Abhilash Vijayan, PhD, PE

Director of Transportation, Climate, and Community Air Quality Programs
Senior Scientist

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Dr. Vijayan joined Sonoma Technology in 2021 and brings extensive experience in air pollution, transportation, and climate change programs and policy. Before joining Sonoma Technology, he worked at the California Air Resources Board (CARB) for over 12 years, where he most recently served as the Manager of CARB's Emission and Exposure Research Section. In this position, he oversaw the Agency's air pollution exposure and greenhouse gas (GHG) emissions research portfolio, and managed a variety of innovative in-house and extramural research collaborations with leading air quality and climate researchers across the nation. His projects included the application of advanced measurement and analytical systems, including airborne surveys, mobile monitoring platforms, personal monitoring sensors, stationary monitoring networks, satellite and big data analysis, and forward and inverse modeling for emissions and exposure assessments. Over the years, he has contributed to a variety of air quality and climate change projects, emissions inventory and health risk assessments, and transportation and mobile source program evaluations, as well as project-level assessments for federal, state, and local programs.

At CARB, Dr. Vijayan led several multi-year research projects to evaluate the real-world emissions and exposure impacts of key air quality and climate change programs in California. Some of his key air quality assessment projects included analysis and tracking of real-world emissions benefits from truck and bus regulations, mobile source high-emitter studies, air quality and health risk analyses from freeway emissions, and several community air quality mapping studies using advanced mobile monitoring surveys and modeling analyses. Dr. Vijayan also oversaw CARB's GHG emissions research program, which used state-of-the-art measurement, monitoring, modeling, and analysis systems to study GHG emissions from all major sectors. These included airborne surveys with Scientific Aviation and National Aeronautics and Space Administration's Jet Propulsion Laboratory; facility-level emissions measurements using Eddy Covariance Flux Towers, flux chambers, and mobile platforms; as well as regional inverse modeling and source apportionment studies.

Education

- PhD, Civil and Environmental Engineering, University of Toledo, OH
- MS, Civil and Environmental Engineering, University of Toledo, OH
- BTech, Civil Engineering, University of Kerala, India

Licenses

- California Professional Engineer, License No. CH 6431 (Chemical)
- Arizona Professional Engineer, License No. 50976 (Environmental)

For a list of publications, see sonomatech.com/ResPub/AXVpub.pdf

Dr. Vijayan has also contributed to a variety of complex emissions modeling exercises for regional air quality and transportation plans, regional transportation conformity analyses, and program evaluations and regulatory support assessments. He led the design and development of several key modules of EMFAC 2011, California's official regulatory model for estimating mobile source emissions to evaluate transportation growth scenarios and regional transportation conformity assessments. He also led emission modeling for regional GHG Emission Reduction Targets for the Sustainable Communities and Climate Protection Act of 2008 (Senate Bill 375), and has contributed to various AB32 Scoping Plan updates.

Dr. Vijayan is currently a Global Air Quality Fellow with the U.S. Department of State, and has served in various capacities at the Air & Waste Management Association. He is a registered Professional Engineer in Chemical Engineering (California) and Environmental Engineering (Arizona).

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