Vishal K. Mehta
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Vishal K. Mehta

Professional Summary

Vishal is a hydrologist and environmental modeler with more than ten years of experience in water resources, forest conservation and micro-hydropower for rural development. With SEI's US Center in Davis, Vishal is currently working on the impacts of climate change on California's water supply, and on urban water management with utilities in the US, India and East Africa. His expertise includes forest ecosystem sciences, distributed hydrological modeling, and the use of several open-source and commercial geographic information systems. Vishal's recent work includes modeling of a 100-year monthly dataset of reference evapotranspiration for all of India; studying the impacts of land-use change on water resources and forest ecosystems; and modeling stream flow and runoff source areas in headwaters of the New York City watersheds. Vishal received his Ph.D. in Soil, Crop and Atmospheric Sciences from Cornell University, Ithaca in 2007.

Education and Training

2007 Ph.D. Cornell University, Dept. of Soil, Crop and Atmospheric Sciences.
Major: Environmental Information Science

Dissertation: "Forest disturbance assessment and evapotranspiration modeling for water management in India"

2001 M.S. Cornell University, Dept. of Biological and Environmental Engineering.
Major: Soil and Water Engineering

Thesis: "Application of a GIS-based distributed model to two Catskills watersheds"

1997 B.E., National Institute of Engineering
Major: Mechanical Engineering

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

Personal Details

Date of birth	12 May 1975
Sex	Male
Nationality	India
Residency	USA

Languages

English	• Good	German	• Limited
Spanish	• Conversational	Indian languages (Hindi, Kannada, Gujarati)	• Good

SKILLS

Hydrological Modeling: Water and energy balance modeling at field, watershed and regional scales.
Geostatistical modeling using **R, Splus** and **ArcGIS** extensions.
GIS Software: ArcGIS, **ArcView**, **GRASS**, **Manifold**, **IDRISI** and **Mapserver** on Windows and Linux OS.
Statistical Software: Advanced statistical analysis using **R** and **Splus**.
Ecological Analysis: Quantitative ecological analysis using **R** software.
Remote Sensing: Satellite imagery interpretation for land surface characterization.
Hydraulic Design: Design of structures for water resources applications.

AWARDS and HONORS

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).

Employment Record

2008 – Present	**Scientist**, Stockholm Environment Institute, Davis, CA, USA.
08/2007-10/2007	**Consultant**, EDesign Dynamics, West New York, New Jersey, USA.
05/2007 – 08/2007	**Graduate Research Assistant**, Cornell University, USA.
08/2006-11/2006	**Consultant**, Arghyam Trust, Bangalore, India
10/2005 - 07/2006	**Research Associate,** Ashoka Trust for Research in Ecology and Environment (ATREE), Bangalore, India
2003 - 2004	**Graduate Teaching Assistant,** Cornell University, USA.
2002 - 2003	**Research Associate,** Ashoka Trust for Research in Ecology and Environment (ATREE), Bangalore, India
1999 - 2001	**Graduate Teaching Assistant,** Cornell University, USA.
1998 - 1999	**Research Fellow, SAMVADA,** Bangalore, India
1996 - 1997	**Research Assistant,** Centre for Appropriate Rural Technology (CART), Mysore, India

Selected Project Experience

2009 - 2010
Global

Climate change impacts on California water supply

Basin scale modeling of hydrology and water resources systems using the Water Evaluation and Planning System (WEAP), under historical and projected future climate drivers. Including possible impacts of climate change on agriculture, hydropower, municipal an dindustrial water demands. This work is in collaboration with several University of California partners as well as with regional and local environmental stakeholders.

Urban water management in the Lake Victoria basin

Working in collaboration on a UN-Habitat project with several African consultant partners and University of California at Berkeley, on developing a regional scale climate change vulnerability assessment in the Lake Victoria basin, and linking it to local scale water utility management and infrastructure development in Kenya, Tanzania and Uganda. Funded by UN-Habitat.

Incorporating Fire Risk into the EID water management plan

This project, funded by the California Energy Commission (CEC), is focused on developing and implemeting conceptual models of the impacts of fire on the urban water system in California's El Dorado Irrigation District.

2008-09
USA

Google Earth applications for visualizing and communicating complex climate, demography and ecosystem information

Funded by Google Foundation and CEC, this project culminated in a prototype that served several Google Earth applications for the state of California, covering historical and projected climate, population and ecosystem information. Asa result the state has committed to building a complete web-based platform based on the prototype. This work was in collaboration with WeAdapt.

2007
USA

Water Harvesting Design Engineering

As consultant with EDesign Dynamics in New York City, designed rainwater harvesting and water recycling systems for residential and commercial buildings in the New York City area. Included water budget modeling, hydraulic design and system conceptualization.

2004 - 06
India, USA

India Water Portal

GIS modeling of reference evapotranspiration for India from 1901-2002. Helped design the webgis to make climate data available on a web-gis, on the India Water Portal deployed by Arghyam Trust. Also developed and deployed online instruction manuals and tutorials on water balance modeling.

Land-use change and Forest ecohydrology

Conducted and managed field research on the impacts of landuse change in Bandipur National park in southern India, on soils, hydrology and vegetation ecology. Also developed autotomated co-kriging scripts to interpolate rainfall data in the *Western Ghats* biodiversity hotspot.

Graduate Teaching Assistant

Co-taught graduate and undergraduate level courses in GIS and Resource Inventory methods at Cornell University.

2000 - 2003

Mining Impacts on Forest Hydrology

India, US

Conducted field research and analysis of impacts of iron-ore mining in *Kudremukh National Park* in southern India, on sediment load in the Bhadra river.

Graduate Assistant, Cornell University

Co-taught courses on Watershed Engineering, and Renewable Energy Systems.

Developed, calibrated and validated a GIS-based hydrological model for predicting stream flow and runoff source areas in the New York City headwater watersheds in central NY.

1996-1999
India, Nepal

Micro-hydropower and Rural Development

Researched and implemented micro-hydropower (MHP) projects for rural electrification in India and Nepal. Included entire hydraulic system design with alternative low-cost turbine-generator options.

Conducted site surveys of potential MHP sites, case studies of existing projects and impacts on community.

Provided technical training and collaborated with researchers, consultants, activists and local communities.

Developed and installed low cost water lifting devices for rural areas in southern India.

Selected Publications

Mehta, V.K., D. Beaudette, D.Purkey, T. Downing, S. Bharwani. 2009. **Climate Adaption Planning in California Using Google Earth ®/weADAPT®:A Pilot Stud***y*. California Energy Commission, Energy-Related Environmental Research Program.

Brian Joyce, Mehta, V.K., David Purkey, Larry Dale, Michael Hanemann. 2009. **Climate Change Impacts on Water Supply and Agricultural Water Management in California's Western San Joaquin Valley, and Potential Adaptation Strategies -** California Energy Commission CEC-500-2009-051-F.

Mehta, V.K., Sullivan, P.J., Walter, M.T., Krishnaswamy, L., DeGloria, S.D. 2008. **Impacts of disturbance on soil properties in a dry tropical forest in southern India.** *Ecohydrology 1(2)161-175*

Mehta, V.K., Sullivan, P.J., Walter, M.T., Krishnaswamy, L., DeGloria, S.D. 2008. **Ecosystem Impacts of disturbance in a dry tropical forest in southern India.** *Ecohydrology 1(2)149-160*

Krishnaswamy, J., Bunyan, M., Mehta, V.K., Patil, N., Karanth, K.U. 2006. **Impact of Iron-ore Mining on sediment response in a tropical catchment in Kudremukh, Western Ghats, India.** *Forest Ecology and Management 224:187-198.*

Krishnaswamy, J., Mehta, V. K., Joshi, P., Rakesh, K. N., and Suparsh, P. N. 2006. **Comparative Hydrology in Forested South India: Methodological Approaches to Unique Challenges.** *In* J. Krishnaswamy, S. Lele and R. Jayakumar (eds.) *Hydrology and Watershed Services in the Western Ghats of India. Effects of Land Use and Land Cover Change*. Tata McGraw-Hill, New Delhi p. 265-295.

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

Johnson, M.S., Coon, W.F., Mehta, V.K., Steenhuis, T.S., Brooks, E.S., Boll, J. 2003. **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 284:57-76*

Walter, M.T., Mehta, V.K., Marrone, A.M., Boll, J., P. Gerard-Marchant, Steenhuis, T.A., Walter, M.F. 2003. **Simple estimation of the prevalence of Hortonian Flow in the New York City watersheds.** *ASCE J. Hydrologic Engineering 8(4):214-218.*

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

Mehta, V.K., 1998. **Rural Electrification in Kerala - A Power Play.** *KHOJ (4), magazine of SMILE (Student Mobilization Initiative through Learning from Experience) NGO network.*

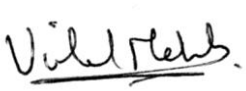
Mehta, V.K. and Malghan, D., 1998. **Micro-hydropower in Nepal - evolution and implications.** *CART technical publication.*

Countries of Work Experience

- India
- USA
- Nepal
- Uganda
- Tanzania
- Kenya

Certification

I, the undersigned, certify that all information stated in this resume is true and complete to the best of my knowledge.

Signature:  Date of Signing: 1 February 2010