The RESUMÉS

Of the Project Team and Consultants

PROJECT TEAM

Satish Mehta



Satish Mehta

BTech Chemical Engineering . IIT Bombay
MMS Ops Research . JBIMS, Mumbai University

From 1987 to 2002, Satish worked with the accountancy Firm A.F. Ferguson & Co. Since 2003, he has been working in the Impact and Fund management space. He serves on the Investment Committees and Boards of several Private Equity Funds as the Compliance and regulatory head.

Right from his college days, he has been very passionate about photography and indigenisation. He received the Acharya PC Ray award from the President of India in 1987 for designing the main reactor for the gas-based urea plants.

His first cinematographic project – an English feature film, Nuclear Winter – won the Cannes Film Festival award in the special category in 1988. In 2002, he helped set up PanIIT India and was Chairman of the participation committee of the first PanIIT Conclave held in 2004.

He has been an active volunteer with various PanIIT alumni initiatives, including the IIT Alumni Council and the PanIIT Fund. He has been actively involved in creating the start-up ecosystem in India and has served on many working groups and committees, including the BSE SME, Digital India and Make in India Investment Boards.

Satish is an amateur filmmaker and an enthusiastic photographer. Over the last three decades, he has emerged as one of the leading professional practitioners in the area of photogrammetry, which involves using imaging sensor outputs for a variety of highly technology-intensive applications in areas like biofield sensing, 3D projection, image enhancement, lossless compression, parallax assessment and computer vision.

He serves as a visiting faculty in the area of photogrammetry and has authored several studies on the subject.

PROJECT TEAM

Srinivas Rachakonda

Srinivas Rachakonda



Sectors of Expertise

- **Refining**
- **Petrochemicals**
- **Power**

Core expertise: Business Strategy, Maximization of Margins, Supply Chain Management, Economic Planning & Scheduling, Debottlenecking, Project Funding, Valuation of assets

Seasoned oil and gas professional with experience of over 3 decades. Known in the downstream industry for passion to drive change & maximize profits

Regions served: India, Nigeria, Vietnam, Taiwan, China, Philippines, Malaysia, Singapore, Europe, USA etc.

Srinivas Rachakonda 2/2

Experience

- **2021 onwards – Founder Prakruti Prerana Foundation,** Non profit company working for conservation of nature
- **2015 – 2021 Mar, Director Business Strategy DORC, Nigeria**. Configuration and Execution of World's largest single train Refinery of 650 KBPD & 800 KTPA Polypropylene -Working with licensors, fund raising, developing systems
- **2013 - 2015, Senior Advisor, Oil & Gas practice, McKinsey** – Strategized profit improvement for Indian Oil and Hindustan Petroleum, India
- **2007-2013, Essar Oil – Senior Vice President , Head of Economic Planning & Scheduling** – Starting with 230 KBPD design, took to 400 KBPD in 5 years. Valued Shell Stanlow Refinery acquisition, due diligence for raising 2 Billion $ in London Stock Exchange
- **2000-2007, Aspen Tech, Senior Consultant** – Implemented Planning and Scheduling systems across Asia
- **1991- 2000, Reliance Industries, Deputy Manager** – Configuration studies, Planning & Strategy
- **1987- 1991, Bharat Petroleum & Union Carbide**

Education and Contact

- B Tech Chemical Engineering from IIT Bombay 1987 & PGDM
- Srinivas Rachakonda; sxsrinivas@gmail.com & +919820220859 / +917815963047

PROJECT TEAM

Neelkant Shukla



Neelkant V. Shukla...

CATALYST FOR EXCELLENCE IN STRATEGY, ENGINEERING, TECHNOLOGY AND LEADERSHIP

13 Kilburn Court • Cherry Hill, NJ 08003 • 832.657.7403 • nvshukla65@gmail.com

Senior Executive Leader with a PhD in Chemical Engineering and a proven track of achievements throughout career. Deeply skilled and agile at managing several multimillion dollar tasks on target and under budget. Keen ability to distill highly complex and technical information into terms readily understood by all levels. Gifted leader and college-level professor who is passionate about mentoring and educating both team members and students to help set a career trajectory for success. Known as an excellent negotiator who combines technical expertise with diplomacy and a strong customer (both internal and external) focus to repeatedly form vital strategic alliances/teams for a common goal.

- **Leadership, mentoring and team performance** – known for expertise in companies, such as Sunoco, for leading, guiding and training teams to meet or surpass mission-critical project goals, often with multimillion- or multibillion-dollar impact. Won a $25M project despite formidable challenges.
- **Industry and Corporate recognition** – recipient of numerous awards and appointments for expertise, career contributions and commitment to excellence. Recipient of Polymer Team Leadership Award at ExxonMobil, Team Leadership Award for Excellence at Sunoco, named Secretary of AIChE Management Division, and hold multiple leadership roles in Construction Industry Institute (CII).
- **Strategy and operational excellence** – repeatedly delivered high-impact, measurable results throughout career in manufacturing and engineering that resulted in improved safety, reliability, cost savings, standardization and revenue optimization. Saved more than $1M in company investment by improving throughput in batch operations with zero impact to production. Focus and use current best practices (cGMP)
- **Client | Account management** – sought on multiple occasions to build, restore or strengthen client relationships that have been critical to bottom-line results and strategic goals of organizations, including Sunoco, Middough and Exxon, to name a few.
- **Project management** – brought multiple, high-investment, complex engineering projects seamlessly to execution and repeatedly earned both executive-level approval and client satisfaction, resulting in additional project wins. Won an unheard of 80%+ approval rate at Sunoco on projects by top management.

Exceptional Technical Insight and Leadership that Drives Competitive Advantage

- Team Building | Training | Leadership
- Project Engineering | Management
- Manufacturing and Engineering Best Practices
- Multimillion Dollar Budget Management
- Corporate Strategy
- Continuous Improvements | KPIs | Automation
- Strategic Planning
- Revenue Optimization
- Benchmarking | Competitive Analysis
- C-Level Presentations
- Quality and Safety Practices
- Maintenance and Site Management

A Career Record of Delivering Top Results for Companies with Global Impact

SNC Lavalin, Exton, PA — 2022 – date

Startup – Build technologies to reuse resources for sustainable future

SENIOR MANAGER – PROJECTS

Manage several project ranging from $100K to $30MM to keep them on track and on budget with client focus.

Green Recovery Technology LLC, New Castle, DE — 2019 – 2020

Startup – Build technologies to reuse resources for sustainable future

SENIOR DIRECTOR - OPERATIONS AND ENGINEERING

Work with Engineering & New Product Development teams to produce executable plan consisting of small & field trials that can be qualified & scaled to meet full scale production requirements. Work with teams to develop staffing plan that meets corporate milestones & constraints and work with supply chain to develop inventory & distribution plan that meets customer milestones & constraints. Develop CAPEX Plans, drive continuous improvements and scale new technologies for production

Synagro Central LLC, Philadelphia, PA 2018 – 2019
Leading recycling center in the country.

SENIOR OPERATIONS DIRECTOR
Recruited to improve reliability, increase uptime, establish best practices and manage key projects. Cultivate a sense of ownership among team, serve as a liaison during contract negotiations for new agreements and improve operation excellence. Streamline list of service providers and negotiate volume discount, reassign tasks to improve workflow and data collection, and follow the bottoms up approach to problem solving. Results include increase uptime from 55% to 75%, increased margin by 15% by reducing spent by 5% and increased revenue by 10%, built centers of excellence and improved safety by lowering TRIR.

- Reversed trend from being reactive work to strategic work by better aligning pricing, operations, maintenance and contractors. Modifying collaborative methodologies to plan work better.
- Boosted data flow, operation ownership and maintenance pride

Successfully implemented over $1,000,000 worth project with minimum down time and resulting in increased saving and revenue.

Middough Inc., Mt. Laurel, NJ 2016 –2017
Top ranked full-service consulting firm specializing in engineering, construction and environmental services.

SENIOR DIRECTOR, BUSINESS DEVELOPMENT | PROJECT MANAGEMENT
Recruited to build company's client base and manage key projects. Cultivate new accounts and serve as a liaison during contract negotiations for new service agreements. Manage downstream refining, petrochemicals and chemical business for client accounts. Provide services that include conceptual studies, FEL/FEED, EP and EPCM for projects ranging $500K to $25M in total costs.

- Forged strategic relationships with prior clients and identified ways to build a robust pipeline of new projects. Met with clients and project managers to pinpoint and resolve issues in project execution process, successfully winning new projects.
- Reversed trend of declining project revenues by aligning pricing with competitors, modifying project methodologies and streamlining RFP process; won a strategically important $25M project.
- Boosted client satisfaction and improved project managers' productivity and performance by mentoring them throughout entire cycle, and ensuring availability of resources for timely project completion.
- Built a portfolio of new business in diverse sectors, clinching new engineering service agreements (ESA) by leveraging professional network of industry contacts.

Day & Zimmermann, Philadelphia, PA 2013 – 2016
Privately held company specializing in engineering, construction, staffing and defense solutions.

SENIOR DIRECTOR, BUSINESS DEVELOPMENT | PROJECT MANAGEMENT
Sought for industry and technical expertise to grow this business. Held strategic account responsibility for downstream refining, petrochemicals and chemical business. Worked with major oil and gas clients, such as PBF, Motiva, Monroe Energy, Hess Refining, Philadelphia Energy Solutions and Phillips 66, to name a few. Developed execution teams and guided project managers in completing high-priority projects that included selective noncatalytic reduction, alky/poly flare gas modification and boiler relocation.

- Penetrated a fledgling sector in the Northeast, process and industrial (P&I), that was pivotal in driving new business development efforts; executed six ESA in first year and built a robust portfolio in the P&I sector with revenues of $5M+ in three years.
- Opened lines of communication between project managements, company executives, and clients that improved operational efficiencies, client satisfaction and generated more business.

URS – Washington Division, Houston, TX 2008 – 2009
Multibillion-dollar engineering, construction and design firm.

PROCESS ENGINEERING MANAGER
Segued from manufacturing into engineering sector in this role. Served as project leader on a highly visible initiative, Tail Gas Unit. Identified modeling conflicts and resolved discrepancies prior to field construction. Documented activities for several projects by creating and implementing procedure and process roadmap. Managed teams of 50+ project managers and technical professionals.

- Rapidly addressed crippling project management issues: implemented formal project action plans, and aligned team members with key goals and client needs. Restored credibility and integrity with key clients on several high-profile initiatives.

Sunoco, Inc., Philadelphia, PA 2000 – 2008
Formerly one of the largest independent refineries in the US, with multibillion-dollar revenues.

SENIOR PROCESS ENGINEER | PROJECT/PROGRAM MANAGER
Seized opportunity at headquarters to build a program spanning multiple refining sites. Served as lead on numerous process related projects. Conducted extensive analyses of competitors, market trends, emerging technologies and industry best practices. Managed $30M budget and performed long-term forecasting. Directed large teams across various sites.

- Improved operational efficiencies at multiple refineries by designing and customizing site specific programs. Repeatedly introduced and reinforced consistent engineering standards at all sites.
- Successfully and seamlessly implemented a comprehensive control system with new technology, a new platform and new instrumentation on a high-profile five site grass roots project valued at $750M.
- Increased ROI on projects by reducing costs, keeping projects on schedule and within budget to the satisfaction of management, contractors, operators and engineers.
- Introduced a tool for management of change (MOC) that was later rolled into the reliability and maintenance program to streamline equipment maintenance and minimize downtime.

Exxon Mobil Chemicals, Baton Rouge, LA 1995 – 2000
American multinational, multibillion-dollar oil corporation headquartered in Irving, TX.

SENIOR PROCESS ENGINEER
Hired during post-doctoral work due to knowledge of process control, refining process insights, root cause analysis and for implementing sustainable solutions. Groomed and managed teams, developed five-year goals for operating units based on gap analysis and research on industry trends.

- Trimmed annual injury rate by 15% as Chairman of Engineering Department Safety Committee.
- Improved KPIs for process units, which resulted in improved throughput and increased revenues; won buy-in from operators with new automation technologies that drove sustained continuous improvements.
- Introduced several measures, including GAP analysis that measurably increased operating efficiency and safety, and met KPIs.

Teaching Experience

ROWAN UNIVERSITY, Glassboro, NJ 2016 – present
ADJUNCT FACULTY – OPERATIONS MANAGEMENT
Educate graduates in areas that include KPI's strategy and criticality of Operations Management in diverse industries. Teach students basic decision-making tools and performing break-even analysis, forecasting methods, time series analysis and regression analysis, and application of project management tools, such as CPM and PERT.

Education and Training

UNIVERSITY OF DELAWARE, Alfred Lerner College of Business and Economics, Newark, DE
MBA in General Management

UNIVERSITY OF LOUISVILLE, Speed School of Engineering, Louisville, KY
MS and PhD in Chemical Engineering

INDIAN INSTITUTE OF TECHNOLOGY (IIT), (equivalent to MIT), Mumbai, India
Bachelors of Technology in Chemical Engineering

Completed numerous courses in Leadership, Quality and Management, Corporate Strategy and International Relations.

Neelkant Shukla 4/4

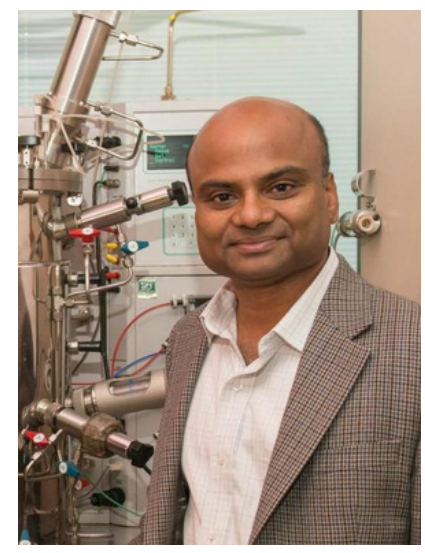
Volunteer | Community Service

NORTH SOUTH FOUNDATION (NSF), National Event Coordinator (2006 – present)

- Chair the local chapter of this foundation. Led a highly successful national event (locally) for 2,000+ children recognized as regional winners from more than 75 centers in the US. Managed a team of hundreds of volunteers.
- Planned the 2010 national event for more than a year, resulting in the most successful national event in NSF's 25-year history.
- Gained significant recognition for every team member, this event was filmed twice by movie producers.

PROJECT TEAM

Upal Ghosh



UPAL GHOSH

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APPOINTMENTS

- 7/12- present **Professor**, 7/07- 6/12 **Associate Professor**, 11/02-6/07 **Assistant Professor** (6/02-8/13), and **Graduate Program Director** (8/04-8/15). University of Maryland Baltimore County. Also, faculty member in the Marine Estuarine Env. Sciences Graduate Program.
- 1/15 – present. **Associate Editor**, Environmental Toxicology and Chemistry journal. Society of Environmental Toxicology and Chemistry.
- 1/09 – present. **President and co-founder**, Sediment Solutions (Startup company specializing in in-situ sediment remediation: www.sedimite.com).
- 12/17 – present. **Secretary and co-founder**. RemBac. (Startup company specializing in sediment bioremediation. www.rembac.com).
- 5/00-10/02 **Engineering Research Associate and Lecturer.** Stanford University, Dept. of Civil and Environmental Engineering.
- 1/98 - 6/99 **Post Doctoral Associate;** 7/99 - 4/00 **Research Faculty**, Carnegie Mellon University, Department of Civil and Environmental Engineering.
- 8/93 - 12/97, 9/90 - 8/92.**Research & Teaching Assistant.** State University of New York at Buffalo.
- 12/92 - 7/93, 8/89- 8/90. **Visiting Fellow.** Energy and Environment Policy Research Group, Indira Gandhi Institute of Development Research, Bombay, India.

EDUCATION

- Ph.D. 1998 State University of New York at Buffalo, Civil and Environmental Engineering.
- M.S. 1993 State University of New York at Buffalo, Civil and Environmental Engineering.
- B.Tech. 1989 Indian Institute of Technology, Bombay, India, Chemical Engineering.

PROFESSIONAL ACTIVITIES:

My group performs research in environmental science and engineering, with a focus on defining environmental problems correctly using appropriate metrics of measurement as a prologue to developing engineering solutions. I have been a PI or Co-PI on more than 50 research projects and authored more than 80 publications in peer-reviewed journals (H-index =41). Past research in my group has focused on defining the exposure and risk from toxic pollutants in the environment. We explore fundamental process mechanisms that control pollutant fate in soils, sediments, and aquatic environments and impacts on plants and animals. Our past research has improved our understanding of how sediment geochemistry controls pollutant transport and bioavailability. My work has led to the development of passive sampling techniques for measuring ultra-low level dissolved concentrations in water that is now being established as a USEPA standard method for assessing risk from toxic pollutants. My work has also advanced the use of amendments to aquatic sediments to reduce the bioavailability of toxic pollutants. The technology is currently being demonstrated and implemented at several large-scale field sites. This work is also starting to address the challenge of managing large volumes of sediments from navigational dredging activities and beneficial use in wetland creation and shoreline protection efforts adopting principles of a circular economy. Current projects are also addressing climate change and associated impacts in coastal systems from extreme events by strategizing on combining remediation and restoration efforts in creating wetlands and vegetated buffers that not only provide shorelines resilience against climate change but also sequester carbon and reduce impacts from toxic pollutants. My work has been published in the leading journals in the field and the technology development has led to several US patents and USEPA guidance documents. I am a co-founder of two startup companies that are transitioning technologies developed in my research to commercialization.

SELECTED AWARDS AND HONORS

- Top 10 paper award 2021; Environmental Toxicology and Chemistry.
- U.S. Department of Defense Environmental Restoration ESTCP Project of the Year Co-PI for 2021
- Entrepreneur of the Year Award, UMBC 2019.
- University System of Maryland Regents Award for Excellence in Scholarship, Research, and Creative Activity. 2016
- Distinguished Service Award, Association of Environmental Engineering and Science Professors. 2015
- Excellence in Environmental Engineering 2015 Honor Award for University Research, American Academy of Environmental Engineers and Scientists.
- Visiting Professor, State Key Laboratory of Urban Water Resource and Environment, Harbin Institute of Technology, China, 2011-2014.
- Best Poster Award, Gordon Research Conference, Environmental Sciences: Water, June 25-30, 2000.
- 1999 Cleanup Project of the Year Awardee with collaborators, Strategic Environmental Research and Development Program (DoD).

SELECTED ONGOING AND RECENT RESEARCH PROJECTS

1. Development of an innovative approach for in situ treatment of PCB impacted sediments by microbial bioremediation. *NIEHS Superfund Research Program SBIR Phase 2 Grant.* B. Amos, K. Sowers, U. Ghosh. 07/2023-06/2025 ($1,153,834)
2. Leveraging the chemo-physical interaction of halorespiring bacteria with solid surfaces to enhance halogenated organic compounds bioremediation. U. Ghosh, K. Sowers, A. Wadhawan. *NIEHS Superfund Research Program R01 Grant.* 3/2021 – 12/2025. ($875,000).
3. Development of novel functionalized polymeric thin films for equilibrium passive sampling of PFAS compounds in surface and groundwater. U. Ghosh, G. Foster. *DoD Strategic Environmental Research and Development Program.* 3/2020 -12/2026. (1,155,254)
4. Beneficial use of dredged sediments: Bringing circular economy principle to sediment management. *US Army Corps of Engineers.* R. Mohan, U. Ghosh, and P. LaRosa. 9/2023-8/2025 ($1,436,100)
5. Baseline PCB monitoring in the Anacostia River and Early Action Areas. *Washington DC Department of Energy and Environment/USFWS.* 07/2021 – 09/2024. ($277,167).
6. Innovative blending of large volume dredged materials to reduce pollutant risk and enable sustainable reuse. U. Ghosh. *Maryland Environmental Service/MD Port Administration.* 12/2020 – 12/2022 ($249,976).
7. Development of a linked PCB mass balance and food web model to assess effectiveness of management options in the Anacostia River. U. Ghosh. *DC Department of Energy and Environment/USFWS.* 3/2020-9/2021. ($155,552).

SELECTED PUBLICATIONS (Total =88; https://scholar.google.com/citations?user=ZnhpG28AAAAJ&hl=en)

1. Co-deployment of Passive Samplers and Mussels Reveals Major Source of Ongoing PCB Inputs to the Anacostia River in Washington, DC. NJ Lombard, M Bokare, R Harrison, L Yonkos, A Pinkney, D Murali, U. Ghosh. ***Environ. Sci. Technol***. 57, 3, 1320–1331, 2023.
2. Seasonal trends of PCBs in air over Washington DC reveal localized urban sources and the influence of Anacostia River. M Bokare, N Lombard, S Magee, D Murali, U Ghosh. ***Environmental Pollution*** 316, 120490, 2023.
3. Equilibrium Porewater Measurement of PCBs and PAHs Using Direct Water Extraction and Comparison with Passive Sampling. Yan, S.; Bokare, M; Ghosh, U. ***Environ. Sci. Technol***. 56 (14), 10020-10029, 2022.
4. Interlaboratory Study of Polyethylene and Polydimethylsiloxane Polymeric Samplers for Ex Situ Measurement of Freely-Dissolved Hydrophobic Organic Compounds in Sediment Porewater. Lotufo, G.; Michalsen, M.; Reible, D.D.; Gschwend, P.M.; Ghosh, U.; Kennedy, A.J.; Kerns, K.M.;

Rakowska, M.I.; Odetayo, A.; MacFarlane, J.K; Yan, S.; Bokare, M. ***Environ. Toxicol. Chem***. 41 (8), 1885-1902, 2022.

5. Evaluation of Methylmercury Uptake Mechanisms of a Novel Activated Carbon-Based Equilibrium Passive Sampler for Prediction of Porewater Methylmercury. Washburn, S.J.; Damond, J.; Sanders, J.P.; Gilmour, C.C.; Ghosh, U. ***Environ. Toxicol. Chem***. 41 (9), 2052-2064, 2022.
6. Comparative study on polychlorinated biphenyl sorption to activated carbon and biochar and the influence of natural organic matter. Zhou, Y.; Miao, D.; Gomez-Eyles, J.L.; Ghosh, U.; Bi, M.; Li, J.; Ren, F. ***Chemosphere***, 287 132239, 2022.
7. Deconvoluting Thermodynamics from Biology in the Aquatic Food Web Model. U. Ghosh, M. Bokare, F.A.P.C. Gobas. ***Environ. Toxicol. Chem.*** 40, 2145-2155. 2021.
8. Passive sampling protocol for ex situ determination of freely dissolved concentrations of hydrophobic organic chemicals in sediments and soils: Basis for interpreting toxicity and assessing bioavailability, risks, and remediation necessity. M.T.O. Jonker, R. M. Burgess, U. Ghosh, P.M. Gschwend, S.E. Hale, R. Lohmann, M.J. Lydy, K.A. Maruya, D. Reible, F. Smedes. ***Nature Protocols.*** Published online 20 April 2020. DOI: https://doi.org/10.1038/S41596-020-0311-Y
9. Development of a novel equilibrium passive sampling device for methylmercury in sediment and soil porewaters. Sanders, J.P.; Alyssa McBurney. A.; Gilmourc, C.C.; Schwartz, G.E.; Kane Driscoll, S.B.; Brown, S.S.; Ghosh, U. ***Environ. Toxicol. Chem***. 39, 323–334. 2020.
10. Full Scale Application of Activated Carbon to Reduce Pollutant Bioavailability in a 5-Acre Lake. Patmont, E.; Jalalizadeh, M.; Needham, T.; Vance, J.; Greene, R.; Cargill, J.; Ghosh, U. ***ASCE J. Env. Engr.*** 146(5): 04020024. 2020.
11. A Pilot-Scale Field Study: In Situ Treatment of PCB-Impacted Sediments with Bioamended Activated Carbon. Payne, R.B.; Ghosh, U.; May, H.D.; Marshall, C.W.; Sowers, K.R. ***Environ. Sci. Technol***., 53, 2626–2634. 2019.
12. Bioaccumulation in Functionally Different Species: Ongoing Input of PCBs with Sediment Deposition to Activated Carbon Remediated Beds. Gidley, P.T.; Kennedy, A.J.; Lotufo, G.R.; Wooley, A.H.; Melby. N.L.; Ghosh, U.; Burgess, R.M.; Mayer, P.; Fernandez, L.A.; Schmidt, S.N.; Wang, A.P.; Ruiz, C.E.; and Bridges, T.S. ***Environ. Toxicol. Chem***. 38(10):2326-2336. 2019.
13. Development of a Novel Equilibrium Passive Sampling Device for Methylmercury in Sediment and Soil Porewaters. Sanders, J. P., McBurney, A., Gilmour, C. C., Schwartz, G. E., Washburn, S., Kane Driscoll, S. B., … Ghosh, U. (2020). ***Environ. Toxicol. Chem***, 39(2), 323–334. https://doi.org/10.1002/etc.4631
14. Evaluation of passive sampling polymers and non-equilibrium adjustment methods in a multi-year surveillance of sediment porewater PCBs. James P. Sanders, Natasha A. Andrade, Upal Ghosh. ***Environ. Toxicol. Chem.*** 37, 2496–2505, 2018.
15. Cross Validation of Two Partitioning-Based Sampling Approaches in Mesocosms Containing PCB Contaminated Field Sediment, Biota, and Activated Carbon Amendment. Stine N. Schmidt, Alice P. Wang, Philip T. Gidley, Allyson H. Wooley, Guilherme R. Lotufo, Robert M. Burgess, Upal Ghosh, Loretta A. Fernandez, and Philipp Mayer. ***Environ. Sci. Technol***. 51, 9996−10004, 2017.
16. Analysis of Measurement Errors in Passive Sampling of Porewater PCB Concentrations under Static and Periodically Vibrated Conditions. M. Jalalizadeh and Upal Ghosh. ***Environ. Sci. Technol***. 51, 7018-7027, 2017.
17. Assimilation Efficiency of Sediment-Bound PCBs Ingested by Fish Impacted by Strong Sorption. Hilda Fadaei, Ernest Williams, Allen Place, John Connolly, and Upal Ghosh. ***Environ. Toxicol. Chem***. 36, 3480–3488. 2017.
18. Laboratory, Field, and Analytical Procedures for Using Passive Sampling in the Evaluation of Contaminated Sediments: User's Manual. R. Burgess, S.B. Kane Driscoll, A.G. Burton, U. Ghosh, P.M. Gschwend, D.D. Reible, A. Ahn, T. Thompson, ***US EPA/600/R- 16/357. Office of Research and Development, Washington, DC 20460***, Feb 2017.
19. In situ passive sampling of sediment porewater enhanced by periodic vibration. Jalalizadeh, M. and Ghosh, U. ***Environ. Sci. Technol.*** 2016, 50, 8741–8749.

20. Effect of PCB Bioavailability Changes in Sediments on Bioaccumulation in Fish.. Fadaei H., Watson, A., Place, A., Connolly, J., and Ghosh, U. ***Environ. Sci. Technol.*** 2015, 49, 12405–12413.
21. In Situ Sediment Treatment Using Activated Carbon: A Demonstrated Sediment Cleanup Technology. Patmont, C, U. Ghosh, et al. ***Integr Environ Assess Manage***, 11, 195-207, 2015.
22. Passive Sampling Methods for Contaminated Sediments: Practical Guidance for Selection, Calibration and Implementation. Ghosh U, Kane Driscoll S, Burgess R, Gobas FAPC, Maruya, K, Jonker C, Gala W, Choi Y, Beegan C, Apitz S, Mortimer M, Reible D. ***Integr Environ Assess Manage***. 10, 210-223. 2014.
23. Field scale reduction of PCB bioavailability with activated carbon amendment to river sediments. Barbara Beckingham and Upal Ghosh. ***Environ. Sci. Technol.***, 45, 10567–10574, 2011.
24. In-situ sorbent amendments: A new direction in contaminated sediment management. Upal Ghosh, Richard G. Luthy, Gerard Cornelissen, David Werner, Charles A. Menzie. ***Environ. Sci. Technol.*** Feature Article, 45, 1163–1168. 2011.
25. Removal and Fate of Polycyclic Aromatic Hydrocarbon Pollutants in an Urban Stormwater Bioretention Facility. C. DiBlasi, H. Li, A.P. Davis, and U. Ghosh. ***Environ. Sci. Technol.*** 43, 494-502, 2009.

PATENTS AND DISCLOSURES

1. U. Ghosh and M. Jalalizadeh, 2020. Actively Shaken In-Situ Passive Sampling Device. (US Patent # 10,551,283 B2).
2. K. Sowers, B. Kjellerup, and U. Ghosh 2015. Organic biofilm substrata as a microbial inoculum delivery vehicle for bioaugmentation of persistent organic pollutants in contaminated sediments and soils. (US Patent # 8,945,906).
3. U. Ghosh and C.A. Menzie, 2010: A Low-Impact Delivery System for In-Situ Treatment of Contaminated Sediment. (US patent # 7,824,129) - Licensed and commercialized
4. R.G. Luthy and U. Ghosh, 2006: In Situ Stabilization of Persistent Hydrophobic Organic Contaminants in Sediments using coal- and wood-derived carbon sorbents. (US patent # 7,101,115) – Licensed and commercialized

TEACHING

Biological Treatment Processes, Environmental Risk Assessment and Remediation, Heat and Mass transfer, Senior Design, Advanced Environmental Analytical Techniques

PROFESSIONAL SERVICE

- Steering Committee, Battelle Sediment Conference, 2023.
- USEPA Chesapeake Bay Program Toxic Contaminants Workgroup member (2014-present)
- Associate Editor, Environmental Toxicology and Chemistry journal (2015 onwards)
- Editor, EnviroWiki: https://www.enviro.wiki/index.php?title=Main_Page
- Association of Environmental Engineering and Science Professors, Newsletter Editor (2011-2014)
- Interstate Technology and Regulatory Council. Contaminated Sediments Team Member (2012).
- Steering committee member and workgroup leader: SETAC Pellston Workshop on Passive Sampling Methods (2012).

CONSULTING

I have performed environmental consulting for several government agencies, private corporations, consulting companies, and environmental law firms.

CONSULTANTS TEAM

Ninand Mungi

NINAD AVINASH MUNGI

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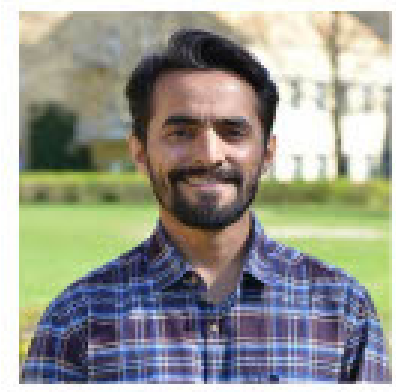
Pronouns: he/him, Nationality: India, Birth: 5th September 1988
https://ninadmungi.weebly.com/ Ninad Avinash Mungi, ninad_mungi



Introduction:

An ecologist with a passion for nature-recovery and megafauna conservation, I bring a unique perspective to the field. For over a decade, I've been using cutting-edge technology such as big data analytics, remote sensing, and biodiversity assessments to drive innovative solutions for global challenges. During my PhD research, I used one of the largest biodiversity datasets to assist ecological restoration in India. This big data based research has become central to restoration policies in India. As a postdoctoral fellow at Aarhus University in Denmark, my research focuses on nature-based solutions for global challenges, with projects ranging from tiger recovery in India to climate change monitoring in the trans-Himalaya, and biodiversity recovery in invaded ecosystems. I have been teaching postgraduate and graduate courses across international and Indian universities on advance quantitative methods, macroecology, conservation biology, and restoration ecology. My goal is to strengthen nature recovery in our changing world through scientific inputs, creative training, and policy rekindling. I'm committed to driving positive change through my work, and excited to see what the future holds for the field of ecology and conservation.

Education:

1. **PhD (Forestry):** Awarded in January 2021, from Forest Research Institute University, Dehradun, India.
   Topic: Modelling plant invasions in tropical forests of India
2. **Masters (Geo-informatics):** Awarded in July 2011, University of Pune, India.
3. **Bachelors (Botany):** Awarded in June 2009, University of Pune, India.

Professional experience:

1. **1st October 2021 - 30th September 2023:** Postdoc, Aarhus university, Denmark
   Description: Modelling global ecological changes driven by biological invasions and climate change.
2. **1st February 2021 – 31st August 2021:** Biologist, Wildlife Institute of India (WII), India
   Description: Modelling biotic resistance of forests to biological invasions across the tropical systems.
3. **1st August 2019 – December 2023:** IPBES Fellow, Multi-national.
   Description: Global invasive alien species assessment.
4. **1st April 2018 – 31st March 2023:** Scientific consultant, Ladakh Wildlife Department, India
   Description: Population assessment of snow leopard, co-predators, prey, and their habitat in the Trans-Himalayan region.
5. **25th May 2016 – 20th September 2016:** Fellow, University of British Columbia, Canada.
   Description: Using satellite remote sensing for mapping invasive plants
6. **6th April 2014 – 22nd August 2019:** PhD fellow, Forest Research Institute, India
   Description: PhD on the topic 'Modelling plant invasions in India'.
7. **1st March 2012 – 31st August 2021:** Research fellow, WII, India
   Description: Developing ecoinformatics applications (MSTrIPES) for assisting patrols, wildlife crime investigation, ecological monitoring, and human-wildlife conflicts.
8. **1st March 2012 – 31st August 2021:** Research fellow, Wildlife Institute of India, India
   Description: National assessment of tigers, co-predators, prey and their habitats in India.
9. **1st July 2011 – 25th February 2012:** Research Assistant, Bombay Natural History Society, India
   Description: Effects of veterinary drugs on decline of three vulture species.

Present project involvements:

1. **Modelling emerging novel ecosystems in the Anthropocene (2021-2024)**
   Funding: VILLUM Investigator project, Aarhus University, Denmark
   Collaboration: Prof. Jens-Christian Svenning, Aarhus University, Denmark
2. **Recovery of megafauna in India (2018-2025)**
   Funding: National Tiger Conservation Authority, and WII
   Collaboration: Prof. Y.V. Jhala, Retd. Dean, Wildlife Institute of India
3. **Restoration of invaded ecosystems in India (2015-2025)**
   Funding: National Tiger Conservation Authority, and WII
   Collaboration: Prof. Qamar Qureshi, Scientist, Wildlife Institute of India
4. **Monitoring megafauna, vegetation, and climate in Trans-Himalaya (2018-2025)**
   Funding: Ladakh Wildlife Department, India
   Collaboration: Dr. Pankaj Raina, Ladakh Wildlife Department, India

Peer-reviewed scientific publications:

Google Scholar citation statistics: citations: **190**, h-index: **9**, Cumulative impact factor: **56.486**

1. **Mungi NA***, Jhala YV, Qureshi Q, Le Roux E & Svenning JC (2023, in press) Megaherbivores provide biotic resistance against plant invasions. *Nature Ecology & Evolution*.
   (***Impact factor: 19.1, Significance***: A collaborative research that I led during my postdoc tenure to establish a novel function of megaherbivores in controlling plant at global scale)
2. **Mungi NA***, Qureshi Q & Jhala YV (2023, accepted) Distribution, drivers and restoration priorities of plant invasions in India. *Journal of Applied Ecology*.
   (***Impact factor: 6.86, Significance:*** Paper reporting my PhD research on mapping plant invasions and prioritizing biodiversity restoration across India)
3. Shameer TT, **Mungi NA**, Ramesh B, Kumar SV & Easa PS (2023) Distribution and conservation status of the endemic Nilgiri marten (*Martes gwatkinsii*). *Mammalia*.
   (***Impact factor: 1.3, Significance***: study models the distribution and conservation status of an endemic mammal in tropical forests of the Western Ghats)
4. **Mungi NA**, Qureshi Q & Jhala YV (2021) Role of species richness and human impacts in resisting invasive species in tropical forests. *Journal of Ecology* 109 (9): 3308-3321. https://doi.org/10.1111/1365-2745.13751
   (***Impact factor: 6.38, Citations: 5, Significance***: My PhD research highlighting importance of protecting forests to resist alien species; validating biotic resistance hypothesis)
5. Patil MD, Patil VK & **Mungi NA** (2021) Spatiotemporal movement pattern of Asian elephants in Sindhudurg district, Maharashtra, India. *Journal of Threatened Taxa* 5573(2):1-13. https://doi.org/10.11609/jott.5573.13.5.18099-18109
   (***Impact factor: 0.2, Citations: 1, Significance***: study developed quantitative models to evaluate conflict caused by a novel colonization of elephants in India)
6. Vashistha G, **Mungi NA**, Lang JW, Ranjan V, Dhakate PM, Khudsar FA & Kothamasi D (2021) Gharial nesting in a reservoir is limited by reduced river flow and by increased bank vegetation. *Scientific reports* 11(1):1-2. https://doi.org/10.1038/s41598-021-84143-7
   (***Impact factor: 4.99, Citations: 7, Significance***: study developed remote sensing based models for evaluating changes in riverine habitat of an endangered reptile *Gavialis gangeticus*)
7. Mahar N, **Mungi NA** & Lahiri S (2021) Beyond Nationality: Opportunities for Trans-Boundary Wildlife Conservation. Dialogue: Science, Scientist and Society 3:1-9
   (***Significance***: this perspective piece highlights conservation opportunities for declaring peace parks on the India-Pakistan border)

8. Shameer TT, **Mungi NA**, Ramesh B, Kumar SV & Easa PS (2021) How can spatio-temporal overlap in mammals assist in maximizing biodiversity conservation? A case study of Periyar Tiger Reserve. *Biologia*: 1-11. https://doi.org/10.2478/s11756-020-00645-1
(***Impact factor: 1.65, Citations: 3, Significance***: study reporting mammalian biodiversity patterns in tropical forests in Western Ghats)
9. Lahiri S & **Mungi NA** (2020) India's canine conundrum, a case of cognitive dissonance? *SocArXiv* 10.31235/osf.io/dcrbg
(***Significance***: this social survey study highlights the conundrum in academicians about impacts of free ranging dogs in India)
10. **Mungi NA**, Qureshi Q & Jhala YV (2020) Expanding niche and degrading forests: Key to the successful global invasion of *Lantana camara* (sensu lato). *Global Ecology and Conservation* 4:e01080. https://doi.org/10.1016/j.gecco.2020.e01080
(***Impact factor: 3.969, Citations: 15, Significance***: this big-data based study established the invasion magnitude of *Lantana camara* in India and was used for initiating policies on management of biological invasions)
11. Bhattacharyya S, **Mungi NA**, Kawamichi T, Rawat GS, Adhikari BS & Wilkening JL (2019) Insights from present distribution of an alpine mammal Royle's pika (*Ochotona roylei*) to predict future climate change impacts in the Himalaya. *Regional Environmental Change* 19(8):2423-35. https://doi.org/10.1007/s10113-019-01556-x
(***Impact factor: 4.704, Citations: 7, Significance***: This collaborative study found that climatic changes had already reduced the range of a Himalayan lagomorph in last few decades, and would likely reduce further in the coming decades)
12. Wilkening J, Pearson-Prestera W, **Mungi NA** & Bhattacharyya S (2019) Endangered species management and climate change: When habitat conservation becomes a moving target. *Wildlife Society Bulletin* 43(1):11-20. https://doi.org/10.1002/wsb.944
(***Impact factor: 0.967, Citations: 15, Significance***: study found present protected areas to be insufficient to protect an endangered rodent in the scenario of climate change)
13. **Mungi NA***, Kaushik M, Mohanty NM, Rastogi R, Johnson JA & Qureshi Q (2018) Identifying knowledge gaps in research and management of high concern invasive species in India. *Biologia* 74 (6), 623-629. https://doi.org/10.2478/s11756-018-00186-8
(***Impact factor: 1.65, Citations: 15, Significance***: this study was result of a consultation workshop that prioritized invasive species for management in India)
14. **Mungi NA*** & Qureshi Q (2018) On the history, politics and science of invasion ecology. *Dialogue: Science, Scientist and Society* 1:1-13. https://doi.org/10.29195/DSSS.01.01.0009
(***Citations: 6, Significance***: this perspective piece offers a philosophical discourse on biological invasions through a lens of social and political discourses)
15. **Mungi NA***, Coops NC, Ramesh K & Rawat GS (2018) How global climate change and regional disturbance can expand the invasion risk? Case study of *Lantana camara* invasion in the Himalaya. *Biological Invasions* 20(7):1849-1863. https://doi.org/10.1007/s10530-018-1666-7
(***Impact factor: 3.605, Citations: 33, Significance***: This study highlights the interactive effect of climatic changes and anthropogenic pressure on spread of an invasive plant in Himalaya. This collaborative study was supported by Queen Elizabeth Scholarship)
16. Kaushik M & **Mungi NA** (2015) Human-wildlife interactions and management of invasive species. *Current Science* 108(6):1039-1040
(***Impact factor: 1.102, Citations: 5, Significance***: study reporting key points of a consultation workshop on human-wildlife conflict and invasions by Ministry of Environment, Forests and Climate Change and Wildlife Institute of India)

Technical reports that resulted in effective ground actions

1. **Mungi NA**, Rastogi R, Qureshi Q, Jhala YV (2023) Plant invasions and restoration priorities in India. In, Qureshi Q, Jhala YV, Malick A and Yadav SP (Eds) Status of Tigers Co-predators & Prey in India: 2023. National Tiger Conservation Authority, New Delhi and Wildlife Institute of India, Dehradun. ISBN No: 81-85496-92-7
   (***Significance***: First ever report on the status of invasive plants in India and a model to restore invaded ecosystems across protected areas. A Standard Operating Protocol (SOP) will soon be launched based on this report, paving a way for drafting India's restoration policy)
2. Jhala YV, Bora JK, Chauhan JS, Deshmukh AV, Goswami S, Vishnuvardhan, Yellapu S, Jhala H, **Mungi NA**, Kumar U, Singh SK (2022). Feasibility Study and Action Plan for Wild Buffalo Reintroduction in Kanha Tiger Reserve. Forest Department, Government of Madhya Pradesh, Bhopal and Wildlife Institute of India, Dehradun. ISBN No. 81-85496-78-1
3. Jhala YV, Qureshi Q and Nayak A (2021) Status of leopards, co-predators, and megaherbivores in India, 2018. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun. ISBN - 81-85496-56-0 (**Contributed to all 31 chapters**)
4. Jhala YV, Qureshi Q and Nayak A (2020) Status of tigers, co-predators, and their prey in India 2018. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun. ISBN - 81-85496-50-1 (**Contributed to 19 chapters**)
5. Jhala YV, Qureshi Q, **Mungi NA** et al. (2019) MSTrIPES Ver 2: Development and Implementation. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun.
6. Mathur VB, Kaushik M, Bist SS, **Mungi NA**, Qureshi Q (2016) Management of human-wildlife interaction and invasive alien species in India. Wildlife Institute of India, Dehradun. TR 2015/004
7. Jhala YV, Qureshi Q and Gopal R (2015) The status of tigers, co-predators and their prey in India 2014. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun. TR 2015/021 (**Contributed to 4 chapters**)
8. Jhala YV, Qureshi Q, **Mungi NA** et al. (2014) MSTrIPES Ver 1: Development and Implementation. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun.
9. **Mungi NA**, Qureshi Q, Jhala YV & Gopal R (2013) Presence of invasive plants in the tiger forests of India. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun.
10. Shah N, Roy A, **Mungi NA**, Qureshi Q, et al. (2012) The of use of the non-steroidal anti-inflammatory drug and its effects on three vulture species distribution in India. Bombay Natural History Society, New Delhi & Wildlife Institute of India, Dehradun.

Software development:

1. **MSTrIPES Windows software:** Open-access GUI for retrieving, archiving, analysing and reporting information on protection, ecological monitoring and human-wildlife conflict in protected areas. Used by >1000 forest managers for analysing biodiversity data
   (https://mstripes.wii.gov.in/softwares/)
2. **MSTrIPES Android apps:** Open-access android apps for using in mobile handsets for recording information during routine patrolling, ecological monitoring and cases of human-wildlife conflict. Used by >8000 forest managers and staff for collecting biodiversity information
   (https://mstripes.wii.gov.in/)

Magazine and popular articles:

1. **Mungi NA** (2023) Alien plants growing together threatening tiger habitats: Study. Down to Earth https://www.downtoearth.org.in/news/wildlife-biodiversity/alien-plants-growing-together-threatening-tiger-habitats-study-87247
2. **Mungi NA** (2021) Protecting forests reinforces biotic resistance to invasive species. Journal of Ecology Blog. https://jecologyblog.com/2021/11/16/protecting-forests-reinforces-biotic-resistance-to-invasive-species/
3. **Mungi NA** Banerjee K & others (2021) India's green warriors. How frontline forest staff protected wildlife during the 2020 nationwide lockdown. STRIPES: A quarterly journal of the National Tiger Conservation Authority (Vol 11). https://ntca.gov.in/assets/uploads/stripes/Vol11_Issue1_2021.pdf
4. **Mungi NA** & Kumar U (2021) Forest staff are unrecognized warriors of the lockdown. Down to Earth. https://www.downtoearth.org.in/blog/wildlife-biodiversity/frontline-forest-workers-heroes-in-the-strife-of-the-covid-19-lockdown-77594
5. **Mungi NA**, Mahar N & Lahiri S (2020) Greening a desert invites locust swarms. Mongabay. https://india.mongabay.com/2020/05/commentary-greening-a-desert-invites-locust-swarms/
6. **Mungi NA**, Mahar N & Lahiri S (2020) When you green a desert, you invite locust swarms. The Wire. https://science.thewire.in/environment/when-you-green-a-desert-you-invite-locust-swarms/
7. Lahiri S, Mahar N & **Mungi NA** (2019) Dogged concerns: who let the dogs eat? Saevus. https://www.magzter.com/stories/Animals-and-Pets/Saevus/Dogged-Concerns-Who-Let-The-Dogs-Eat

Teaching and supervising experience:

1. **Conservation biology (2023):** 6 hrs teaching postgraduate course, Wildlife Institute of India (WII)
2. **Invasion ecology (2015-2019):** 60 hrs teaching in the habitat ecology and habitat management modules to postgraduate course in Wildlife Sciences, WII
3. **Spatial ecology (2019-2020):** 93 hrs teaching in the advance statistics module to postgraduate course in Wildlife Sciences, WII, IN
4. **Ecoinformatics (2014-2019):** 132 hrs teaching in the ecological monitoring and conservation techniques to Diploma and Certificate course, WII
5. **Meta-analysis (2017)**: 6 hrs teaching to postgraduate course in Wildlife Sciences, WII
6. **Habitat ecology (2023):** 6 hrs guest lecture to postgraduate course in Wildlife Sciences, WII
7. **Habitat ecology (2023):** 6 hrs guest lecture to postgraduate course in Wildlife Sciences, WII
8. **Megafauna ecology and restoration (2022):** 2 hrs guest lecture to PhD course at Department of Biology, Aarhus University, Denmark
9. **Biogeography and Macroecology (2022):** 1 hr guest lecture to master's course at Department of Biology, Aarhus University, Denmark
10. **Dissertation (2020):** 60 hrs co-supervision for 1 postgraduate thesis, WII
11. **Dissertation (2023):** 40 hrs co-supervision for 4 postgraduate students, Aarhus University, Denmark

Fellowships, awards, and grants:

1. **India Bioscience Travel award (2023):** Young Investigator Meeting 2023, Gandhi Nagar, India
2. **Postdoctoral fellowship (2021-2023):** Department of Biology, Aarhus University, Denmark
3. **IPBES fellowship (2019-2024):** A fellowship for 4 years by IPBES
4. **ICCB travel award (2019):** An award by Society for Conservation Biology, Malaysia
5. **Forestry travel award (2019):** An award by FAO and IFSA, Thailand
6. **Best presentation award (2018)** at Annual Research Seminar, Wildlife Institute of India
7. **Department of Science, Govt. of India (2018):** Travel award; declined.

8. **Conservation Asia (2018):** An award by Society for Conservation Biology -Asia, Kyrgyzstan
9. **Research fellowship (2016-2021):** Wildlife Institute of India, India
10. **Queen Elizabeth Scholarship (2016):** University British Columbia, Canada.
11. **Travel award (2014):** An award by National Trust for Nature Conservation, Nepal
12. **Research fellowship (2012-2016)**: A monthly fellowship by Wildlife Institute of India
13. **Research fellowship (2011-2012)**: A monthly fellowship by Bombay Natural History Society

Organization of scientific seminars, workshops, and panel discussions:

I have delivered keynote speeches and invited talks at universities, international seminars, and symposiums. I have **organized more than 20 workshops** for training >2000 forest managers, officers and staff on biodiversity assessment, use of ecoinformatics tools for protected area management and habitat management.

1. Guest lecture at Department of Biology, Aarhus University, for advanced-level course in Biogeography & Macroecology (September 2022)
2. Invited talk at BIOCHANGE symposium, Aarhus University, on Novel tropical ecosystems (September 2022)
3. Guest lecture, Ambedkar University, New Delhi, *biological invasions in India* (January 2022)
4. Seminar talk to the Tiger team - Wildlife Institute of India (WII), on *macroecology of biological invasions* (2022)
5. Workshop, National Tiger Conservation Authority (NTCA), *Tiger population assessment* (2021)
6. Workshop at NTCA & WII on *Ecoinformatics mobile applications for biodiversity monitoring* (2021)
7. Keynote talk at the College of Forestry, Akola, India on *biogeography of India* (2020)
8. Workshop at NTCA & WII on *Ecoinformatics mobile applications for biodiversity monitoring* (2020)
9. Workshop at NTCA & WII on *Ecoinformatics mobile applications for biodiversity monitoring* (2019)
10. Workshop at NTCA & WII on *Ecoinformatics mobile applications for biodiversity monitoring* (2018)
11. Three workshops at NTCA & WII on *Tiger population assessment* (2017)
12. Seven workshops at NTCA & WII on *Ecoinformatics mobile applications for biodiversity monitoring* (2017)
13. Guest lecture, University of British Columbia, Vancouver, on *biogeography of India* (2016)
14. Three workshops at NTCA & WII on *Ecoinformatics mobile applications for biodiversity monitoring* (2016)
15. Workshop at the YETI conference, New Delhi, on *open-source GIS applications* (2016)
16. Two workshops at NTCA & WII on *Ecoinformatics mobile applications for biodiversity monitoring* (2015)
17. Panel Discussion at WII & Ministry of Environment, Forests and Climate Change (MoEFCC) on *Status of knowledge on biological invasions in India* (2015)

Invited talks at conferences, symposia and seminars:

1. Invited talk at BIOCHANGE symposium (September 2022), Aarhus, on Novel tropical ecosystems.
2. Nordic Oikos Conference (July 2022), Denmark: Flashtalk on 'Megaherbivores provides biotic resistance to plant invasions'.
3. Keynote talk at a conference at College of Forestry (2020), Akola, on biogeography of India.
4. Society for Conservation Biology ICCB conference (July 2019), Malaysia: Talk on 'All that is green, is almost invaded: results from world largest invasive plants monitoring'.
5. Future of Forests and Forestry Towards 2030 and 2050 by FAO (March 2019), Thailand: Youth outlook on the future of forests.
6. Society for Conservation Biology SCB-Asia conference (August 2018), Kyrgyzstan: Talk on 'Tigers, crimes, and mobile apps'.

7. Annual Research Seminar of WII (September 2018), India: Talk on 'What makes *Lantana camara* invasion, a success? Degrading forests and adaptive plasticity!'
8. Annual Research Seminar of WII (September 2017), India: Talk on 'Digital India for saving tigers: Implication of ecoinformatics tools for managing biodiversity'.
9. Integrated Remote Sensing Studio summer symposium (June 2016), Canada: Talk on 'In the name of the tiger: Generating big data on biodiversity for 2 decades'.
10. International Conference on Invasive Alien Species Management (March 2014), Nepal: Talk on 'An integrated framework for monitoring plant invasions in tropical India'.
11. Young Ecologist Talk and Interact (YETI) conference (November 2013), India: Talk on 'Distribution and drivers of plant invasions in India'.
12. Society for Conservation Biology SCB-Asia conference (August 2012), India: Talk on 'Socio-ecological drivers of plants invasions in India'.

Internationally featured documentary:

National Geographic '*Counting Tigers*, A film on the largest wildlife survey in the world to count the most majestic wild animal on earth' 2019 (https://www.natgeotv.com/me/counting-tigers): My team's work on India's national tiger population estimation was featured through a documentary.

Academic services:

1. Peer review for academic journals including Biological Invasions, Biodiversity and Conservation, Forest Ecology and Management, Tropical Ecology, Plos one.
2. PhD committee: Thesis committee member for PhD students at Wageningen University Netherlands, and Research Advisory committee at Wildlife Institute of India.
3. Part of the scientific panel (July 2014) to identify priority invasive species in India, and target management investment, Ministry of Environment, Forests and Climate Change, Govt. of India.

Long-term collaborations:

Prof. Y.V. Jhala
Retd. dean, Wildlife Institute of India, Dehradun, Uttarakhand, India
Email: yvjhala@gmail.com

Prof. Jens-Christian Svenning
Professor, Dept of Biology, Aarhus University, Denmark
Email: svenning@bio.au.dk

Prof. Melodie McGeoch
Professor, School of Life Sciences, La Trobe University, Australia
Email: M.McGeoch@latrobe.edu.au

Prof. Qamar Qureshi
Professor, Wildlife Institute of India, Dehradun, Uttarakhand, India
Email: qnq@wii.gov.in

Dr. Vinod B. Mathur
Former Chairperson, National Biodiversity Authority of India
Email: vbm.ddn@gmail.com

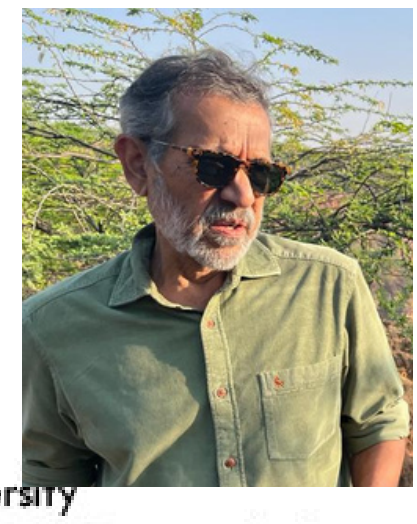
Dr. Sabuj Bhattachayyra
Research ethics and integrity officer, DBT-inStem, India
Email: bhattacharyyasabuj@gmail.com

References:

1. Prof. Y.V. Jhala, Retd. dean, Wildlife Institute of India (yvjhala@gmail.com)
2. Prof. Jens-Christian Svenning, Aarhus University, Denmark (svenning@bio.au.dk)

Pradip Krishen

Pradip Krishen



Education:

- St. Stephen's College, Delhi University
- Balliol College, Oxford University

Professional:

- 1970-75 – lecturer (in History) at Ramjas College, Delhi University
- 1975-1994 – Directed films, documentaries at first, and from 1987 onwards 3 Award-winning feature films
- 1998 – Began writing about Trees and Plants and, since 2004, involved in pioneering ecological restoration work (mostly) in the western Desert region

Author of

- *Trees of Delhi – A Field Guide* (2006)
- *Plant Guide to Rao Jodha Desert Rock Park* (2014)
- *Jungle Trees of Central India – A Field Guide for Tree Spotters* (2015)
- *Abha Mahal Bagh – A Garden of Wild Plants from the Thar Desert* (2019)
- Many Articles about trees and ecology in professional and other publications

In the Works and Planned:

- *Field Guide to the Trees and Woody Shrubs of the Thar Desert*
- *Restoring a Rocky Desert Habitat* (booklet)
- *Rutputty – Exploring Delhi's Central Ridge*
- *Letting In the Jungle*

Ecological Restoration Projects:

- Project Director and Creator of **Rao Jodha Desert Rock Park**, an ecological restoration project (70 hectares) in volcanic rock, Jodhpur (2006 to 2020)
- Project Director and Creator of **Kishan Bagh Sand Dune Park**, (62 hectares) ecological restoration of sand dunes in Jaipur (2016-2021)
- Creator of **Abha Mahal Bagh** (a formal garden using only native desert plants) in Nagaur Fort, Nagaur (2014-18)
- Director of Calico Museum (historical) Garden in Ahmedabad (2014-18)
- Consultant for rewilding a portion of **IIT Jodhpur's campus**, an ecological restoration project (ongoing, in 12 hectares of sand)
- Consultant to Jodhpur JDA for creating a 250-hectare Park at Beriganga (near Jodhpur) in a landscape of volcanic rock

CONSULTANTS TEAM

Jagdish Krishnaswamy



CURRICULUM VITAE

Name: **Jagdish Krishnaswamy**
Designation: Dean, School of Environment and Sustainability,
Department/Institute/University:

Indian Institute for Human Settlements (IIHS), Bangalore, Karnataka.
Ph:9980961616; E-mail: jkrishnaswamy@iihs.ac.in

Adjunct Senior Fellow, Ashoka Trust for Research in Ecology and the Environment (ATREE), Bengaluru.

Affiliate Teaching Faculty, National Centre for Biological Sciences-TIFR, Bengaluru

Jagdish Krishnaswamy has a B.Tech in Civil Engineering from Indian Institute of Technology, Mumbai, India and a MS in Statistics and Decision Sciences and a Ph.D in Environmental studies, Duke University, North Carolina, USA. His research and teaching interests include ecohydrology, landscape ecology, conservation planning, ecosystem services and applications of bayesian approaches in understanding complex changes in the environment over space and time.

He has coordinated the establishment of instrumented catchments in the Western Ghats and in the Himalayas to study the impacts of land-cover and climate variability on hydrological processes. Jagdish has recently become involved in defining and assessing ecological flow requirements of rivers in the Western Ghats and the Ganga basins with as special focus on endangered species such as the gharial and river dolphin.

His work on climate science and climate change includes vegetation response to climate and land-cover change in India, Central America and Africa. Over the years, his work has contributed to various policy and actions such as the declaration of the Western Ghats as a UNESCO World Heritage Site, the investment of the Critical Ecosystem Partnership Fund in the Western Ghats and a special report on Himalayan Springs to the Niti Ayog. He has designed capacity building and field hydrology training courses for aquatic ecologists and grass roots NGOs. He was a Coordinating Lead Author of the Special IPCC Report on *climate change, desertification, degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*

Link to profile: https://iihs.co.in/iihs-people/team/jagdish-krishnaswamy/

1. Professional Preparation

S.No.	Degree	Institution	Year of passing	Division/Class
1	PhD	Duke University, Durham, USA	1999	Environment
2	Masters	Duke University	1999	Statistics & Decision Sciences
3	Bachelors	Indian Institute of Technology, Bombay	1989	Civil Engineering

2. Appointments

S.No.	Organisation	Position	Period
1.	School of Environment and Sustainability, Indian Institute for Human Settlements (IIHS), Bangalore, India	Dean	Present
2.	Ashoka Trust for Research in Ecology and the Environment (ATREE), Bangalore	Senior Fellow/Professor	Jan.' 08 – September 30, 2021
3.	Ashoka Trust for Research in Ecology and the Environment (ATREE), Bangalore	Fellow	Aug '01- Jan '08
4	Wildlife Institute of India, Dehradun	Scientist - SD	Jan.'00 - Aug.' 01
5	Ashoka Trust for Research in Ecology and the Environment (ATREE), Bangalore	Post-Doctoral Fellow	Sep '99 – Jan '00

3. Fellowships

- Pew Scholarship and Assistantship, School of the Environment, Duke University, 1992-93.
- Travel Grant and Scholarship for summer course in Tropical Managed Ecosystems, Costa Rica from Organization for Tropical Studies, summer 1993.
- Award from Center for International Studies, Duke University for summer research in Costa Rica.
- Graduate Scholarship and Assistantship, School of the Environment, Duke University, 1994-98.
- International Travel Award from Association for Tropical Biology, 2002.
- International Union of Forest Research Organisations (IUFRO) Award for Travel, 2004.
- START Global Young Scientist Award, 2004. Honorable Mention for award for best published paper.
- Royal Society of Edinburgh Fellowship, 2008–2009.

4. Synergistic Activities

1. Coordinating Lead Author of the Special IPCC Report on climate change, desertification, degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems.

2. Life member of the Indian Society for Ecological Economics (INSEE) and on the editorial board of the INSEE journal.
3. Convenor of Suri Sehgal Centre for Biodiversity and Conservation from 2012-2017 and Programme leader in Ecosystem Services and Human Well-being at ATREE

Total number of students mentored/advised: 5 (PhD) & 10 (MSc)

Research Profile: h-index=36, i-10 index = 60, 5400+ citations

Merit positions:

Editorial Board of *Water Security*, *Ecology, Economics and Society*, *Urbanization*

Coordinating Lead Author, IPCC Special Report on Climate Change and Land and author of IPCC derivative report on Summary for Urban Policy Makers

5. List of Publications

Journal Publications (2023-2012)

2023

Grafton, R. Quentin, Jagdish Krishnaswamy, and Aromar Revi. "The Water Cycle and the Economy." (2023). The Water Cycle and the Economy (watercommission.org).

DeFries, R., Parashar, S., Neelakantan, A., Clark, B. and Krishnaswamy, J., 2023. Landscape Connectivity For Wildlife and Water: The State of the Literature. *Current Landscape Ecology Reports*, pp.1-10.

Anoop, N.R., Krishnaswamy, J., Kelkar, N., Bunyan, M. and Ganesh, T., Factors determining the seasonal habitat use of Asian elephants in the Western Ghats of India. *The Journal of Wildlife Management*, p.e22477.

Srivathsa, A., Vasudev, D., Nair, T., Chakrabarti, S., Chanchani, P., DeFries, R., Deomurari, A., Dutta, S., Ghose, D., Goswami, V.R., Nayak, R., Neelakantan, A., Thatte, P., Vaidyanathan, S., Verma, M., Krishnaswamy, J., Sankaran, M., Ramakrishnan, U. (2023) Prioritizing India's landscapes for biodiversity, ecosystem services and human well-being. Nature Sustainability. doi: 10.1038/s41893-023-01063-2

Nayak, R.R., Krishnaswamy, J., Vaidyanathan, S., Chappell, N.A. and Bhalla, R.S., 2023. Invasion of natural grasslands by exotic trees increases flood risks in mountainous landscapes in South India. *Journal of Hydrology*, *617*, p.128944.

2022

Kelkar, N., Arthur, R., Dey, S. and Krishnaswamy, J., 2022. Flood-pulse variability and climate change effects increase uncertainty in fish yields: Revisiting narratives of declining fish catches in India's Ganga River. *Hydrology*, *9*(4), p.53

Jumani, S., Deitch, M.J., Valle, D., Machado, S., Lecours, V., Kaplan, D., Krishnaswamy, J. and Howard, J., 2022. A new index to quantify longitudinal river fragmentation: Conservation and management implications. *Ecological Indicators*, *136*, p.108680.

Deshpande, K., Vanak, A.T., Devy, M.S. and Krishnaswamy, J., 2022. Forbidden fruits? Ecosystem services from seed dispersal by fruit bats in the context of latent zoonotic risk. *Oikos*.

2021

Deshpande, K., Kelkar, N., Krishnaswamy, J. and Sankaran, M., 2021. Stretching the habitat envelope: insectivorous bat guilds can use rubber plantations, but need understorey vegetation and forest buffers. *Frontiers in Conservation Science*, p.111.

Samad, I., Kelkar, N. and Krishnaswamy, J., 2021. Life at the borderline: Responses of Ganges river dolphins to dry-season flow regulation of river and canal habitats by the Farakka barrage. *Aquatic Conservation: Marine and Freshwater Ecosystems*.

Momblanch, A., Kelkar, N., Braulik, G., Krishnaswamy, J. and Holman, I.P., 2021. Exploring trade-offs between SDGs for Indus River Dolphin conservation and human water security in the regulated Beas River, India. *Sustainability Science*, pp.1-19.

Rao, S., Krishnaswamy, J. and Bhalla, R.S., 2021. Linking flow alteration with fish assemblage structure in a river regulated by a small hydropower project in the Western Ghats of Karnataka, India. *River Research and Applications*.

Marathe, A., Priyadarsanan, D.R., Krishnaswamy, J. and Shanker, K., 2021. Gamma diversity and under-sampling together generate patterns in beta-diversity. *Scientific reports*, *11*(1), pp.1-7.

Manish, K., Øivind, H., Anne, S. D., Sumit Sen, Badiger, S., Krishnaswamy, J. 2021. Measuring precipitation in Eastern Himalaya: Ground validation of eleven satellite, model and gauge interpolated gridded products, Journal of Hydrology, 126252. https://doi.org/10.1016/j.jhydrol.2021.126252.

Clark, B.; DeFries, R.; Krishnaswamy, J. India's Commitments to Increase Tree and Forest Cov er: Consequences for Water Supply and Agriculture Production within the Central Indian Highlands. Water 2021, 13, 959. https://doi.org/10.3390/ w13070959

D.J. Lapworth, B.Ó Dochartaigh, T.Nair, J.O'Keeffe, G.Krishan, A.M.MacDonald, M.Khan, N.Kelkar, S.Choudhary, J.Krishnaswamy, C.R.Jackson. 2021. Characterising groundwater-surface water connectivity in the lower Gandak catchment, a barrage regulated biodiversity hotspot in the mid-Gangetic basin. Journal of Hydrology, Volume 594, March 2021, 125923. https://doi.org/10.1016/j.jhydrol.2020.125923

Aniruddha Marathe, Kartik Shanker, Jagdish Krishnaswamy, Dharma Rajan Priyadarsanan. 2021. Species and functional group composition of ant communities across an elevation gradient in the Eastern Himalaya, Journal of Asia-Pacific Entomology, Journal of Asia-Pacific Entomology. Online. ISSN 1226-8615. https://doi.org/10.1016/j.aspen.2021.08.009.

Bawa, K.S., Sengupta, A., Chavan, V., Chellam, R., Ganesan, R., Krishnaswamy, J., Mathur, V.B., Nawn, N., Olsson, S.B., Pandit, N. and Quader, S., 2021. Securing biodiversity, securing our future: A national mission on biodiversity and human well-being for India. *Biological Conservation*, *253*, p.108867.

Pinto, N., Vaidyanathan, S., Varughese, S., Krishnaswamy, J., Massar, B., & Haokip, J. (2021). Establishment of community-led fish conservation zones in Meghalaya and Manipur, India. Oryx, 55(4), 493-494. doi:10.1017/S0030605321000338

2020

Suman Jumani, Matthew J Deitch, David Kaplan, Elizabeth P Anderson, Jagdish Krishnaswamy, Vincent Lecours and Matt R Whiles. 2020. River fragmentation and flow alteration metrics: a review of methods and directions for future research. *Environ. Res. Lett.* 15 123009

Athreya, V., Isvaran, K., Odden, M., Linnell, J.D.C., Kshettry, A., Krishnaswamy, J., Karanth, U.K. 2020. The impact of leopards (*Panthera pardus*) on livestock losses and human injuries in a human-use landscape in Maharashtra, India. *PeerJ*, 8(e8405).

Jayadevan, A., Nayak, R., Karanth, K. K., Krishnaswamy, J., DeFries, R., Karanth, U.K., Vaidyanathan S. 2020. Navigating paved paradise: Evaluating landscape permeability to movement for large mammals in two conservation priority landscapes in India. *Biological Conservation*, 247(108613).

Atkore, V., Krishnaswamy, J., Kelkar, N., Shanker, K., Badiger, S. 2020. Multiscale investigation of water chemistry effects on fish guild species richness in regulated and non-regulated rivers of India's Western Ghats: implications for restoration. *Transactions of the American Fisheries Society*, 149(3).

Marathe, A., Priyadarsanan, D.R., Krishnaswamy, J., Shanker, K. 2020. Spatial and climatic variables independently drive elevational gradients in ant species richness in the Eastern Himalaya. *PLoS ONE*, 15(1): e0227628.

Opinion: Envisioning a biodiversity science for sustaining human well-being. Kamaljit S. Bawa, Nandan Nawn, Ravi Chellam, Jagdish Krishnaswamy, Vinod Mathur, Shannon B. Olsson, Nitin Pandit, Prabhakar Rajagopal, Mahesh Sankaran, R. Uma Shaanker, Darshan Shankar, Uma Ramakrishnan, Abi Tamim Vanak, Suhel Quader. Proceedings of the National Academy of Sciences Oct 2020, 117 (42) 25951-25955; DOI: 10.1073/pnas.2018436117

Rajat Nayak, Jagdish Krishnaswamy, Srinivas Vaidyanathan, Nick Chappell, Kumaran Kesavan, Prachi Ghatwai, Ravinder Singh Bhalla. 2020. Exotic Plantations Increase Risks of Flooding in Mountainous Landscapes. Earth and Space Science Open Archive. https://doi.org/10.1002/essoar.10503675.2

2019

Sebastian, D.E., Ganguly, S., Krishnaswamy, J., Duffy, K., Nemani, R., Ghosh, S. 2019. Multi-Scale Association between Vegetation Growth and Climate in India: A Wavelet Analysis Approach. *Remote Sensing,* 11*(*2703).

Dey, M., Krishnaswamy, J., Morisaka, T., Kelkar, N. 2019. Interacting effects of vessel noise and shallow river depth elevate metabolic stress in Ganges river dolphins. *Scientific Reports,* 9(15426).

2018

Jumani, S., Rao, S., Kelkar, N., Machado, S., Krishnaswamy, J. and Vaidyanathan, S., 2018. Fish community responses to stream flow alterations and habitat modifications by small hydropower projects in the Western Ghats biodiversity hotspot, India. *Aquatic Conservation: Marine and Freshwater Ecosystems*. 28(4), pp. 979-993.

Hamel, P., Riveros-Iregui, D., Ballari, D., Browning, T., Célleri, R., Chandler, D., Chun, K.P., Destouni, G., Jacobs, S., Jasechko, S., Johnson, M., Krishnaswamy, J., Poca, M., Vieira Pompeu, P. and Rocha, H. 2018. Watershed services in the humid tropics: Opportunities from recent advances in ecohydrology. *Ecohydrology*. 11(3): 1921.

Hill, M.J., Hassall, C., Oertli, B., Fahrig, L., Robson, B.J., Biggs, J., Samways, M.J., Usio, N., Takamura, N., Krishnaswamy, J. and Wood, P.J. 2018. New policy directions for global pond conservation. *Conservation Letters*. 12447.

Krishnaswamy, J., Kelkar, N. and Birkel, C. 2018. Positive and neutral effects of forest cover change on dry-season stream flow in Costa Rica identified from Bayesian regression models with informative prior distributions. *Hydrological Processes,* 32(24), pp. 3604-3614.

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Singh, C., Joseph, D., Amir, B., Gina, Z., Dian, S., Krishnaswamy, J., Modathir, Z. and Evans, K. 2017. The utility of weather and climate information for adaptation decision-making: current uses and future prospects in Africa and India. *Climate and Development*. 10(5):389-405.

2016

Clark, B., DeFries, R. and Krishnaswamy, J., 2016. Intra-annual dynamics of water stress in the central Indian Highlands from 2002 to 2012. *Regional Environmental Change*. 16(1):83-95.

Vanak, A. T., Kulkarni, A., Gode, A. and Krishnaswamy, J. 2016. Extent and Status of Semiarid Savanna Grasslands in Peninsular India. *ENVIS Bulletin on Ecology and Management of Grassland Habitats in India*. 17:192-201.

Atkore, V. and Krishnaswamy, J., 2016. Exploring freshwater science. *Resonance*. 21(11):997-1006.

2015

Sundaram, B., Hiremath, A. J. and Krishnaswamy, J. 2015. Factors influencing the local scale colonisation and change in density of a widespread invasive plant species, Lantana camara, in South India. *NeoBiota*. 25: 27-46.

Varma, V., Ratnam, J., Viswanathan, V., Osuri, A. M., Jacobus C. Biesmeijer, Madhusudan, M.D., Sankaran, M., Krishnadas, M., Barua, D., Budruk, M., Isvaran, K., Jayapal, R., Joshi, J., Krithi K. Karanth, Krishnaswamy, J., Kumar, R., Mukherjee, S., Nagendra, H., Niphadkar, M., Owen, N., Page, N., Soumya Prasad, Suhel Quader, Nandini, R., Robin, V.V., Steven M. Sait, Manzoor A. Shah, Somanathan, H., Umesh Srinivasan and Sundaram, B. 2015. Perceptions of priority issues in the conservation of biodiversity and ecosystems in India. *Biological Conservation*. 187: 201-211.

Atkore, V. M., Marcus Knight, J. D., Rema Devi, K., and Krishnaswamy, J. 2015. A New Species of Pethia from the Western Ghats, India (Teleostei: Cyprinidae). *Copeia*. (103): 290-296.

Varma, V., Ratnam, J., Viswanathan, V., Osuri, A. M., Biesmeijer, J. C., Madhusudan, M. D., Sankaran, M., Krishnadas, M., Barua, D., Budruk, M., Isvaran, K., Jayapal, R., Joshi, J., Karanth, K. K. and Krishnaswamy, J. 2015. Perceptions of priority issues in the conservation of biodiversity and ecosystems in India. *Biological Conservation*. 187: 201-211.

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Nayak, R. R., Vaidyanathan, S. and Krishnaswamy, J. 2014. Fire and grazing modify grass community response to environmental determinants in savannas: Implications for sustainable use. *Agriculture, Ecosystems & Environment*. 185: 197–207.

Athreya, V., Odden, M., Linnell, J.D.C., Krishnaswamy, J. and Karanth, U. 2014. A cat among the dogs: leopard Panthera pardus diet in a human-dominated landscape in western Maharashtra, India. *Oryx*: 1-7.

Krishnaswamy, J., John, R., and Joseph, S. 2014. Consistent response of vegetation dynamics to recent climate change in tropical mountain regions. *Global change biology*. 20(1): 203-215.

Krishnaswamy, J., Vaidyanathan, S., Rajagopalan, B., Bonell, M., Sankaran, M., Bhalla, R. S., & Badiger, S. 2014. Non-stationary and non-linear influence of ENSO and Indian Ocean Dipole on the variability of Indian monsoon rainfall and extreme rain events. *Climate Dynamics*, 45 (1-2): 175-184.

2013

Athreya, V., Odden, M., Linnell, J.D.C., Krishnaswamy, J. and Karanth, U. 2013. Big Cats in Our Backyards: Persistence of Large Carnivores in a Human Dominated Landscape in India. *PLoS ONE*. 8(3): e57872.

Krishnaswamy, J., Michael, B., Basappa, V., Bekal K. P., Rakesh, K. N., Sharachchandra, L., Kiran, M. C., Reddy, V. and Badiger, S. 2013. The groundwater recharge response and hydrologic services of tropical humid forest ecosystems to use and reforestation: Support for the "infiltration-evapotranspiration trade-off hypothesis". *Journal of Hydrology*. 498: 191-209.

2012

Vira, B., Adams, W., Agarwal, C., Badiger, S., Hope, R.A., Krishnaswamy, J. and Kumar, C. 2012. Negotiating trade-offs: making informed choices for ecosystem services. *Economic and Political Weekly* XLVII (9): 67-75.

Laurance, W.,F, Useche, D.C., Rendeiro, J., Kalka, M., Bradshaw, C.J., Sloan, S.P., Laurance, S.G., Campbell, M., Abernethy, K., Alvarez, P., Arroyo-Rodriguez, V., Ashton, P., Benítez-Malvido, J., Blom, A., Bobo, K.S., Cannon, C.H., Cao, M., Carroll, R., Chapman, C., Coates, R., Cords, M., Danielsen, F., De Dijn, B., Dinerstein, E., Donnelly, M.A., Edwards, D., Edwards, F., Farwig, N., Fashing, P., Forget, P.M., Foster, M., Gale, G., Harris, D., Harrison, R., Hart, J., Karpanty, S., Kress, W.J., Krishnaswamy, J. et al., 2012. Averting biodiversity collapse in tropical forest protected areas. *Nature* 489:290-4.

Krishnaswamy, J., Michael, B., Basappa, V., Bekal K. P., Sharachchandra, L., Kiran, M. C., Reddy, V., Badiger, S. and Rakesh, K.N. 2012. The rain– runoff response of tropical humid forest ecosystems to use and reforestation in the Western Ghats of India. *Journal of Hydrology* 472-473: 216-237.

Before 2012

Krishnaswamy, J., L. Michael, D.D Richter and K. Korfmacher. 2000. Dynamic modeling of long-term sedimentation in the Yadkin River basin. *Advances in Water Resources* 23(8).

Krishnaswamy, J., D.D. Ricter, P. Halpin and M. Hofmockel. 2001. Spatial patterns of suspended sediment yields in a humid tropical watershed in Costa Rica. *Hydrological Processes* 15: 2237–2257.

Krishnaswamy, J., P.N. Halpin and D. Richter. 2001. Dynamics of sediment discharge in relation to land-use and hydro-climatology in a tropical, humid watershed. *Journal of Hydrology* 253: 91–109.

Krishnaswamy, J., and D.D. Richter. 2002. Properties of advanced-weathering stage soils in tropical forests and pastures. *Journal of Soil Science Society of America* 66: 244–253.

Krishnaswamy, J., M.C. Kiran and K.N. Ganeshaiah. 2003. Tree model based eco-climatic vegetation classification and fuzzy mapping in diverse tropical deciduous ecosystems using multi-season NDVI. *International Journal of Remote Sensing* 25(6): 1185–1205.

Prasad, S., R. Chellam, Krishnaswamy, and S.P. Goyal. 2004. Frugivory of Phyllanthus emblica in Rajaji National Park, North West India. *Current Science* 87(9): 1188-1190.

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

Prasad, S. Krishnaswamy, J. Chellam, R., Goyal, S.P. (2006). Ruminant mediated dispersal of Phyllanthus Emblica in Rajaji National Park, India. *Biotropica* 38(5): 679-682.

Das, A., Krishnaswamy, J., K.S. Bawa, M.C. Kiran, V. Srinivas, N. Samba Kumar and K.U. Karanth. 2006. Prioritization of conservation areas in the Western Ghats, India. *Biological Conservation* 133: 16-31.

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Chaitanya, K., J. Krishnaswamy and N. Samba Kumar. 2008 Habitat factors affecting four horned antelope site occupancy and relative abundance in India. *Journal of Zoology* 276(1): 63–70.

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

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

Krishnaswamy, J., M.C. Kiran, K.S. Bawa and K.N. Ganeshaiah. 2009. Quantifying and mapping biodiversity and ecosystem services using a multi-date NDVI based Mahalanobis distance measure. *Remote Sensing of Environment* 1(113): 857–867.

Y.C. Krishna, P. Clyne, J. Krishnaswamy and N.S. Kumar. 2009. Distributional and ecological review of the four horned antelope Tetracerus quadricornis. *Mammalia* 73(1): 1–6.

M.O. Anand, Jagdish Krishnaswamy, Ajith Kumar, Archana Bali. 2010. Sustaining biodiversity conservation in human-modified landscapes in the Western Ghats: Remnant forests matter, *Biological Conservation* 143(10): 2363-2374.

Sandeep, K., R. Shankar and J. Krishnaswamy. 2010. Assessment of suspended particulate pollution in the Bhadra River catchment, Southern India: an environmental magnetic approach. *Environmental Earth Sciences* 5: 1-13.

Srinivas Vaidyanathan, Jagdish Krishnaswamy, N. Samba Kumar, Harshawardhan Dhanwatey, Poonam Dhanwatey, K. Ullas Karanth. 2010. Patterns of tropical forest dynamics and human impacts: Views from above and below the canopy, *Biological Conservation* 143(12): 2881-2890 In Conservation and management in human-dominated landscapes: Case studies from India.

Jai Ranganathan, Jagdish Krishnaswamy, M.O. Anand. 2010. Landscape-level effects on avifauna within tropical agriculture in the Western Ghats: Insights for management and conservation, *Biological Conservation* 143(12): 2909-2917.

Kelkar, N., Krishnaswamy, J., Choudhary, S. and Sutaria, D., 2010. Coexistence of fisheries with river dolphin conservation. *Conservation Biology*, *24*(4), pp.1130-1140.

Bonell, M., B.K. Purandara, B.Venkatesh, J. Krishnaswamy, H.A.K. Acharya, U.V. Singh, R. Jayakumar and N. Chappell. 2010. The impact of forest use and reforestation on soil hydraulic conductivity in the Western Ghats of India: Implications for surface and sub-surface hydrology. *Journal of Hydrology* 391: 47–62.

5.1 Books & Book Chapters (2012-2020)

Books

Ranjit Daniels R. J. and Krishnaswamy J. 2009. Environmental Studies. Wiley. 1st edn - Wiley Precise Textbook, India

G. Vishwanatha Reddy, K. Ullas Karanth, N. Samba Kumar, Jagdish Krishnaswamy, Krithi K. Karanth. Recovering Biodiversity in Indian Forests – 2016. Springer Briefs in ecology. Springer, Singapore. P. 2192-4759.

Kumar, N.S., Karanth, K.U., Nichols, J.D., Vaidyanathan, S., Gardner, B., Krishnaswamy, J. 2020. *Spatial Dynamics and Ecology of Large Ungulate Populations in Tropical Forests of India*. 1st edn. Singapore: Springer Singapore.

Book Chapters

Vanak, A.T., Abhijeet Kulkarni, Ameya Gode, Chintan Sheth and Jagdish Krishnaswamy. (2015). Extent and Status of Semi-arid Savanna Grasslands in Peninsular India. In G.S. Rawat and B.S. Adhikari (Eds.) Ecology and Management of Grassland Habitats in India, ENVIS Bulletin: Wildlife & Protected Areas, Wildlife Institute of India, Dehradun-248001, India, Vol. 17: 240 pp.

Krishnaswamy J. (2016), "Forest Management and Water in India" In: Forest Management and the impact on water resources: a review of 12 nations, IHP - VIII, Technical Document, United Nations Educational, Scientific, and Cultural Organization International Hydrological Programme and International Sediment Initiative, pp: 69-89

Krishnaswamy, J., Kumar, M., Kelkar, N., Nair, T. and Atkore, V. Moving from requiem to revival: India's rivers and riverine ecosystems. In: Transcending boundaries: Reflecting on twenty years of action and research at ATREE. Hiremath, A.J., Rai, N.D., Siddhartha, A. (eds.) Ashoka Trust for Research in Ecology and the Environment, Bangalore. pp 94–103, 2017.

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Perspective. Ministry of Environment, Forest and Climate Change, Government of India, New Delhi.

Krishnaswamy, J. Assessing Canopy Processes at Large Landscape Scales in the Western Ghats Using Remote Sensing. In: Treetops at risk: Challenges of global canopy ecology and conservation. Margaret Lowman, Soubadra Devy and T. Ganesh ed(s). Springer, New York, Ch. 28, pp 289-294. 2013.

Kelkar, N., and Krishnaswamy, J. Restoring the Ganga for its fauna and fisheries. Book chapter, in: Madhusudan, M.D., Rangarajan, M., and Shahabuddin, G. (eds.) Nature Without Borders. Orient BlackSwan, India. pp. 58-77. 2014.

Hurlbert, M., Krishnaswamy, J., Davin, E., Johnson, F. X., Mena, C.F., Morton, J., Myeong, S., Viner, D., Warner, K., Wreford, A., Zakieldeen, S., Zommers, Z. Risk Management and Decision making in Relation to Sustainable Development In P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D.C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.) *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*. IPCC, pp. 673-800, 2019.

IPCC, 2019: Summary for Policymakers. In: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.- O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. In press.

Lele, S. and J. Krishnaswamy. 2019 , Climate Change and India's Forests. In: India in a Warming World , India in a Warming World

Badrinarayanan, S., J. Krishnaswamy, Lele, S., and K. Chandrashekara , 2001 , Consequences of Forest Conversion to Coffee Plantation on Litter Beetle and Ant Communities , in K.N. Ganeshaiah, R.U. Shaanker, and K.S. Bawa, (Eds.), Proceedings of International Conference on Tropical Ecosystems: Structure, Diversity and Human Welfare, Oxford-IBH Publishing, New Delhi, pp.162-163.

5.2 Conference Presentations & Invited Talks (2015-2020):

2020

- Training program on "Science and Art of River Rejuvenation Through Forestry" for the officers of *Namami Gange*, NMCG, GoI – IIFM Bhopal, February
  Two sessions: **Forest Hydrology - covering** Forest Canopy interception, watershed recharge, and discharge/ yield and issues/ constraints and Forest **and Water Quality -** covering Forestry for water, the role of forests in sedimentation, pollution sequestration.

2019

- Interrogating "Cauvery Calling": Issues of Ecologies, Cultures and Livelihoods. Panel 1: Hydrological and Ecosystem Dynamics of Cauvery, November 2019
  https://www.youtube.com/watch?v=53keWsIKIgg

- "Why does the river need to flow from the mountains to the sea?", CONFLUENCE, Science Gallery, Bangalore. December 2019
- Dochartaigh, Brighid; MacDonald, Alan; Jackson, Christopher; Krishnaswamy, Jagdish; Chaudhary, Sunil; Nair, Tarun; O'Keeffe, Jimmy; Varma, Girish; Khan, Mohsneen; Krishan, Gopal. 2019 Groundwater recharge sources in the Gandak alluvial aquifer, NE India : how important is leakage from irrigation canals? [Poster] In: 46th IAH Congress, Malaga, Spain, 23-27 Sept 2019. (Unpublished)

2018

- Winds of Change,125th anniversary summit of the United Planters' Association of Southern India (UPASI), Coonoor, 28th September. 2018
- 'Climate and global change in the Himalayas: An ecological perspective', 3rd International conference on Mountains in the Changing World, Kathmandu, Nepal, 9-10 October. 2018
- 'Natural Events; National Disasters', Madras Institute of Developmental Studies, Chennai, 21st October. 2018
- "Can India Rejuvenate Ganga", India Rivers Week, New Delhi, 24-26, November. 2018

2017

- International Biogeography Society Conference, Bangalore, 25-28, September. 2017
  Topic: Biogeography of India's Rivers

2016

- Ecosystem Responses to Global Change: Insights from the Indian Experience, Indian Institute of Technology, Mumbai, 9 March 2016.
  Topic: *Dynamic response of Indian Monsoon and high-intensity rain events to ENSO and Indian Ocean Dipole*

- Ecohydrology in the Anthropocene: challenges and opportunities in India, AGU Chapman Conference on Emerging Issues in Tropical Ecohydrology, Cuenca, Ecuador, 5-9 June. 2016
  Topic: *Ecohydrology in the Anthropocene: challenges and opportunities in India*
  https://chapman.agu.org/ecohydrology/invited-speakers/

2015

- La Nina and Indian Ocean Dipole Influence on Distribution of Daily Rain Intensities in India, American Geophysical Union, San Francisco, 14-18 December 2015
- Effects of land cover and land use on hydrologic services in the Western Ghats of India, Sirsi College of Forestry, Sirsi, 21 August 2015
- Water from the Woods: Linking hydrologic functions to biodiversity and land use across space and time, International Conference on Water Resource Management in the Eastern Himalayan Region, St. Anthony's College, Shillong, 4 November 2015

Before 2015

- Bayes by the Bay - A Pedagogical Workshop on Bayesian Methods in Science, Institute of Mathematical Sciences, 50th Year Celebration, January 4 - 8, 2013, Pondicherry.
  https://www.imsc.res.in/~bayesmeeting/schedule.html

5.3 Technical Reports

- Bharucha, Z.P, Chattopadhyay, R, Bhave, A, Green, M, Krishnaswamy, J. (2019). Stakeholder Engagement in Hydro-climatic Services in India: Report of Pump Priming Project. India-UK Water Centre, Wallingford, UK and, Pune, India.

6. Popular articles

https://scroll.in/article/988730/uttarakhand-floods-highlight-the-need-to-factor-in-the-environment-while-planning-development
https://www.newindianexpress.com/states/karnataka/2020/mar/06/green-index-takes-care-of-environment-2113033.html
http://www.harmonyindia.org/people_posts/rights-of-a-river/
http://www.fundamatics.net/article/saving-indias-rivers-and-riverine-ecosystems/
https://www.deccanherald.com/content/365812/a-warning-tropical-mountains.html
https://www.livemint.com/Opinion/itNuzdbVhRWB19gyvJTTDP/Lesson-from-devastation-in-Kerala-Investing-in-new-knowledg.html

7. In the News (recent):

https://indiaclimatedialogue.net/2020/12/25/cyclones-rise-as-climate-change-heats-up-indian-ocean-2/ (December 2020)
https://carboncopy.info/taking-forests-for-granted-extreme-weather-impacts/ (November 2020)
https://www.thethirdpole.net/2020/11/19/crucial-to-bird-migration-indias-wetlands-are-under-threat/ (November 2020)
https://www.downtoearth.org.in/news/environment/floods-earthquakes-landslides-why-arunachal-s-etalin-hydel-project-can-be-a-worry-71558 (June 2020)
https://www.business-standard.com/article/current-affairs/two-ends-to-climate-change-debate-experts-vary-on-impact-on-rain-cyclones-120060501493_1.html (June 2020)
https://www.thethirdpole.net/2020/03/24/hydro-projects-flout-rules-to-maintain-minimum-ganga-flow/ (March 2020)
https://theprint.in/environment/how-farakka-barrage-govts-river-linking-project-can-sink-ganga-brahmaputra-meghna-delta/366574/ (February 2020)
https://theprint.in/environment/10-more-indian-wetlands-identified-as-crucial-to-global-biodiversity-heres-why-it-matters/357435/ (February 2020)
https://www.eco-business.com/news/mass-tree-planting-along-indias-cauvery-river-has-scientists-sceptical/ (January 2020)
https://thewire.in/environment/why-a-government-campaign-to-plant-more-trees-cant-be-a-good-idea-by-default (January 2020)
https://www.downtoearth.org.in/news/wildlife-biodiversity/aliens-in-toda-paradise-67836 (December 2019)
https://thewire.in/environment/ganga-river-dolphin-noise-pollution (November 2019)
https://www.newindianexpress.com/states/tamil-nadu/2019/nov/24/experts-discuss-viability-of--cauvery-calling-2066214.html (November 2019)
https://www.indiaspend.com/emergency-climate-summit-begins-sept-23-heres-why-india-should-worry/ (September 2019)
https://thewire.in/environment/ganga-river-farakka-dams-free-flowing (September 2019)
https://economictimes.indiatimes.com/news/politics-and-nation/monsoon-mayhem-how-should-india-deal-with-this-new-normal/articleshow/70717602.cms (August 2019)
https://scroll.in/article/911430/river-ecosystems-indias-most-precious-national-asset-is-crying-out-for-legal-protection (February 2019)

CONSULTANTS TEAM

Yogita Shukla

Dr. Yogita Shukla

SCIENCEPRENUER
ENVIRONMENT, CLIMATE &
GEOSPATIAL INFORMATION SCIENCE



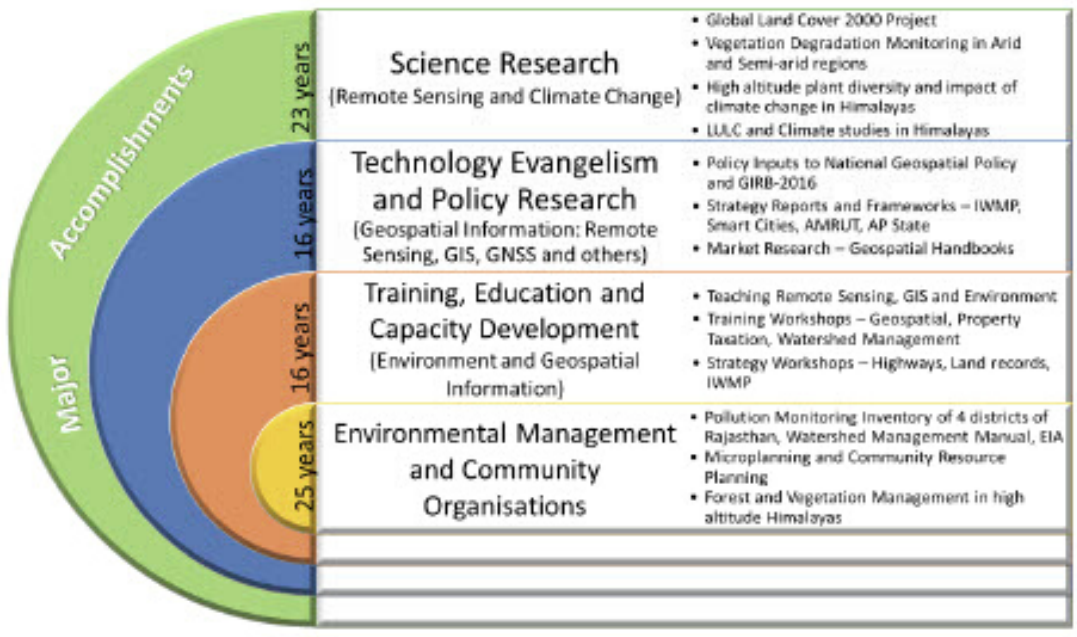
Profile Overview

An interdisciplinary professional with core passion towards scientific research, technology promotion and sustainable living. With diverse experience of over 25 years in Environment as well as Geospatial Information Science focusing on Climate Change, Natural Resource Management, Energy Management, Rural and Urban Development, now working towards building sustainable systems with holistic focus and linking diverse disciplines as a SciencePrenuer.

With a 360-degree working experience in research, industry, academia, community organisations and government, I have developed profound understanding of the gaps between theory and practice. Now I am building linkages between the science, technology, community uptake and policy measures to establish a cohesive flow of synergies between research, academia, industry, community, and government that will enable in delivering tangible outcomes and building harmony between theory and practice

To support this, I have PhD degree in Space Sciences – Remote Sensing (Land Surface Characterization), Certificate in Photogrammetry and Remote Sensing and Masters in Environmental Sciences.

Major Accomplishments



Contact

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GHAZIABAD, 201010

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yogita@addgeo.org;
yogita@wgc.org.in

linkedin.com/in/yayavara8

Yayavar

yayavara

www.addgeo.org;
www.wgc.org.in

Personality Traits

- Strategic and Design Thinking
- Empathy
- Meticulous
- Imaginative
- Creative
- Explorer
- Problem Solving

Communication Skills

- Excellent writing and oratory skills.
- High level of proficiency in understanding multiple scenarios and effectively communicating the same to a wide diaspora.

Leadership

Participation at National Level Action Plan/Working Plan Preparation

- Capacity Building Partner for Geospatial with Ministry of Housing and Urban Affairs for their Smart Cities Program since 2019.
- Prepared framework documents for Geospatial for Ministry of Housing and Urban Affairs for their Smart Cities Program in 2019.
- Part of NITI Aayog Advisory group on creating a Framework for Integrated Data Management for Urban Habitations, 2016.
- Part of National Spatial Data Infrastructure Initiatives on Developing Geospatial Standards for Forest and Soil Mapping 2016.
- Part of Neeranchal Planning and Design – A World Bank Project on Watershed Management in India, 2012.

Speaker at International and National Level Workshop/ Summit/Conferences

- Invited Speaker by IIC and Green Circle Delhi at 10th edition of **"Dialogue to Develop a Vision for Environment of Delhi – 2025"** on World Environment Day, 6th June 2023 at IIC, New Delhi
- Invited Speaker at International Webinar Series **"Open-source digital technologies are rejuvenating and accelerating Agri businesses"** by Shobhit University, 3 December 2022.
- Invited Speaker at International Symposium **"Multihazards Warning and Community Resilience 2022"** by Amrita Vishwavidyalaya, 26th October 2022.
- Speaker at three sessions of **"2nd United Nations World Geospatial Information Congress (UNWGIC)"** held in Hyderabad, India on 10th, 12th and 13th October 2022.
- Invited Speaker at **"Space Technology for Building Disasters Resilience to Water Scarcity"** by APSCO and UNOOSA on 11th and 18th October 2021.
- Invited Speaker at **"Singapore Geospatial Festival"** by GeoWorks in the OGC Health DWG Webinar on Thursday, 16th September 2021.
- Invited Speaker at **"Emerging Trends in Finance"** Webinar by Faculty of Commerce and Management, Savitribai Phule Pune University and School of Commerce & School of Economics, NMIMS Navi Mumbai on July 10, 2021
- Invited Speaker at **"Biz-Bongs Webinar on Agriculture and Allied Sector"** by Strategists World, 6th March 2021
- Invited Speaker at Galgotias University, School of Finance on **"Spatial Technologies for Finance"** on 30th October 2020.
- Invited Speaker at **"Smart Cities Tech Clinic Webinar- Leveraging GIS for City Operation"** by MoHUA on 25th May 2020.
- Invited Speaker and Panellist at **"6TH GLOBAL ECONOMIC SUMMIT 2017"** by World Trade Centre, Mumbai, 27-29 March 2017, Mumbai (India).
- Invited Speaker at National Symposium **on "Recent Advances in Remote Sensing and GIS with Special Emphasis on Mountain**

Scientific and Technical Expertise

Vegetation, Climate and Geospatial Information Science

- Specific thematic expertise over last 23 yrs. in Vegetation, Climate, Natural Resource Management, GI Science, and its applications.
- Earth resources satellites and sensors
- Spatial modelling, and algorithm development
- Teaching/Training/curriculum development and research in Remote sensing and GIS

Environmental Management Expertise

Forestry, Watershed, EIA, Community Resources

- Specific Environmental Management experience over last 25 yrs.
- Monitoring and Evaluation of the natural resources through Environmental Impact Assessment, Pollution Control and Monitoring.
- Resource Use Planning through Microplanning using PRA, Community Forestry and Joint Forest Management, Sustainable Forest Management, Watershed Management

Computer Expertise

(Software Skills/Operating systems)

- **RS/GIS:** ERDAS-Imagine, ENVI (IDL), MapInfo, PCI Geomatica, QGIS, ArcGIS, SPLAM, BioCAP, eCognition, Geomedia
- **Spatial Modelling:** ERDAS-Imagine, ArcGIS, R
- **Document:** MS-Office
- **Statistical:** SPSS, SAS, R
- **OS**: Windows

Affiliations

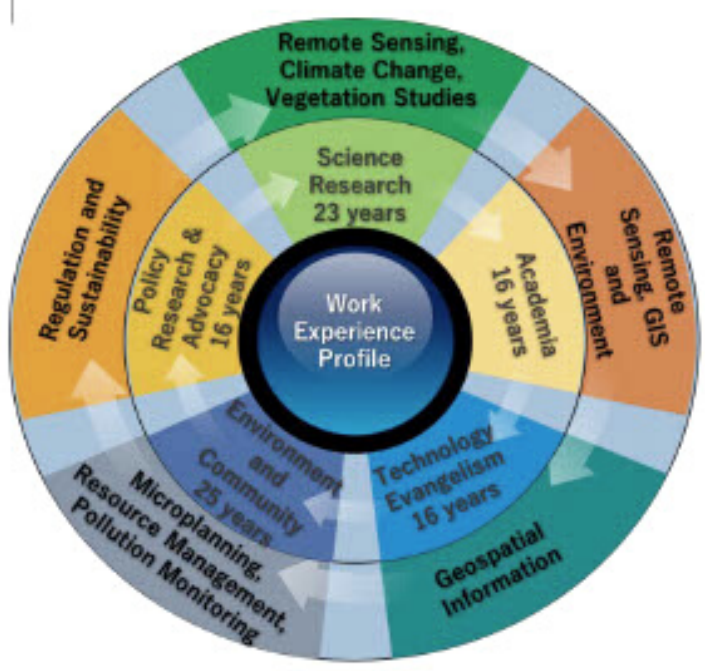
- 2023 Space4Women Mentor-An Initiative by UNOOSA.
- Member, India International Centre.
- Life Member Indian Society of Remote Sensing.

Ecosystems" & Annual Conventions of Indian Society of Remote Sensing & Indian Society of Geomatics, December 7 - 9, 2016, Dehradun (India).

- Invited Speaker at **"UK-India Joint Network on Sustainable Cities, Workshop on Mumbai Urban Observatory"**, December 5-6, 2016, Mumbai (India)
- **Invited Member of NASA LCLUC SARI Meetings for Monitoring and Assessment of Land Cover and Land Use Changes in the region. Presented research findings at Yangon meeting 2016 and Chiang Mai meeting 2017.**

Education and Expertise

Year	*Degree*	*Subject*	*University/ Institution*	*Marks /Grade (%)*
2003-2007	PhD	*Space Sciences – Remote Sensing* (Monitoring Vegetation Degradation in Arid and Semi-Arid Regions of Rajasthan using SPOT-4 Satellite Data with particular reference to Surface Parameters)	**Indian Institute of Remote Sensing (IIRS)**, Dehradun as research Centre of University of Pune, Maharashtra.	
March-May 2001	Certificate Course	*Photogrammetry and Remote Sensing*	**IIRS**, Dehradun	*A+ (Above 75%)*
1996-1998	M.Sc.	*Environmental Science*	**Mohanlal Sukhadia University**, Udaipur, Rajasthan	*70.33%*
1993-1996	B.Sc.	*Chemistry, Botany, Zoology*	**Mohanlal Sukhadia University**, Udaipur, Rajasthan	*64%*



Organising Strategic Events

- Organising "Spatial Talks" webinar series since September 2020.
- Organised Survey India 2017- 4th International Conference on Surveying and Mapping.
- Organised 4 National Workshops while working at Association of Geospatial Technologies with Ministry of Road Transport and Highways; Department of Land Resources; Department of Science and Technology
- Organised a Symposium – Geospatial for Power at Map India 2010 Conference, Gurgaon, India.

Major Projects

- Training in Spatial Technologies for Policing at CDTI: 2021-till date
- Knowledge and Content Solutions in Geospatial Information and Technology for Genesys International: 2021-till date.
- Human-Wildlife Conflict Management for Karnataka Forest Department: 2022-till date.
- Geospatial Knowledge and Information Infrastructure for Climate Resilience, Adaptation and Mitigation in High Altitude Himalayas 2020-till date.
- Project Management Consultant at Tripura JICA SCATFORM Project 2019-2025.
- Scientific and Technological Development Awareness Program in the field of Conservation of Natural Resources for School Children from SC/ ST community – NSCTC Project: 2021-22.
- Design and development of pyrolyser to process various agricultural biomass to demonstrate its technical feasibility -DST Project:2019-till date.
- Long term monitoring of biophysical parameters for grassland management in Thar Desert: 2018-till date
- Training in Spatial Analytics and Modelling for Avineon India: 2018.
- LULC - South Asian Regional Initiative (SARI) Project: 2017-till date.

Work Experience

Aug 2021-Current
Founder and CEO · addGEO Foundation, Ghaziabad

- *Strategic directions and Leadership on Policy Advocacy, Advisory, Research, Training and Capacity Building in Environmental Services and Geospatial Information Science.*

July 2017-Current
Founder and Managing Trustee · Wo-Men Geospatial Coterie, Ghaziabad

- *Development of Geospatial Knowledge and Information Infrastructure for Climate Resilience, Adaptation and Mitigation in high altitude Himalayas.*
- *Science research on Habitat niche modelling and understanding the impact of climate variability at ecosystem and species level of Western Himalayas.*
- *Strategies for conservation and management of high-altitude plant diversity of Western Himalayas.*
- *Mentoring Women Professionals and School Girls to carve and create their own career path in STEM research, training and capacity development.*
- *Providing platform to women professionals to showcase their work.*
- *Conduct training, workshops, seminars and other capacity building initiatives*
- *Long term monitoring of biophysical parameters in grasslands of western Rajasthan using satellite big data and Google Earth Engine*
- *Land Use and Land Cover mapping of habitats and their spatial modelling in South and Southeast Asia.*

April 2017-Current
Professor and Expert Faculty · Dronacharya College of Engineering, Gurugram

- *Teaching Remote Sensing and GIS to B Tech Students*

Feb 2017-Oct 2017
Advisor · SkyMap Global Pvt. Ltd., Ghaziabad

- *Work closely on knowledge and content generation to share the rapid growth of the Earth Observation industry and applications that will have an impact to the society and to the people on the ground.*

Aug 2012 – August 2016
Principal Investigator –WOS –A · Indian Institute of Remote Sensing, Dehradun

- *Research on High Altitude Land Use Land Cover changes and Impact of Climate Variability at Ecosystem and Species Level in Garhwal Himalaya.*

Major Projects

- Habitat Niche Modelling and understanding the impact of climate variability at ecosystem and species level in high altitude Garhwal Himalaya: 2017-till date.
- Training in Open-Source GIS in Property Taxation to 7 Urban Local Bodies in Uttar Pradesh: 2018.
- Teaching and Training to B Tech Students at Dronacharya Group: 2017-till date.
- High Altitude Vegetation Analysis and Impact of Climate Variability using Geospatial Techniques – DST Project: 2012-2016.
- Teaching and Training to PG Diploma in Geoinformatics students at CDAC: 2012-2018.
- Policy and Strategic Research, Creation of Policy Guidelines and Sector specific Strategic Reports for Association of Geospatial Industries: 2011-2017.
- Teaching and Training to PG Diploma in Geoinformatics students at GIS Institute: 2007-2010.
- Assessment of Potential of Geospatial and location technologies in Power Sector in India followed by a 3-day training on GIS and remote Sensing to the staff of IL Kota: 2009-2010.
- Indian Geospatial Handbook 2008 and Asia Pacific Geospatial Handbook 2009: 2007-2009.
- Community strengthening and capacity development to urban folk artisans in building sustainable products from natural resources: 2006-2007.
- Micro Plan Preparation and Training to Village Forest Committees (VFC) under Haryana Community Forestry Project: 2005-2006.
- Translation of two manuals on watershed development from English to Hindi: 2004-2005.
- Global Land Cover 2000 Project: 2000-2003.
- Preparation of Inventory of Pollution Load of 4 districts of Rajasthan: 1998-1999.

June 2011-Feb 2017
Director-Research (Honorary) • Association of Geospatial Industries, NOIDA

- *Policy Advocacy for Geospatial Technology*
- *Research and consulting in applications of Geospatial Technology for various sectors such as Rural Development, Urban Development, Transport Infrastructure, Power, Land Management.*

May 2010 – June 2011
Independent Scientific Researcher • Independent Assignments, Ghaziabad

- *Analysis of long-term observation for Surface Parameters in arid and semi-arid regions of Rajasthan.*
- *Interacting with the leading environmentalists and scientists to inquire deeply on the present state of the environment.*

June 2007 – May 2010
Sr. Practice Manager: Research • GIS-Development, NOIDA

- *Conduct extensive research on applications of geospatial technology and bring forth publications that would act as navigational tools to geospatial community.*
- *Teaching Remote Sensing at GIS Institute.*

Aug 2006 – May 2007
Coordinator • SARTHI, New Delhi

- *Community strengthening and capacity building in developing sustainable artisan products from natural resources*
- *Develop a Cultural Information System and linking the Cultural Variability with Ecological Variability*

Jan 2004 – July 2006
Consultant: Environment and RS/GIS • Earth Care Consultants, New Delhi

- *Provide scientific and technical inputs to projects pertaining to Community institution building; Microfinance; Resource Planning*
- *Participatory Rural Appraisal; Environment Impact Assessment; Watershed Management; Forest Management.*

Oct 2000 – Oct 2003
Research Fellow • Forestry and Ecology -IIRS, Dehradun

- *Land use/land cover mapping for south central Asian region as a part of collaborative Project TREES-GLC 2000 between IIRS and Joint Research Center (JRC), ISPARA, Italy.*

Current Associations

WGC

DRONACHARYA College of Engineering

addGEO Foundation
UNRAVELING EARTH'S INTUITIVE INTELLIGENCE

GENESYS

TRIPURA SCATFORM PROJECT

NRMC
An Intellecap Subsidiary

TechConPro
Stitching Technology Solutions

Matters Most to Me

- **Empowering and Mentoring Women**



July 2000 - Oct 2000
Trainee Reporter • Down to Earth Magazine, New Delhi

- *Reporting various environmental issues like wildlife conservation, urban environment study, air pollution, industrial pollution, and plastics etc.*

July 1998 – March 1999
Project Team Member • Rajasthan State Pollution Control Board, Udaipur

- *Prepare an inventory regarding the industrial status of the four districts under the jurisdiction of regional office RSPCB, Udaipur and calculate the pollution load in different industrial areas of these four districts*

Publications

Peer reviewed scientific publications in journals

1. Velmurugan, V., Chellaiah, M., Chandrasekar, N. and Shukla, Y. (2023) 'Characterisation, function and emission free pyrolysis of agricultural residue', Int. J. Global Warming, Vol. 30, No. 3, pp.334–348. (Impact factor - 0.972)
2. Kshama Gupta, Pushpa Lata, Prasun Kumar Gupta, Arijit Roy and Yogita Shukla, 2022, *Very High-Resolution Optical Satellite Stereo Data for Retrieval and Characterization of Urban Canopy Parameters in Developing Region,* International Journal of Remote Sensing, Volume 43 Issue 12, 4378-4409. (Impact Factor- 3.531)
3. Y. Shukla and P S Roy, 2021, *Spatial dynamics of vegetation changes in different altitudinal zones over 40 years (1972-2013) in alpine and sub-alpine regions at altitudes above 3000 metres of Garhwal Himalayas (Uttarakhand) using multi-temporal satellite images and spatial analytics* submitted to **Frontiers in Remote Sensing**. (Abstract accepted)
4. Y Shukla, Shefali Agarwal, C. Jeganathan and P.S. Roy, 2004, *Surface Parameters Mapping using SPOT-4 Vegetation and IRS-WiFS Satellite Data for Assessment of Vegetation in Arid and Semi-Arid Regions of Rajasthan,* **Journal of Arid Land Studies, 14S: 81-84.** (Impact Factor - 2.483)
5. PS Roy, S Agrawal, P Joshi, Y Shukla – 2003, The land cover map for Southern Asia for the year 2000. GLC2000 database, European Commission, Joint Research Centre. (Citation, 19)
6. Shefali Agarwal, P.K. Joshi, Yogita Shukla and P. S. Roy, 2003, *Spot-Vegetation multi temporal data for classifying vegetation in South Central Asia,* **Current Science, 84 (11): 1440-1448. (**Impact Factor-1.169, citation;125**)**



Books/Book chapters

1. Land-Surface Parameters in Arid and Semi-Arid Regions of Rajasthan, 2012, **Lambert Academic Publishing, Germany**
2. Interview with Shri Anupam Mishra in **'Saaf Maathe ka Samaj'** 2006 from **Penguin, New Delhi**.
3. Land Cover Mapping using SPOT-VEGETATION for South Central Asia, 2004, **IIRS, Dehradun**
4. Forest Cover Assessment in Asia, 2002, **IIRS, Dehradun**

Peer reviewed scientific publications in conference/ seminar/symposia/ proceedings

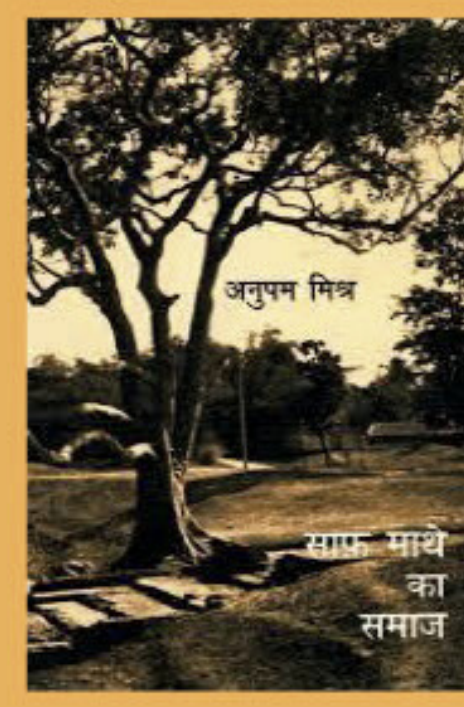
1. Y. Shukla, P J Navin Kumar, Vasudeva P Rao, P S Roy, 2018, *Land Cover and Land Use Changes (LCLUC) over last 40 years in Garhwal Himalayas for altitudes above 3000 metres and their impact on Vegetation Types in different altitudinal zones using Geospatial Techniques* presentation at **International NASA LCLUC South Asia Regional Meeting, 17-19 July 2017, Chiang Mai, Thailand.**

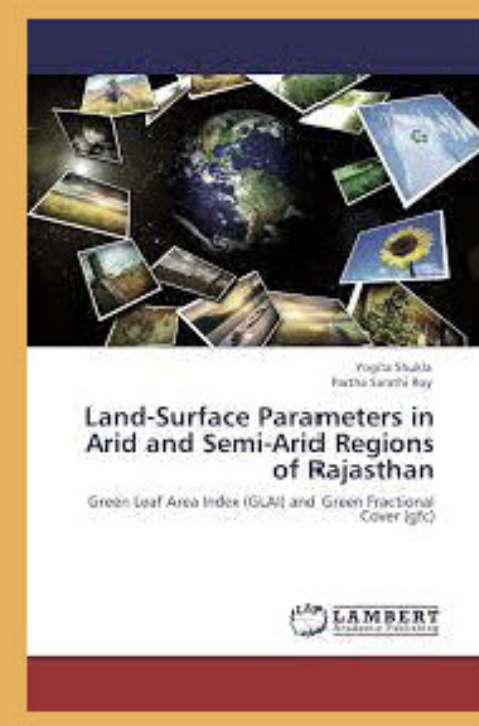
2. Yogita Shukla, P J Navin Kumar, Shalini Singh, PLN Raju, P S Roy, 2016, *Evaluation of decadal Land Cover and Land Use Changes (LCLUC) over last 40 years in High Altitude Regions of Garhwal Himalaya and Assess their Impact on Vegetation Distribution in different Altitudinal zones using Geospatial Techniques,* **presentation at International NASA LCLUC South Asia Regional Meeting, 12-18 January 2016, Yangoon, Myanmar.**

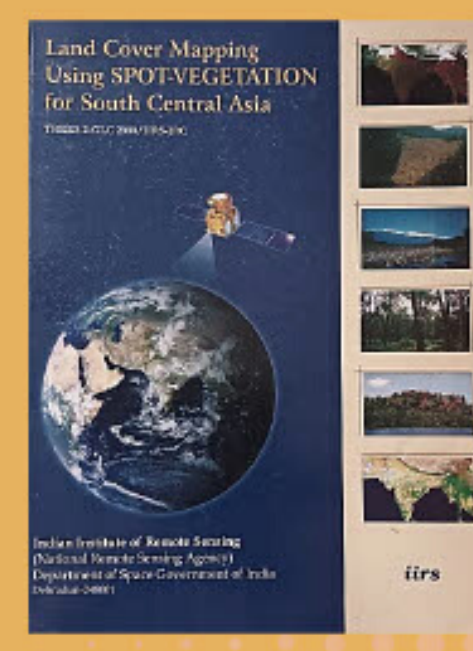
3. Yogita Shukla, A.D. Tillu and P.S. Roy, 2009, *Land Surface Characterisation in Arid and Semi-arid regions of Rajasthan for assessing the long-term changes in vegetation condition using Earth Observation Data,* **paper presented at the International Workshop on "Impact of Climate Change on Agriculture" 2009, Ahmedabad. (http://www.isprs.org/proceedings/XXXVIII/8-W3/Contents.html)**

4. Yogita Shukla, A.D. Tillu and P.S. Roy, 2009, *Retrieval of Land Surface Parameters for Vegetation Degradation Monitoring in Arid and Semi-arid regions,* **in Proceedings of International Symposium on Digital Earth 2009, Beijing.**

5. Yogita Shukla, and Sanjay Kumar, 2005, *Albedo (% reflection) calculation from satellite data to evaluate the land surface dynamics of arid and semi-arid regions of Rajasthan,* **2005, presented at Desert Technology-VIII- An International Conference, November 27- December 2, 2005 at Nasu, Japan**







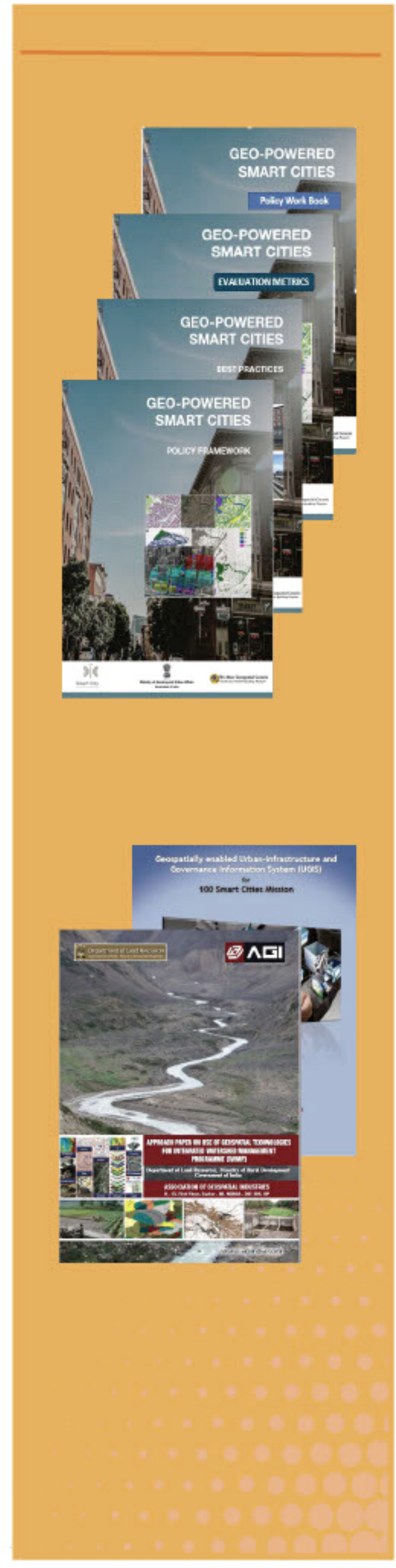
6. Yogita Shukla, Shefali Agarwal, C. Jeganathan and P.S. Roy Surface Parameters Mapping using SPOT-4 Vegetation and IRS-WiFS Satellite Data for Assessment of Vegetation in Arid and Semi-Arid Regions of Rajasthan, 2003, presented at **Desert Technology-VII - An International Conference**, November 9-14, 2003, at Jodhpur, India
7. P.S. Roy, Sarnam Singh, Shefali Agarwal, Stutee Gupta, P.K. Joshi, Sein Aung, I.J. Singh and Yogita Shukla, 2002, *TREES II- Tropical Forest Assessment in India and Northern Myanmar*, Forest Cover Assessment in Asia – **Proceeding of the International workshop on Asian Forest Cover Assessment and Conservation Issues**, 2002, Dehradun, India.

Other Publications- (Environmental, Social and Cultural)

1. Interview with renowned environmentalist Anupam Mishra, (Traditional Water Harvesting in India published in an internatior Hindi journal **"BAHUVACHAN"** in 2000 and also in a book **'Saaf Maat ka Samaj' from Penguin in 2006.**
2. Publications in leading Hindi dailies of India like Jansatta, Amar Uja etc.

Industry Reports and White Papers

1. India: The Global Geospatial Destination, National Security Council Secretariat, 2019.
2. Geo-Powered Smart Cities for Ministry of Housing and Urban Affairs: Policy Framework, Policy Workbook, Evaluation Metrices and Best Practices (Four Documents), 2019.
3. Geospatial Information – Adding Value to National Economy, 2016.
4. AGI approach Paper on Geospatial Strategy for Andhra Pradesh, 201
5. Geospatially enabled Urban-infrastructure and Governance Information System (UGIS), 2015.
6. Approach Paper on Use of Geospatial Technologies in Integrated Watershed Management Programme, 2015
7. AGI White Paper on R-APDRP, 2012.
8. Use of geospatial technologies in transport infrastructure, 2011
9. A report on "Assessment of Potential of Geospatial & Location Technologies in Power Sector in India" 2009 (Prepared for Instrumentation Limited by GIS Development).
10. Asia-Pacific Geospatial Handbook 2009, GIS Development, NOIDA.
11. Indian Geospatial Handbook 2008, GIS Development, NOIDA.
12. Report on 'Integrated Rural Development Programme - Baseline Survey & Preliminary Impact Study' 2006 (Prepared by Earth Care Consultants Pvt. Limited, New Delhi, for Oxfam (India) Trust, Ahmedabad).
13. Translated two manuals on watershed development from English to Hindi, 2005, (For Rajiv Gandhi Foundation at Earth Care Consultants Pvt. Limited).
14. Report on 'Environmental Impact Assessment of FFCD program' 200 (Prepared by CASA with support from Earth Care Consultants Pvt. Limited.



Major Projects Summary (1998-till date)

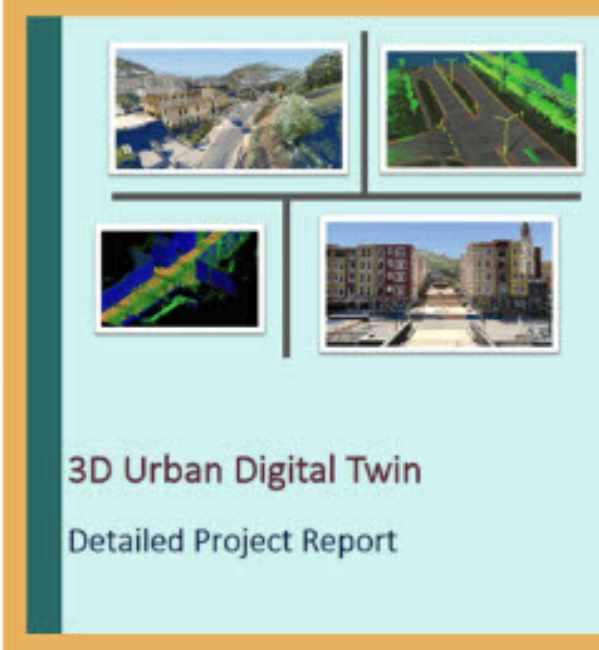
Name of the Project: Training in Spatial Technologies for Policing
Client: Central Detective Training Institute
Duration: From May 2022 – till date
Location: India
Position: Founder – addGEO Foundation
Main project features: Training and Capacity Building of the Police and Paramilitary Trainees at CDTI in Spatial Technologies.
Activities Performed:

- Impart Training to Police and Paramilitary on Spatial Technologies
- Hands on training on GIS and Remote Sensing in QGIS



Name of the Project: Knowledge and Content Solutions in Geospatial Information and Technology
Client: Genesys International
Duration: From October 2021 – till date
Location: India
Position: Founder and CEO – addGEO Foundation
Main project features: Designing and creating geospatial knowledge and content solutions for detail project reports, website, digital marketing and any other technical report.
Activities Performed:

- Design and create specific knowledge and content solutions for Genesys's products, services, and solutions.
- Prepared Detailed Project Report on 3D Urban Digital Twin
- Prepared Detailed Project Report on 3D Urban Digital Twin for Integrated Fire Management

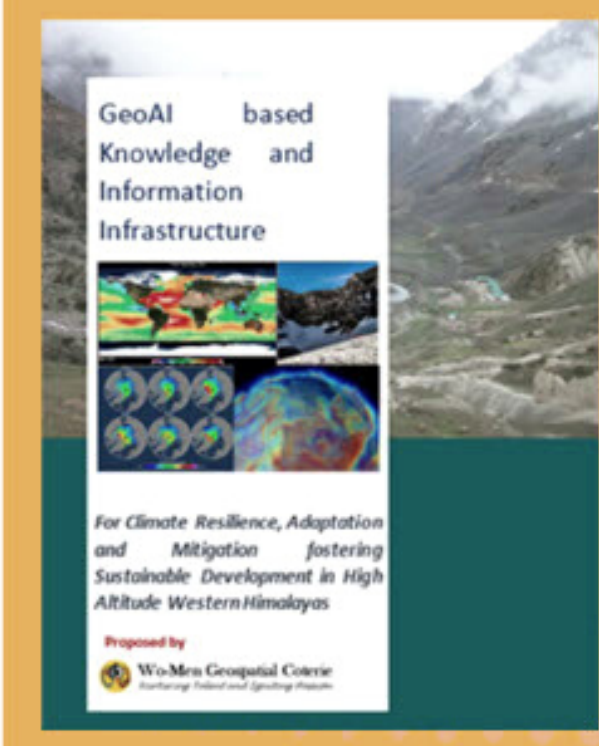


Name of the Project: Human-Wildlife Conflict Management
Client: Karnataka Forest Department
Duration: From October 2021 – till date (Ongoing Proof of Concept)
Location: Karnataka, India
Position: Subject Matter Expert, TechConPro
Main project features: Designing and developing the framework of monitoring system for human-wildlife conflict management.
Activities Performed:

- Design and Develop Monitoring Framework for Human-Wildlife Conflict Management.

Name of the Project: Geospatial Knowledge and Information Infrastructure for Climate Resilience, Adaptation and Mitigation in High Altitude Himalayas
Research Centre: Wo-Men Geospatial Coterie
Duration: From August 2021 – till date (on-going project till 2028)
Location: Uttarakhand, India
Position: Principal Investigator
Main project features: Develop technology powered sustainable decision-making solutions to successfully develop resilience, adaptation, and mitigation of the possible impacts of climate variability in high altitude western Himalayan region.
Activities Performed:

- **Baseline data collection** from multiple sources and preliminary assessment of climatically vulnerable areas at multiple spatial scales
- **Thematic spatial information generation** through Satellite Data Processing and Data collection from field
- **Geospatial Modelling and Analytics at multiple scales for**
  - Change Detection, Biological Richness, Fragmentation, Biophysical Parameters, Carbon Stock
  - Hazard Zonation for Land Slide, Earthquake, Geological Stability analysis
  - Flood risk, Flood frequency, Flood forecast
  - Snow and Glacial melt analysis, Avalanche risk, frequency
  - Multi-temporal analytics for rainfall, temp, humidity and pressure, Climate models
  - Nutrient Analytics, Soil moisture and temperature profile and analytics
  - Socio-economic analysis, Livelihood analysis
- **Vulnerability Indices development**
- **Smart Decision-Making Solutions**



Name of the Project: Scientific and Technological Development Awareness Program in the field of Conservation of Natural Resources for School Children from SC/ ST community
Client: Department of Science and Technology under children centric outreach programme
Duration: From October 2021 – May 2022
Location: India
Position: Principal Investigator – Girija Devi Charitable Trust
Main project features: Create awareness among the next generation to the hazards of pollution and climate change so that they can bring sustainable changes in their lifestyles which can protect our natural resources.
Activities Performed:

- Pollution Detection and Corrective Measures
- Energy Conservation and Disaster Management
- Wastewater Treatment, Management and Quality Check
- Awareness about e-waste



Name of the Project: PMC at Tripura JICA SCATFORM Project
Client: Tripura JICA SCATFORM Project
Duration: From September 2019 – till date (on-going project till 2025)
Location: Tripura, India
Position: GIS-RS Expert, PMC
Main project features: Enhance quality of forest and its management in the targeted catchment, thereby improving forest ecosystem services and meeting the livelihoods needs of forest dependent communities by ensuring sustainable utilization of forest and water resources.
Activities Performed:

- Assisting PMU in developing a GIS- and MIS- based monitoring system and operationalize at the DMU/ SDMU/ RMU level with a user-friendly database and simplified monitoring formats necessary for regular monitoring.
- Designing overall implementation plans for GIS/RS cell
- Supporting TFD in digitalizing the working plan prescriptions for use by forest department field staff up to the level of beat officer.
- Supervising RS and GIS experts and data operators and monitor the project implementation progress;
- Training data operators on GIS analysis, database management, and satellite imagery analysis
- Supporting PMU in procuring necessary equipment, software, and accessories for upgrading GIS/RS cell and development of MIS;
- Supporting PMU in integrating project GIS including Phase 1 project GIS into forest department GIS.
- Designing plans for GIS integration with MIS;
- Developing protocols for using satellite imagery for measuring change in forest cover over the project duration.
- Evaluating outcomes of the project implementation periodically;
- Designing plans regarding phase-out process for the sustainable phase;
- Preparing handbooks on GIS and GPS operations including procedure for geo-tagging;
- Undertaking field visits to project sites and prepare Back-to-Office report for PMU and prepare brief travel reports and monthly accomplishment reports pertaining to his/ her specialty and submit them to Team Leader.



Name of the Project: Design and development of pyrolyser to process various agricultural biomass to demonstrate its technical feasibility.
Client: Department of Science and Technology under Assistance for Development of State S&T Councils
Duration: From June 2019 – till date (on-going research project)
Location: Haryana, India
Position: Professor and PI – Dronacharya College of Engineering Gurgaon
Main project features: Design and development of cost effective pyrolyser for processing various agricultural crop residue and convert into biochar while reducing pollution.
Activities Performed:

- Design, Fabrication, and Installation of Pyrolyser
- Process various agricultural biomass to produce Biochar



- Evaluate the emissions from the pyrolyser and compare them with emissions due to direct burning
- Field Trials and Technology transfer to Krishi Vigyan Kendra

Name of the Project: Long term monitoring of biophysical parameters for grassland management in Thar Desert
Research Centre: Wo-Men Geospatial Coterie
Duration: From June 2018 – till date (ongoing project till 2023)
Location: Dehradun
Main project features: Grassland Monitoring and Management in Arid and Semi-arid regions of Rajasthan
Activities Performed:

- Long term monitoring of biophysical parameters in grasslands of western Rajasthan using satellite big data and Google Earth Engine
- Developed algorithm for calculation of Land Surface Parameters Green Leaf Area Index and Green Fraction Cover for grassland monitoring of Western Rajasthan.
- Satellite image processing, vegetation classification, vegetation map creation, spatial analysis, and spatial modeling
- Field data collection (ground truthing) using LAI-2000 meter, fPAR sensor and GPS

Name of the Project: Training in Spatial Analytics and Modelling
Client: Avineon India
Duration: From April 2018 – To May 2018 (total 1 months)
Location: India
Position: Founder – WGC
Main project features: Training and Capacity Building of the Staff of Avineon India on Spatial Analytics and Modelling.
Activities Performed:

- Development of comprehensive Training Manual on Spatial Analytics and Modelling,
- Impart Training to Staff on Spatial Analytics and Modelling in ArcGIS
- Hands on training on Spatial Analytics and Modelling

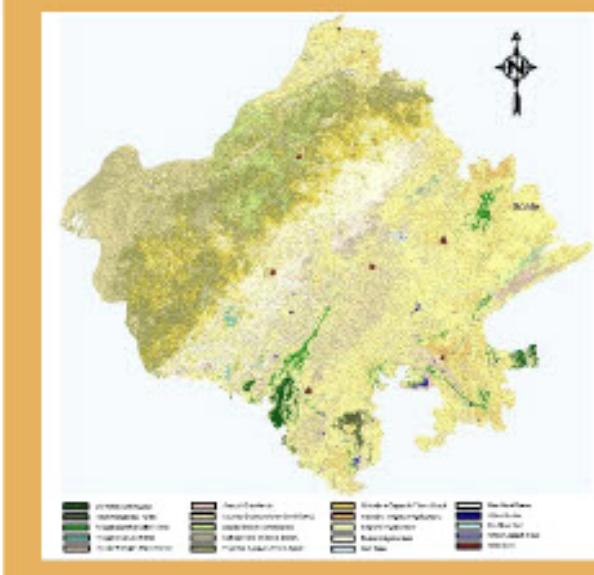
Name of the Project: LULC - South Asian Regional Initiative (SARI) Project
Client: Wo-Men Geospatial Coterie
Duration: From April 2018 – till date (on-going project till 2023)
Location: Northern Hills Thailand, Thailand
Position: LULC Expert
Main project features: Long term observations of land use and land cover changes (50 years) to evaluate the impact of climate change on highland forests of Thailand.
Activities Performed:

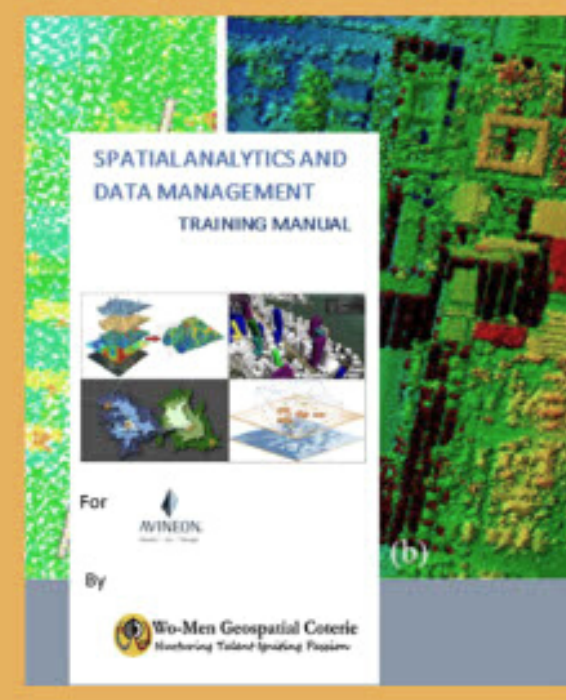
- Devise methodology for assessment of climate variability, land use and land cover changes for species distribution, richness, composition
- Development of spatial model for landscape level mapping
- Spatial database design for landscape modeling and climate modeling

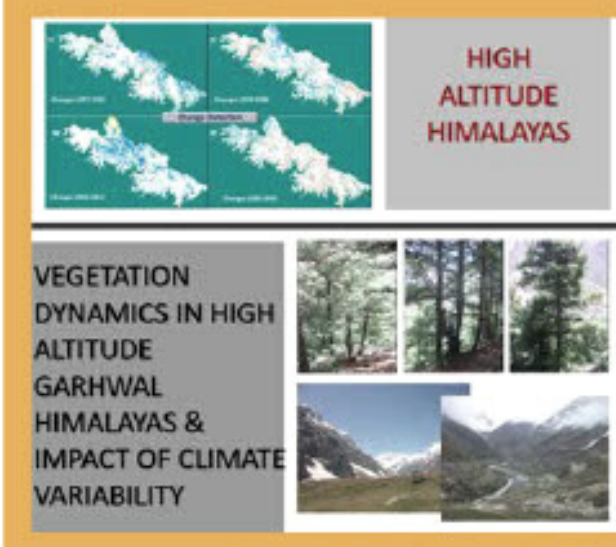
Name of the Project: Habitat Niche Modelling and understanding the impact of climate variability at ecosystem and species level in high altitude Garhwal Himalaya.
Client: Inhouse Research of Wo-Men Geospatial Coterie
Duration: From (June), (2018) – till date (on-going research project)
Location: Uttarakhand, India
Position: Founder – Wo-Men Geospatial Coterie
Main project features: Developing spatial model for habitat mapping of species and understand the impact of climate variability in species distribution, species composition, species density, species richness.
Activities Performed:

- Devise methodology for habitat niche modelling and species sampling for distribution, richness, composition
- Development of spatial model for habitat level mapping
- Spatial database design for ecosystem modeling and climate modeling

Name of the Project: Training in Open-Source GIS in Property Taxation to 7 Urban Local Bodies in Uttar Pradesh
Client: 7 Urban Local Bodies in Uttar Pradesh
Duration: From (August), (2018) – To (September), (2018) (total 2 months)







Location: India
Position: Founder – WGC
Main project features: Training and Capacity Building of the Revenue Staff in undertaking GIS related property taxation activities and able to use GIS based property taxation system (PTS).
Activities Performed:

- Development of comprehensive Training Manual on GIS in property Taxation,
- Impart Training to Revenue Staff on using GIS based PTS and QGIS
- Hands on training on PTS application and QGIS software

Name of the Project: LULC - South Asian Regional Initiative (SARI) Project
Client: Wo-Men Geospatial Coterie
Duration: From September 2017 – till date (on-going project till 2023)
Location: Northern Triangle Subtropical Forests, Myanmar
Position: LULC Expert
Main project features: Habitat niche modelling at ecosystem and species level to evaluate the impact of climate change on northern triangle sub-tropical forests of Myanmar.
Activities Performed:

- Devise methodology for habitat niche modelling and species sampling for distribution, richness, composition
- Development of spatial model for habitat level mapping
- Spatial database design for ecosystem modeling and climate modeling

Name of the Project: Policy and Strategic Research, Geospatial Framework Creation
Client: Government of India
Duration: From July 2017 – till date
Location: India
Position: Founder – WGC
Main project features: Writing Policy Papers, Technical Reports, Approach Papers for government department in developing policy and framework for geospatial technologies.
Activities Performed:

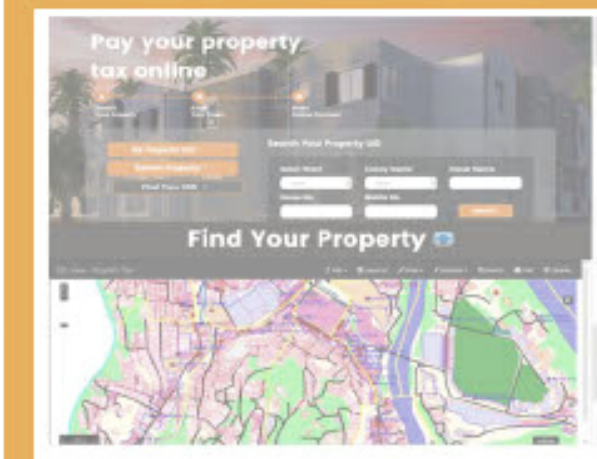
- Written Confidential Policy Papers, Technical Reports, Approach papers for Government Departments such as National Security Council Secretariat, Ministry of Housing and Urban Affairs, National Centre for Geoinformatics.
- Part of advisory group on Drone Policy with National Security Council Secretariat

Name of the Project: Teaching and Training to BTech Students
Client: Dronacharya College of Engineering
Duration: From (April), (2017) – March (2018) (total 12 months)
Location: Gurugram
Position: Expert Faculty
Main project features: Teaching and training Environment, Remote Sensing and GIS
Activities Performed:

- Teaching and Training to BTech students Environment, Remote Sensing, GNSS and GIS
- Hands on training on Q-GIS, ERDAS, ArcGIS
- Field data collection (ground truthing) using GPS or other mobile devices

Name of the Project: High Altitude Vegetation Analysis and Impact of Climate Variability using Geospatial Techniques
Client: Department of Science and Technology
Duration: From (August), (2012) – To (August), (2016) (total 36 months)
Location: Dehradun
Position: Principal Investigator
Main project features: Analysis of changes in land cover and land use in high altitude regions of Garhwal Himalayas for 40 years starting from 1972 onwards till 2013. Evaluate the impact of these changes in vegetation cover along the different altitudinal zones.
Activities Performed:

- Developed methodology and work plan for studying the land cover and land use changes and impact of these changes on vegetation cover.
- Developed methodology of Satellite Image Processing and Visual Interpretation done by Project Fellow







- Guided the Creation of Thematic Maps of Land Use and Land Cover
- Spatial Analysis of impact of LCLU changes on vegetation cover vis-à-vis altitudinal gradient
- Field Sampling and Field Study in regions above 3000 metres

Name of the Project: Name of the Project: Teaching and Training to PG Diploma in Geoinformatics students
Client: CDAC-Noida
Duration: From (January), (2012) – March (2018) (total 36 months)
Location: Noida
Position: Visiting Faculty
Main project features: Teaching and training Remote Sensing and GIS
Activities Performed:

- Teaching and Training to PG Diploma students Remote Sensing, GNSS and GIS
- Hands on training on Q-GIS, ERDAS, ArcGIS
- Field data collection (ground truthing) using GPS or other mobile devices

Name of the Project: Policy and Strategic Research, Creation of Policy Guidelines and Sector specific Strategic Reports
Client: Association of Geospatial Technologies (AGI)
Duration: From (June), (2011) – To (February), (2017) (total 69 months)
Location: Noida
Position: Director, Research
Main project features: Writing Policy Papers, Technical Reports, Approach Papers for applications of geospatial technologies in transport infrastructure, watershed management, smart cities, AMRUT cities. Advisory to government department in developing end-to-end geospatial solutions.
Activities Performed:

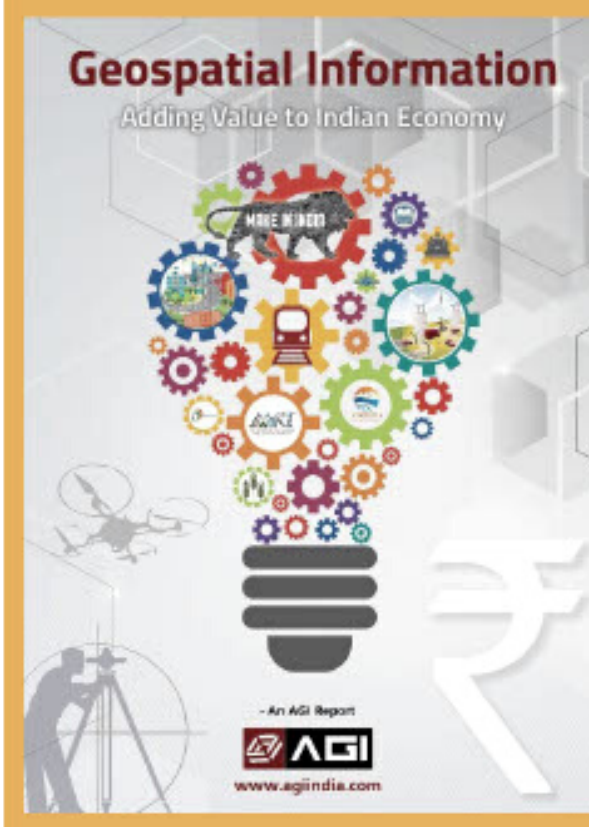
- Written and Published Policy Papers, Technical Reports, Approach papers for applications of geospatial technologies for Government Departments.
- Part of NITI Aayog Advisory group on creating a Framework for Integrated Data Management for Urban Habitations, 2016.
- Part of National Spatial Data Infrastructure Initiatives on Developing Geospatial Standards for Forest and Soil Mapping 2016.
- Part of Neeranchal Planning and Design – A World Bank Project on Watershed Management in India, 2012.
- Invited Speaker at National Symposium on Recent Advances in Remote Sensing and GIS with Special Emphasis on Mountain Ecosystems & Annual Conventions of Indian Society of Remote Sensing & Indian Society of Geomatics, December 7 - 9, 2016, Dehradun (India).
- Invited Speaker at UK-India Joint Network on Sustainable Cities, Workshop on Mumbai Urban Observatory, December 5-6, 2016, Mumbai (India).
- Organised 4 National Workshops (80-100 people) with Ministry of Road Transport and Highways; Department of Land Resources; Department of Science and Technology.

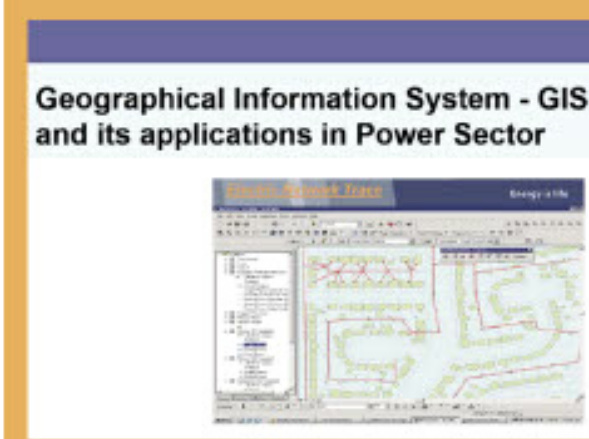
Name of the Project: Teaching and Training to PG Diploma in Geoinformatics students at GIS Institute
Client: GIS Institute
Duration: From (June), (2007) – May (2010) (total 36 months)
Location: Noida
Position: Faculty
Main project features: Teaching and training Remote Sensing and GIS
Activities Performed:

- Teaching and Training to PG Diploma students Remote Sensing, GNSS and GIS
- Hands on training on Q-GIS, ERDAS, ArcGIS
- Field data collection (ground truthing) using GPS or other mobile devices

Name of the Project: Assessment of Potential of Geospatial and location technologies in Power Sector in India followed by a 3-day training on GIS and remote Sensing to the staff of IL Kota.
Client: Instrumentation Limited, Kota
Duration: From (July), (2008) – To (September), (2009) (total 14 months)
Location: Noida
Position: Senior Practice Manager – Research, GIS Development
Main project features: To identify different geospatial and location technologies that can be used in different components of power sector from generation to transmission to distribution and assess the potential use in India.







Activities Performed:

- Conducted a comprehensive research study to evaluate the use of geospatial and location technologies in India in Power Sector
- Identify the various geospatial technologies and their applications in power sector
- Prepare a comprehensive report on the potential use of these technologies in India.
- Impart 3-day training to staff of the client

Name of the Project: Indian Geospatial Handbook 2008 and Asia Pacific Geospatial Handbook 2009.
Client: Inhouse Report of GIS Development
Duration: From (June), (2007) – To (June), (2009) (total 24 months)
Location: Noida
Position: Senior Technical Member – Research, GIS Development
Main project features: To prepare a techno-market research report on applications and usage of geospatial technologies in different sectors for India and Asia Pacific region
Activities Performed:

- Prepared an inventory of geospatial applications in different sectors for India and Asia Pacific countries.
- Documented policy guidelines of using geospatial technologies in different countries and different domains.
- Prepared a market report on potential geospatial applications for India and Asia Pacific countries



Dr. T Ramasami releasing the Handbook with
Dr. M P Narayanan, President GIS Development

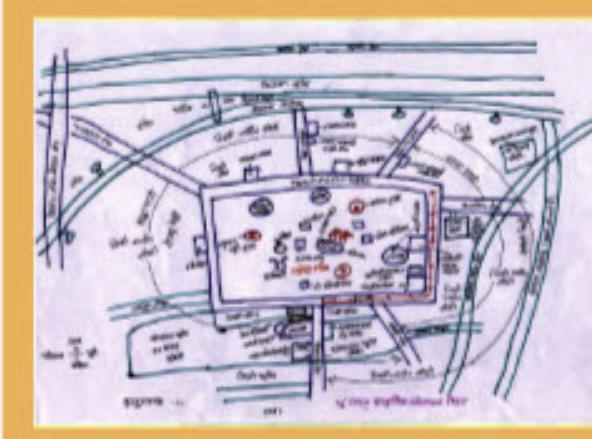
Name of the Project: Community strengthening and capacity development to urban folk artisans in building sustainable products from natural resources.
Client: Inhouse activity of Sarthi – Friend of Artists in Need
Duration: From July 2006 – May 2007 (community strengthening and capacity development)
Location: New Delhi, India
Position: Co-ordinator, Sarthi– Friend of Artists in Need
Main project features: Support and strengthen communities in use of natural resources for creating sustainable products for their livelihood systems.
Activities Performed:

- Community strengthening through capacity building on use of judicious use of natural resources with proper guidance on resource management and livelihood security



Name of the Project: Micro Plan Preparation and Training to Village Forest Committees (VFC) under Haryana Community Forestry Project
Client: Haryana Forest Department
Duration: From (Jan), (2006) – To (July), (2006) (total 7 months)
Location: Various Locations in Haryana
Position: Senior Consultant, Earth Care Consultants Pvt. Ltd.
Main project features: Prepare Village Micro Plan in consultation with Village Gram Sabha and VFC and Training in Community Resource Management and Leadership to VFC and Forest Department.
Activities Performed:

- Identifying and evaluating the socio-economic dynamics of the villages.
- Formation of Village Forest Committees in the Gram Sabha.
- Participatory Rural Appraisal of the villages
- Identifying the priorities of activities and initiatives to be undertaken for development of the village and for community forestry program.
- Preparation of village micro plan in consultation with village Gram Sabha and VFC.
- Training to VFC and Forest Department on Community Resource Management and Leadership.
- Use QGIS for preparation of maps in micro plan preparation
- Field data collection (ground truthing) using GPS or other mobile devices.



Name of the Project: Integrated Rural Development Programme - Baseline Survey & Preliminary Impact Study
Client: Oxfam (India) Trust, Ahmedabad
Duration: From (Jan), (2006) – To (March), (2006) (total 3 months)
Location: New Delhi
Position: Senior Consultant, Earth Care Consultants Pvt. Ltd.

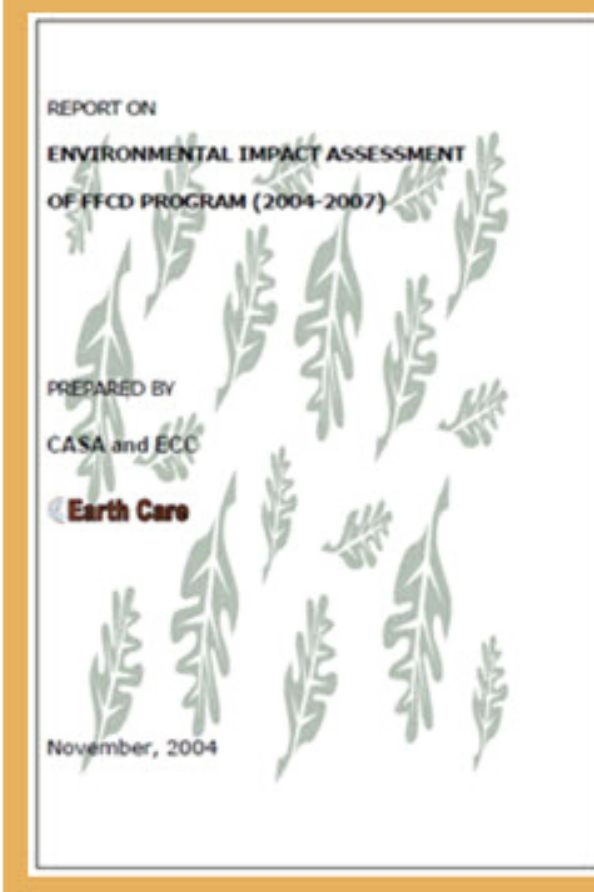
Main project features: Prepare the report based on baseline survey and preliminary impact study of IRDP in Few districts of Western Rajasthan.
Activities Performed:

- Analyse the socio-economic data gathered through baseline survey and draw insights from it.
- Write a comprehensive report for IRDP based on the inputs and analysis of the survey data and preliminary impact study.

Name of the Project: Translation of two manuals on watershed development from English to Hindi
Client: Rajiv Gandhi Foundation
Duration: From (June), (2005) – To (Dec), (2005) (total 6 months)
Location: New Delhi
Position: Senior Consultant, Earth Care Consultants Pvt. Ltd.
Main project features: Translated two manuals on watershed management in Hindi from English
Activities Performed

- Translation of two manuals of watershed management from English to Hindi

Name of the Project: Environmental Impact Assessment of FFCD program
Client: CASA
Duration: From (June), (2004) – To (September), (2004) (total 4 months)
Location: New Delhi
Position: Senior Consultant, Earth Care Consultants Pvt. Ltd.
Main project features: Prepare the report on Environment Impact Assessment based on baseline survey.



Name of the Project: Global Land Cover 2000 Project
Client: Joint Research Centre, Italy
Duration: From (Oct), (2000) – To (Oct), (2003) (total 36 months)
Location: Dehradun
Position: Research Fellow, Indian Institute of Remote Sensing (IIRS)
Main project features: Prepare the Land Cover and Land Use Map of South Asia as a part of GLC 2000 project.
Activities Performed:

- Constructed the phenological profile of different land cover classes through fortnightly NDVI, as discriminator to classify vegetation and land cover types.
- The results were then compiled as Global Land Cover Map 2000 by FAO and were part Millennium Ecosystem Assessment report 2000.
- Participated in validation research too.
- Prepared a comprehensive report on land cover mapping of south Asian region which was later published as a book from IIRS.
- Use ERDAS Imagine for satellite image processing, vegetation classification, vegetation map creation, spatial analysis, and spatial modeling
- Field data collection (ground truthing) using GPS or other mobile devices.



Name of the Project: Preparation of Inventory of Pollution Load of 4 districts of Rajasthan
Client: Rajasthan State Pollution Control Board
Duration: From July 1998 – To April 1999 (total 9 months)
Location: Udaipur
Position: Project Fellow
Main project features:

- Conduct air and water sampling of the Industrial Areas of 4 districts of Rajasthan – Udaipur, Rajasamand, Dungarpur and Banswara
- Conducted door-to-door survey of the industries in the industrial areas of the 4 districts.
- Prepared the inventory of the red, orange, and green category industries of these 4 districts in FoxPro
- Calculate the pollution load of the industrial areas of the four districts

The wood wide web has completely transformed our understanding of how trees communicate with one another and regulate and influence the forest community.

Pradip Krishen

House of Shambhala