in pursuing additional training opportunities; and 4) incorporating the climate adaptation core competencies identified above into new hiring decisions, especially for planners and engineers.

More Information

This policy brief is drawn from “Workforce Development Needs of Transportation Sector Climate Adaptation Professionals,” a white paper from the National Center for Sustainable Transportation, authored by Jonathan Dowds and Glenn McRae of the University of Vermont. The full report can be found on the NCST website at https://ncst.ucdavis.edu/project/career-pathways-transportation-sector-climate-adaption-professionals.

For more information about the findings presented in this brief, contact Jonathan Dowds at jonathan.dowds@uvm.edu.

The National Center for Sustainable Transportation is a consortium of leading universities committed to advancing an environmentally sustainable transportation system through cutting-edge research, direct policy engagement, and education of our future leaders. Consortium members: University of California, Davis; University of California, Riverside; University of Southern California; California State University, Long Beach; Georgia Institute of Technology; and the University of Vermont.