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Summary

Dr. Mehta is an environmental scientist with more than 15 years of experience in water resources research, forest conservation and sustainable development.

Vishal manages and leads policy relevant projects on integrated water resources management, innovations in web-based geoinformatics, urban water end energy sustainability, and participatory planning in multisectoral multistakeholder contexts. He has worked in ten countries. His expertise includes forest ecosystem sciences, distributed hydrological modeling, and the use of several geographic information systems. Vishal's work portfolio includes integrated groundwater –surface–water management in California basins; groundwater monitoring and modelling in Bangalore; developing a 100-year dataset of reference evapotranspiration for all of India; studying the impacts of land-use change on forest ecosystems; and modeling stream flow and runoff source areas in the New York City watersheds.

Vishal received his Ph.D. in Soil, Crop and Atmospheric Sciences from Cornell University, Ithaca in 2007.

Education

Cornell University — Ithaca, New York

PhD, Dept of Soil, Crop and Atmospheric Sciences. *2003 – 2007*

Major: Environmental Information Science. Dissertation: "Forest disturbance assessment and evapotranspiration modeling for water management in India"

Cornell University — Ithaca, New York

MS, Dept. of Biological and Environmental Engineering. *1999-2001*

Major: Soil and Water Engineering. Thesis: "Application of a GIS-based distributed model to two Catskills watersheds"

National Institute of Engineering — Mysore, India

BE, Dept. of Mechanical Engineering. *1993-1997*

Thesis: "Performance of centrifugal pumps as turbines for micro-hydropower generation"

Experience

Stockholm Environment Institute (SEI) — Davis, California

Senior Scientist *2008 – present*

SEI is an international not-for-profit research institute with a mission to bridge science and policy. Focused on collaborative water and energy planning tools, combining formal stakeholder engagement with computer decision support. Managed and led several projects internationally, e.g. integrated riverbasin management in California • urban metabolism in India and Thailand • climate and landuse impacts on water resources systems (multiple countries) • Himalayan glacier modeling • groundwater management in the US and India.

eDesign Dynamics — New Jersey, USA

Consultant *Aug 2007 – Oct 2007*

Designed the hydraulics of a rainwater harvesting structure in New York.

Cornell University — Ithaca, New York

Graduate Research Assistant *May 2007 – Aug 2007*

Researched geospatial methods in soil sciences.

Graduate Teaching Assistant *2003 – 2004*

Taught and graded courses in Geographic Information Sciences (GIS) and spatial analysis.

Graduate Teaching and Research Assistant *1999 – 2001*

Taught courses in hydrology and renewable energy systems. Researched hydrology of New York City watersheds.

Arghyam Trust — Bangalore, India

Consultant *Aug 2006 – Nov 2006*

Developed web-based delivery of 100 yrs of climate information and derived evapotranspiration for the India Water Portal. Developed.online tutorials and spreadsheets on conducting water balances.

Ashoka Trust for Research in Ecology and Environment (ATREE)

Research Associate *Oct 2005 – July 2006*

Researched landuse change impacts in forests of southern India. Managed field research teams. Developed automated scripts to krige (interpolate) 60 years of annual rainfall in the Western Ghats.

Research Associate *2002 – 2003*

Researched impacts of mining on southern Indian riverbasin. Aanalyzed satellite imagery for landcover and landuse change.

SAMVADA

Research Fellow *1998 – 1999*

Developed and implemented innovative micro-hydropower solutions for remote rural communities in India and Nepal.

Centre for Appropriate Rural Technology (CART) — Mysore, India

Research Assistant *1996 – 1997*

Researched and implemented innovative microhydropower and water lifting devices in Indian villages.

Countries of Work Experience

USA • India • UK • Thailand • Ecuador • Nepal • Tanzania • Uganda • Kenya • China

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Selected grants, awards and honors

Cities Alliance Catalytic Fund (2015-2017), PI • US Department of Agriculture (2016-2018), co-PI • California Water Foundation (2014-2015), PI • Sida Institutional Programmatic Funds (2011-2014), PI • Arghyam Trust capacity building grant (2009), PI • Cornell Einaudi Center Research Travel Grants (2004, 2005, 2006) • International Foundation for Science Grant (IFS Sweden, 2005) • Cornell Bradfield Award (2005) • Cornell Center for Environment Grant (2005) • Alpha-Epsilon National Honor Society for Agricultural Engineering (2000) • Vice-President, Cornell BEE Graduate Students Association (2001) • SLK Endowment Scholarship and Gold Medal for Engineering, India (1997).

Skills

Management and fundraising: More than a decade of experience in raising funds for research projects in and across several countries, and in managing international teams.

Technical expertise:

- Water Resources Modeling. Water and energy balance modeling at field, watershed and regional scales. Integrated water resources modeling. Proficient with WEAP (Water Evaluation And Planning) decision support system.
- Geostatistical modeling. Proficient with environmental applications of geostatistics using R, GRASS, Splus, and ArcGIS extensions.
- Energy modeling. Energy analysis from farm to state scale. Proficient with LEAP (Long-range Energy Analysis and Planning) software platform.
- GIS Software. Proficient with ArcGIS, ArcView, GRASS, Manifold, IDRISI, Mapserver, QGIS, POSTGIS on Windows and Linux OS.
- Statistical Software. Advanced statistical analysis using R and Splus.
- Ecological Analysis. Quantitative ecological analysis using R.
- Remote Sensing. Satellite imagery interpretation for land surface characterization. Proficient with IDRISI and GRASS modules.
- Hydraulic Design. Design of structures for water resources applications.

Languages: English *(proficient)*, Hindi *(native language)*, Gujarati *(native language)*, Kannnada *(elementary proficiency)*, Spanish *(elementary proficiency)* and German *(beginner).*

Interests

Music, art, reading, travel, hiking and camping.

Selected publications

[1] V. K. Mehta, C. A. Young, S. R. Bresney, D. S. Spivak, and J. M. Winter. How can we support the development of robust Groundwater Sustainability Plans? *California Agriculture*, 2(1):54–64, 2018.

[2] J. M. Winter, C. A. Young, V. K. Mehta, A. C. Ruane, M. Azarderakhsh, A. Davitt, K. McDonald, V. R. Haden, and C. Rosenzweig. Integrating water supply constraints into irrigated agricultural simulations of California. *Environmental Modelling & Software*, 96:335–346, Oct. 2017.

[3] M. Sekhar, S. K. Tomer, S. Thiyaku, P. Giriraj, S. Murthy, and V. K. Mehta. Groundwater Level Dynamics in Bengaluru City, India. *Sustainability*, 10(1):26, Dec. 2017.

[4] V. K. Mehta, D. S. Spivak, V. Vivek, M. Sekhar, and D. Malghan. Urban Groundwater in India: The Role of Information in Effective Governance, Oct. 2017.

[5] L. G. Forni, S. E. Galaitsi, V. K. Mehta, M. I. Escobar, D. R. Purkey, N. J. Depsky, and N. A. Lima. Exploring scientific information for policy making under deep uncertainty. *Environmental Modelling & Software*, 86:232–247, Dec. 2016.

[6] J. Winter, C. A. Young, V. K. Mehta, A. W. D. Davitt, M. Azarderakhsh, A. C. Ruane, and C. Rosenzweig. Climate Impacts on Irrigated Agriculture in California's Central Valley. In *AGU Fall Meeting Abstracts*, 2015.

[7] V. K. Mehta, R. Goswami, E. Kemp-Benedict, S. Muddu, and D. Malghan. Metabolic urbanism and environmental justice: the water conundrum in Bangalore, India. *Environmental Justice*, 7(5):130–137, 2014.

[8] D. Groves, J. R. Fischbach, N. Kalra, E. Molina-Perez, D. Yates, D. Purkey, A. Fencl, V. K. Mehta, B. Wright, and G. Pyke. Developing Robust Strategies for Climate Change and Other Risks. 2014.

[9] D. E. Rheinheimer, J. H. Viers, J. Sieber, M. Kiparsky, V. K. Mehta, and S. T. Ligare. Simulating high-elevation hydropower with regional climate warming in the west slope, Sierra Nevada. *Journal of Water Resources Planning and Management*, 140(5):714–723, 2013.

[10] V. K. Mehta, V. R. Haden, B. A. Joyce, D. R. Purkey, and L. E. Jackson. Irrigation demand and supply, given projections of climate and land-use change, in Yolo County, California. *Agricultural Water Management*, 117:70–82, 2013.

[11] V. K. Mehta, R. Goswami, E. Kemp-Benedict, S. Muddu, and D. Malghan. Social Ecology of Domestic Water Use in Bangalore. *Economic and Political Weekly*, 48(15):40–50, Apr. 2013.

[12] V. K. Mehta, O. Aslam, L. Dale, N. Miller, and D. R. Purkey. Scenario-based water resources planning for utilities in the Lake Victoria region. *Physics and Chemistry of the Earth, Parts A/B/C*, 61:22–31, 2013.

[13] S. Muddu, V. K. Mehta, D. Malghan, and E. Kemp-Benedict. The coupled social-hydrology of Bangalore city, India. In *AGU Fall Meeting Abstracts*, 2012.

[14] L. E. Jackson, V. Haden, A. Hollander, H. Lee, M. Lubell, V. K. Mehta, T. O'Green, M. T. Niles, J. Perlman, D. R. Purkey, W. Salas, D. Sumner, M. Tomuta, M. Dempsey, and S. Wheeler. Adaptation strategies for agricultural sustainability in Yolo County, California. Technical Report CEC, California Energy Commission, Sacramento, 2012.

[15] L. Jackson, V. R. Haden, S. M. Wheeler, A. D. Hollander, J. Perlman, T. O'Geen, V. K. Mehta, V. Clark, J. Williams, and A. Thrupp. Vulnerability and adaptation to climate change in California agriculture. *California Energy Commission. Publication number: CEC-500-2012-031*, 2012.

[16] V. K. Mehta, D. E. Rheinheimer, D. Yates, D. R. Purkey, J. H. Viers, C. A. Young, and J. F. Mount. Potential impacts on hydrology and hydropower production under climate warming of the Sierra Nevada. *Journal of Water and Climate Change*, 2(1):29–43, 2011.

[17] B. A. Joyce, V. K. Mehta, D. R. Purkey, L. L. Dale, and M. Hanemann. Modifying agricultural water management to adapt to climate change in California's central valley. *Climatic change*, 109(1):299–316, 2011.

[18] C. A. Young, M. I. Escobar-Arias, M. Fernandes, B. Joyce, M. Kiparsky, J. F. Mount, V. K. Mehta, D. Purkey, J. H. Viers, and D. Yates. Modeling the hydrology of climate change in California's Sierra Nevada for subwatershed scale adaptation. *JAWRA Journal of the American Water Resources Association*, 45(6):1409–1423, 2009.

[19] B. A. Joyce, V. K. Mehta, D. Purkey, L. Dale, and M. Hanemann. Climate change impacts on water supply and agricultural water management in California's western San Joaquin Valley, and potential adaptation strategies. *California Climate Change Center*, 2009.

[20] V. K. Mehta, P. J. Sullivan, M. T. Walter, J. Krishnaswamy, and S. D. DeGloria. Impacts of disturbance on soil properties in a dry tropical forest in Southern India. *Ecohydrology*, 1(2):161–175, 2008.

[21] V. K. Mehta, P. J. Sullivan, M. T. Walter, J. Krishnaswamy, and S. D. DeGloria. Ecosystem impacts of disturbance in a dry tropical forest in southern India. *Ecohydrology*, 1(2):149–160, Jan. 2008.

[22] V. K. Mehta. *Forest disturbance assessment and evapotranspiration modeling for water management in India*. PhD thesis, Cornell University, Ithaca, NY, 2007.

[23] J. Krishnaswamy, M. Bunyan, V. K. Mehta, N. Jain, and K. U. Karanth. Impact of iron ore mining on suspended sediment response in a tropical catchment in Kudremukh, Western Ghats, India. *Forest Ecology and Management*, 224(1):187–198, 2006.

[24] V. K. Mehta, M. T. Walter, E. S. Brooks, T. S. Steenhuis, M. F. Walter, M. Johnson, J. Boll, and D. Thongs. Application of SMR to modeling watersheds in the Catskill Mountains. *Environmental Modeling and Assessment*, 9(2):77–89, 2004.

[25] M. S. Johnson, W. F. Coon, V. K. Mehta, T. S. Steenhuis, E. S. Brooks, and J. Boll. Application of two hydrologic models with different runoff mechanisms to a hillslope dominated watershed in the northeastern US: a comparison of HSPF and SMR. *Journal of Hydrology*, 284(1):57–76, 2003.

[26] M. T. Walter, T. S. Steenhuis, V. K. Mehta, D. Thongs, M. Zion, and E. Schneiderman. Refined conceptualization of TOPMODEL for shallow subsurface flows. *Hydrological Processes*, 16(10):2041–2046, 2002.