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Dr. Vijaya Laxmi

Profile summary Environmental Science researcher with over 8 years of multidisciplinary experience in **water**, **air**, and **noise** pollution monitoring, sanitation environmental health impact assessment, acoustical and air quality modeling, GIS-based mapping, and sustainable infrastructure design. Currently associated with Veneklasen Associates (an affiliate company) performing MEP acoustic analysis for U.S.-based projects. Served as an Institute **Postdoctoral Fellow (IPDF)** at **IIT Bombay**, following completion of a **Ph.D. in Environmental Science** (specializing in acoustics) from the **Academy of Scientific and Innovative Research**. Extensive R&D experience in developing sustainable noise barrier solutions using industrial waste materials such as waste tyre rubber and fly ash, resulting in **two patents**: the *Compact Mobile Green Noise Barrier* and *A Compact Matrix for Acoustic Panels Comprising Industrial Wastes and Cement*. Proven track record of scientific contributions with **14 peer-reviewed research publications**, **1 book chapter** and **1 construction manual**. Recipient of the "**Best Young Researcher**" award (2022) for excellence in applied environmental research. Skilled in field assessments, simulation tools (e.g., SoundPLAN), policy-relevant environmental solutions, and innovation in sustainable materials.

Education	2025	Indian Institute of Technology Bombay Post-Doc. (Environmental Science)
	2023	AcSIR (CSIR-NEERI) PhD (Environmental Science) Thesis: Design and Demonstration of Sustainable Noise Barrier in Urban Environment Supervisor: Dr. Ritesh Vijay
	2016	Magadh University M.Sc. (Environmental Science) (75.35%)
	2013	Magadh University B.Sc. (Environmental Science & Water Mgmt.) (75.61%)
Award	2022	Best Young Researcher , Late Shri. P.S. Dutt Memorial Award, CSIR-NEERI (2022)
Skills	Software & Tools	ArcGIS, Q-GIS, MS Office, SoundPLAN, SPSS, Origin
	Instruments	Noise meter, Spectrophotometer, GC/MS, SEM, HVS, XRF, CTM, ATMOS, HVS
	Expertise	Environmental (Water, Air and Noise) Monitoring, Mapping, Modeling, Material Development, Health Impact Assessment, Sustainable Infrastructure

Work Experience	Sep 2025 – Present	Veneklasen Associates <i>Associates</i>	Performed MEP acoustic analysis for U.S. projects, ensuring compliance with ANSI and ASHRAE standards
	Aug 2023 – Aug-2025	Indian Institute of Technology Bombay, Mumbai <i>Institute Postdoctoral Fellow</i>	- Air / Noise pollution monitoring, mapping, and modeling - Assessment of health impacts due to noise and air pollution exposure - Conducted community-based health surveys to evaluate exposure-related symptoms such as respiratory issues, sleep disturbance, and stress - Indoor Air infiltration modeling and aerosol measurement
	Jan 2023 – Apr 2023	The Energy and Resources Institute (TERI), Delhi <i>Research Associate</i>	- Air quality mapping, carbon offset (CDM, VERRA, GS) projects - Carbon trading & DOE coordination - Renewable energy (Wind and Solar)
	Sep 2021 – Dec 2022	CSIR-NEERI, Nagpur <i>Senior Project Associate</i>	- Performed physical and chemical analysis of wastewater samples as per standard protocols - Analyzed drinking water for contamination indicators, including heavy metals, pathogens, and chemical pollutants. - Spatial noise mapping, noise barrier design, frequency spectrum analysis - R&D on sustainable acoustic materials (industrial waste material)
	Jan 2021 – Sep 2021	CSIR-NEERI, Nagpur <i>Project Associate</i>	- Conducted baseline assessment of nala (Drain) water quality, flow characteristics, and ecological degradation - Contributed to the design and implementation of nature-based solutions (bio-remediation, constructed wetlands, green buffers) - Developed GIS-based Noise Information System and Noise ATM - Honking and traffic noise modeling
	Mar 2017 – Dec 2020	CSIR-NEERI, Nagpur <i>Project Assistant</i>	- Environmental monitoring (noise, air, wastewater, soil) - Prepared detailed assessment reports with mitigation strategies and policy-level recommendations - GIS-based mapping and analysis
	2023	Compact Mobile Green Noise Barrier (Patent No. 202211028452)	
	2023	Acoustic Panel Matrix Using Industrial Waste (Patent No. 202311064136)	

Publications

Book Chapter

- **Laxmi, V.**, (2024). Transmission Path Control of Noise Pollution. Handbook of Vibroacoustics, Noise and Harshness, 1–30

Research Articles

- **Laxmi, V.**, Dey, J., Kalawapudi, K., Vijay, R., & Kumar, R. (2019). An innovative approach of urban noise monitoring using cycle in Nagpur, India. *Environmental Science and Pollution Research*, 26(36), 36812-36819
- **Laxmi, V.**, Thakre, C., & Vijay, R. (2021). Evaluation of noise barriers based on geometries and materials: a review. *Environmental Science and Pollution Research*, 1-17
- **Laxmi, V.**, Thakre, C., & Vijay, R. (2022). Compliance of Noise Standards during COVID Pandemic in Residential and Silence Zone at NEERI Campus, Nagpur. *Journal of Indian Association for Environmental Management*, 42 (4), 15-20
- **Laxmi, V.**, Thakre, C., Bisarya, A., & Vijay, R. (2023). An innovative approach for the development of sound absorbing material using industrial wastes. *Construction and Building Materials*, 369, 130523
- **Laxmi, V.**, Thakre, C., Bisarya, A., & Vijay, R. (2023). Design and development of light weight porous matrix using industrial waste, *Indian Journal of Engineering & Materials Sciences*, 30 (1), 94-102
- **Laxmi, V.**, Sakhre, S. & Vijay, R. (2020) Geospatial Analysis of Groundwater Quality in Patna Urban Area. *Journal of Indian Water Works Association*, Vol. LII No. 2 (104-110)
- **Laxmi, V.**, & Sakhre, S. (2017) Assessment of ground water quality in Patna urban area: A Statistical approach. *Journal of Environmental Science & Engineering*, 59 (3), 377-382
- Thakre, C., **Laxmi, V.**, Vijay, R., Killedar, D. J., & Kumar, R. (2020). Traffic noise prediction model of an Indian road: an increased scenario of vehicles and honking. *Environmental Science and Pollution Research*, 1-10
- Thakre, C., **Laxmi, V.**, Vijay, R., Killedar, D. J., & Kumar, R. (2018) Characterization of Honking Noise in Urban Environment of Nagpur. *The Journal of Acoustical Society of India*, 45(4), 165- 175
- Dey, J., **Laxmi, V.**, Kalawapudi, K., Singh T., Vijay, R., Motghare, V.M., and Kumar, R. (2021) Strategic noise mapping of Mumbai city, India: a GIS-based approach. *The Journal of Acoustical Society of India*, 48 (4), 202- 212
- Thakre, C., Bisarya, A., **Laxmi, V.**, Kalawapudi, K., & Vijay, R. (2024). An innovative design and development of noise barrier with newly composite mix of acoustic panel. *Journal of Environmental Management*, 361, 121276.
- Thakre, C., **Laxmi, V.**, Kalawapudi, K., Motghare, V. M., & Vijay, R. (2024). Noise Mapping and Impact of Land Use Land Cover on Urban Soundscape. *MAPAN*, 1-17.
- Dubey, S., Sahota, V., Kumar, A., Prajapati, N., **Laxmi, V.**, Dangi, B., & Phuleria, H. C. (2025). Chemical and toxicological characteristics of fine particles from festive fireworks in urban residential communities. *Atmospheric Environment*, 350, 121160.
- **Laxmi, V.**, Arote, H., & Phuleria, H. C. (2025). Environmental Noise in North Central Mumbai, India: Unravelling Human-Environmental Interactions. *Journal of Scientific & Industrial Research (JSIR)*, 84(04), 389-398.
- **Laxmi, V.**, Navinya, C., & Phuleria, H. C. (2026). Spectral characterization and predictive modelling of urban traffic and metro rail noise. *Environmental Monitoring and Assessment*, 198(2), 174.

Detail of eligible assignment

1	Name of assignment	Mechanical, Electrical and Plumbing Noise and Vibration control of Hotel Indigo Glendale, Park Tower Student Housing, Hollywood Park hotel of US (Funded by respective firms & Project cost: \$99,524.20)
	Year: 2025-26	Location: California, US Position Held: Senior Associate
	Main Project Feature: Designed and implemented noise and vibration control strategies for MEP (Mechanical, Electrical, and Plumbing) systems across high-profile projects.	
	Activity Performed	
	- Performed MEP noise and vibration analysis for HVAC and plumbing systems to meet hospitality acoustic standards - Designed vibration isolation solutions (spring isolators, inertia bases) for mechanical equipment - Coordinated with architects and MEP teams to minimize guest room noise transmission	
2	Name of assignment	Assessment of health impacts due to noise and air pollution exposure in Mumbai city (Funded by DBT & Project cost: 1 Cr)
	Year: 2023-25	Location: Mumbai, Maharashtra Position Held: Postdoc Fellow
	Main Project Feature: Assess the potential health impacts associated with prolonged exposure to noise and air pollution, by analyzing environmental monitoring data and correlating it with community-reported health issues.	
	Activity Performed	
	- Designed and conducted field surveys assessing public exposure to ambient noise and air pollutants in Mumbai city - Monitored air quality and environmental noise using standard instrumentation and protocols - Analyzed health data via structured questionnaires and interviews, focusing on respiratory, cardiovascular, and psychological effects - Conducted correlation analysis between pollutant levels and reported health symptoms using statistical tools	
3	Name of assignment	Renewable Energy Carbon Offset Mechanisms: Wind Energy Projects in Tamil Nadu and Rajasthan (Funded by carbon trading firms)
	Year: 2023 (6 months)	Location: New Delhi Position Held: Research Associate
	Main Project Feature: Carbon Offset Projects under mechanisms like CDM, VERRA, and Gold Standard is to reduce greenhouse gas (GHG) emissions through verified, measurable activities such as renewable energy, afforestation, and energy efficiency and to generate carbon credits	
	Activity Performed	
	- Coordinated the development and implementation of carbon offset projects under CDM (Clean Development Mechanism), VERRA (Verified Carbon Standard), and Gold Standard (GS) frameworks - Managed documentation and validation processes in alignment with international carbon accounting methodologies - Facilitated coordination with Designated Operational Entities (DOEs) for validation, verification, and issuance of carbon credits	
4	Name of assignment	NCAP based Air Quality Management and Action Plan in Pune, Nasik and Uttar Pradesh (Funded by Bloomberg & Project cost: 10 Cr)
	Year: 2022-23	Location: New Delhi Position Held: Research Associate
	Main Project Feature: Strategic initiative launched by the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India, with the primary objective of reducing air pollution levels across India	

Activity Performed		
- Supported source apportionment studies and emission inventory preparation to identify major pollution contributors - Participated in development and evaluation of city-specific action plans for air quality improvement - Contributed to public awareness initiatives and stakeholder engagement activities to support behavioral and policy change		
5	Name of assignment	Design and development of device, noise barrier, and GIS-based management information system for entire state Mumbai city (Funded by MPCB & Project cost: 5 Cr)
	Year: 2021-22	Location: Nagpur, Maharashtra Position Held: Senior Project Associate
Main Project Feature: Design and develop an integrated solution for urban noise mitigation through the creation of an innovative noise monitoring device, the development of sustainable noise barrier prototypes, and the implementation of a GIS-based Management Information System		
Activity Performed		
- Designed a real-time acoustic sensor and developed sustainable noise barrier prototypes using eco-friendly materials - Conducted lab and field testing to assess noise barrier performance in urban and roadside settings - Developed a GIS-based MIS integrating spatial noise data for hotspot identification and mitigation planning - Prepared technical documentation, system architecture, and user manuals for deployed monitoring solutions		
6	Name of assignment	Research & Development studies for urban noise pollution for 27 municipal corporations in Maharashtra, in compliance with directives from the Hon'ble Bombay High Court (Funded by MPCB & Project cost: 10 Cr)
	Year: 2020-23	Location: Nagpur, Maharashtra Position Held: Senior Project Associate
Main Project Feature: To assess, characterize, and quantify urban noise pollution from diverse sources under heterogeneous traffic conditions, and to generate scientific data to support effective noise mitigation strategies and compliance with regulatory directives, as per the orders of the Hon'ble High Court Bombay		
Activity Performed		
- Assessed and characterized urban noise sources including traffic, road geometry, honking, construction, and railways - Conducted noise measurements at National Highways, State Highways, major/minor roads, railway crossings, and traffic junctions - Performed traffic volume and speed surveys across all noise monitoring locations, covering heterogeneous vehicle types - Monitored and analyzed honking patterns across vehicle categories and urban locations - Carried out frequency spectrum analysis to distinguish between honking and traffic-related noise components		
7	Name of assignment	Solid Waste Characterization and Thermal Analysis of Deonar Dumping Site, Mumbai, Using GIS (Funded by BMC & Project cost: 1 Cr)
	Year: 2019-20	Location: Mumabi, Maharashtra Position Held: Project Associate

Main Project Feature: To evaluate the physical, chemical, and thermal characteristics of solid waste at the Deonar dumping site and integrate GIS-based mapping for sustainable waste management and potential energy recovery solutions

Activity Performed

- Collected and characterized solid waste samples from representative zones of the Deonar dumping site
- Conducted thermal analysis to assess calorific value, moisture content, and decomposition profiles
- Applied GIS tools to map waste distribution, hotspots, and thermal property variations across the site
- Prepared technical reports with recommendations for waste-to-energy potential and sustainable management

8 Name of assignment Noise monitoring through Cycle in 10 major Cities of Maharashtra (Funded by MPCB & Project cost: 50 lacs)

Year: 2019-20 **Location:** Nagpur, Maharashtra **Position Held:** Project Associate

Main Project Feature: Introducing innovative methodology for noise monitoring

Activity Performed

- Conducted mobile noise monitoring at ~700 locations in 10 major Maharashtra cities using cycle-mounted sound meters.
- Collected and analyzed real-time acoustic data at 1-second intervals during peak traffic hours.
- Created strategic noise maps and visualizations using ArcGIS interpolation techniques.
- Supported data-driven recommendations for urban noise exposure assessment and mitigation planning.

9 Name of assignment Noise monitoring in and around premises of Hon'ble Supreme-Court of India (Funded by CPCB & Project cost: 20 Lacs)

Year: 2019 (3 months) **Location:** New Delhi **Position Held:** Project Associate

Main Project Feature: Conducted noise monitoring to identify exceedances and recommend appropriate mitigation measures

Activity Performed

- Conducted 24-hour noise monitoring at 10 strategic locations around the Supreme Court premises on July 21–22, 2019.
- Collected, analyzed, and interpreted noise data for key acoustic metrics across working and non-working days.
- Created comparative graphs to illustrate diurnal noise variations for day and night-time periods.
- Generated spatially continuous noise maps using GIS-based interpolation techniques for city-level visualization.
- Prepared and submitted a comprehensive technical report with findings and recommendations.

10 Name of assignment Assessment of Water Quality and Pollution Load in Bhawana Nala, New Delhi (Length: 3 km) (Funded by CPCB & Project cost: 40 Lacs)

Year: 2019 (3 months) **Location:** New Delhi **Position Held:** Project Associate

Main Project Feature: Assessment of waste water quality for implication of Phytoid technology

Activity Performed	
- Collected wastewater samples from the Bhawana drain and transported them under standard protocols to the Delhi Zonal Laboratory (DZL) for analysis - Analyzed key water quality parameters including pH, temperature, electrical conductivity, TDS, TSS, COD, nitrate, and phosphate - Measured flow rate at sampling locations to support load estimation and hydrological assessment	

11 **Name of assignment** **Noise Level Monitoring at Cuffe Parade Metro Station Site, Mumbai to Assess the Ambient Noise Levels (Funded by MPCB & Project cost: 40 Lacs)**

Year: 2018 (6 months) **Location:** Nagpur, Maharashtra **Position Held:** Project Assistant

Main Project Feature: Environmental noise monitoring near metro construction sites in consultation with MPCB, MMRCL, and NEERI

Activity Performed	
- Conducted 24-hour environmental noise monitoring for eight days at seven metro construction sites in coordination with MPCB, MMRCL, and NEERI - Collected, processed, and analyzed noise data using standard acoustic metrics - Performed frequency spectrum analysis to identify dominant noise sources and their temporal variation - Prepared detailed technical reports with interpretations and ensured timely submission to relevant authorities	

12 **Name of assignment** **Assessment of Soil and Groundwater Pollution in and around Benzochem Industry (Daraskhed, Buldhana, Maharashtra) (Funded by MIDC & Project cost: 1 Cr)**

Year: 2018-19 **Location:** Nagpur, Maharashtra **Position Held:** Project Assistant

Main Project Feature: Assessment of soil and water & preparation of environmental impact assessment (EIA) and compliance documentation

Activity Performed	
- Conducted soil and groundwater sampling within 2 km industrial buffer zones using a proximity-based strategy - Analyzed samples for physicochemical and heavy metal parameters following CPCB/IS standards - Assessed contamination levels and identified potential pollutant migration pathways - Prepared technical reports with mitigation measures and supported EIA and compliance documentation	

13 **Name of assignment** **Integrated Nala Rejuvenation and Wastewater Management Project (2 km) (Funded by CSIR-NEERI & Project cost: 1 Cr)**

Year: 2018-20 **Location:** Nagpur, Maharashtra **Position Held:** Project Assistant

Main Project Feature: Conducted baseline assessment of nala water quality, flow characteristics, and ecological degradation

Activity Performed

- Identified pollution sources, sedimentation, and hydrological issues along the nala stretch
- Analyzed water and sediment samples for physicochemical, biological, and microbiological parameters
- Supported design and implementation of nature-based solutions like bioremediation and constructed wetlands
- Coordinated with stakeholders for site execution and monitored treatment effectiveness for nala rejuvenation

14 Name of assignment **Noise mapping in 27 municipal corporations in the state of Maharashtra (Funded by MPCB & Project cost: 5 Cr)**

Year: 2017-18 **Location:** Nagpur, Maharashtra **Position Held:** Project Assistant

Main Project Feature: large-scale environmental noise monitoring across 27 urban municipal zones & provide mitigation plans, directed by Bombay High Court, Funded by MPCB, Project Cost INR 5 Cr.

Activity Performed

- Conducted large-scale environmental noise monitoring across 27 urban municipal zones using CPCB-compliant protocols
 - Developed strategic noise maps using GIS software to visualize spatial distribution of noise levels
 - Identified noise hotspots and assessed compliance with ambient noise standards (residential, commercial, industrial, and silence zones)
 - Integrated traffic density, land use, and population data for comprehensive acoustic impact assessment
 - Provided actionable recommendations for noise mitigation and urban planning
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Declaration

I hereby certify that, to the best of my knowledge and belief, the information provided in this CV accurately reflects my qualifications and experience.

Place: Mumbai



Name of Professional Personnel: Dr. Vijaya Laxmi
