

EDUCATION

Cornell University, Ithaca, NY 2003-2007

Ph.D. (2007), Dept. of Soil, Crop and Atmospheric Sciences. GPA: 4.08

Major: *Environmental Information Science*

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

Cornell University, Ithaca, NY 1999-2001

M.S. (2001), Dept. of Biological and Environmental Engineering. GPA: 4.1

Major: *Soil and Water Engineering*

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

University of Mysore, Mysore, India 1993-1997

B.Eng (1997), National Institute of Engineering

Major: *Mechanical Engineering*

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

EXPERIENCE

Environmental Modeling, Hydrology and Ecosystems Research

Hydrology and Water Resources Systems modeling in New York and California

- Hydrological and water systems modeling of California basins in the Sierra Nevada using WEAP model - Including hydrology calibration and validation; building of water resources operations; developing alternative management and climate change scenarios.
- 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.
- Collaborated with NYC Dept. of Environmental Protection in hydrologic data collection and modeling.
- Developed model with ArcGIS Model Builder to identify hydrologically sensitive areas in Tompkins County, NY.

Regional Modeling of Solar Energy and Evaporation

- Processed Climate Research Unit (CRU) global monthly weather datasets from 1901 to 2002 for India.
- Developed GIS model to generate 102 years of country-wide solar energy and evaporation estimates.
- Developed online instructional manual on estimating evaporation from weather datasets.
- Developed instructional manual explaining a soil water balance model, including example spreadsheets and a video tutorial. Available online at <http://www.indiawaterportal.org>

Forest Eco-hydrology Research in Biodiversity Hotspots

- Researched impacts of forest degradation on forest ecosystem health in *Bandipur National Park*, southern India. Impacts of grazing and fuelwood extraction on soils, ecology and hydrology were studied. Included field sampling of rainfall, streamflow, soils and vegetation.
- Researched impacts of iron-ore mining on sediment loads in *River Bhadra* in the mountains of southern India. Included sampling of rainfall, streamflow and sediment. Used GIS and LANDSAT satellite imagery for watershed characterization.
- Automated the modeling of 60 years of orographic rainfall for southern India using co-kriging scripts.

Sustainable Development and Renewable Energy

Urban Water Systems

- 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.

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.

Teaching Experience

Supervised, mentored, and evaluated classes and labs for diverse groups of undergraduate and graduate students at Cornell University in the following courses:

- Resource Inventory and Analysis (Spring 2007; Spring 2004)
- Geographic Information Systems (Fall 2003)
- Watershed Engineering (Fall 2000)
- Renewable Energy Systems (Spring 2000)

TECHNICAL 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.

PROFESSIONAL SKILLS

- Research design and problem solving with multi-stakeholder and multidisciplinary teams.
- Facilitating partnerships among local communities, government, private and NGO sectors.
- International experience. Successful grant-writing track record.
- Languages: Fluent in several Indian languages; intermediate Spanish and German.

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).

PUBLICATIONS (online at www.people.cornell.edu/pages/vkm2/publications.htm)

Published in international peer-reviewed journals including:

Ecohydrology; Journal of Hydrology; Forest Ecology and Management; Hydrological Processes; Environmental Modeling and Assessment; Hydrologic Processes; Journal of Hydrologic Engineering.

RELEVANT GRADUATE COURSEWORK

Geographic Information Systems; Spatial Modeling and Analysis; Resource Inventory and Analysis; Applications of Space-Time Statistics; Spatial Statistics; Renewable Energy Systems; Hydrology; Micro-climatology; International Aspects of Environmental Planning; Statistical Methods; Biogeochemistry; Watershed Engineering.

WORK HISTORY

4/08 - present	Scientist IV	Stockholm Environment Institute-US Center, Davis-CA
8/07 – 10/07	Consultant	Edesign Dynamics, West New York-NJ
5/07 – 8/07	Graduate Research Assistant	Cornell University, Ithaca-NY
8/06 – 11/06	Consultant	Arghyam Trust, Bangalore-India
10/05 – 7/06, 7/02 – 7/03	Research Associate	ATREE, Bangalore-India
1/01 – 5/02	Hydrologist	Cornell University, Ithaca-NY
various semesters, '00 - '07	Graduate Teaching Assistant	Cornell University, Ithaca-NY
10/97 – 8/99	Research Fellow	SAMVADA, Bangalore-India

SELECTED PUBLICATIONS

- 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.

OTHER WRITING

- 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*.