Dr. Lal Singh

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Solid and Hazardous Waste
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Summary

With around 20 years of experience as an academician and a researcher in Central Govt. Institutions, a Forest Research Institute, and currently at a CSIR- National Environmental Engineering Research Institute, I am working as a Principal Scientist at the National Environmental Engineering Research Institute (NEERI), a research institute under the Council of Scientific and Industrial Research (CSIR) of the Government of India. A specialist in ecological restoration and has worked extensively on projects related to the development of bamboo diversity on fly ash degraded areas, wastelands, mining dumps, and contaminated areas. Also worked on projects related to phytoremediation technology using bamboo species for industrial waste, ecological restoration of uranium tailings, and economic valuation of natural and man-made ecosystems and biodiversity. I have had the privilege of conceptualizing and leading innovative initiatives, most notably the development and deployment of ***Eco-Rejuvenation Technology (ERT)*** - a bamboo-based, scalable solution for environmental restoration and livelihood generation. I believe in combining scientific knowledge with field applicability, and my work focuses on delivering site-specific, cost-effective, and sustainable models for ecological rehabilitation. Furthermore, I have been a dedicated mentor to 07 Ph.D. students across diverse research domains, including eco-restoration of degraded sites, the impacts of forest conversion on soil biodiversity, microbial fuel cell development, and the application of advanced technologies such as machine learning and DNA barcoding in ecological studies. My scholarly out includes approximately 113 research papers having Google 37 H index, 2 published books, 15 book chapters, and 5 conference papers, with a citation count of 6111. My strength lies in translating scientific understanding into actionable field models that restore ecological balance while enhancing community participation and resilience.

Research Interest

Ecological Restoration, Bamboo Ecology, Bioremediation, Environmental Stress, Micro plastic, Phytoremediation, Fly Ash dump and Biodiversity development on waste land.

Biosketch

Professional Background

Principal Scientist/ Associate Professor 2021-Present
Environmental Biotechnology and Genomic Division
CSIR-National Environmental Engineering Research Institute Nagpur

Senior Scientist 2017-2021
Environmental Biotechnology and Genomic Division
CSIR-National Environmental Engineering Research Institute Nagpur

Scientist 2013-2017
Environmental Biotechnology and Genomic Division
CSIR-National Environmental Engineering Research Institute Nagpur

Research Assistant 2009-2013
Forest Research Institute, Dehradun

Ph.D. Students Supervised (Ph.D. Thesis)

Sr. no.	Student Name	University/College	Year	Title of the Thesis	Supervisor	Awarded/ Submitted/ Ongoing
1.	Swati Yadav	AcSIR, India	2023	Development of Holistic Approach for Eco restoration of Fly Ash Dump Site	Guide	Awarded
2.	Apurva Mishra	AcSIR, India	2023	Forest conversion and its Impact on soil belowground diversity and suggested eco-restoration strategies	Guide	Awarded
3.	Ankush Sawarkar	VNIT, Nagpur, India	2023	Clustering and classification of commercial bamboo species using machine learning, deep learning and DNA barcoding	Co-Guide	Awarded
4.	Shrirang Maddalwar	Amity University Raipur, Chhattisgarh, India	2024	Microbial fuel cell with high content solid wastes as substrates	Co-Guide	Awarded
5.	Srinidhi Sridharan	AcSIR, India	2024	Impacts of Microplastics on the Plant lifecycle and rhizospheric Microbial community dynamics	Guide	Awarded
6.	Poonam Bhanse	AcSIR, India	2024	Development of beneficial bacterial consortia for sustenance of commercial plants on degraded land: *Dendrocalamus strictus* (Roxb.) News and *Ailnthus excelsa* Roxb.	Co-Guide	Ongoing

7.	Priya Darshani	Amity University, Uttar Pradesh, India	2024	Studies on lichens and evaluation of their heavy metal uptake from diverse habitats of district Reasi, Jammu & Kashmir	Co-Guide	Ongoing
8.	Gayatri S. Tijare	Amity University, Raipur, Chhattisgarh, India	2024	Ecological Impact Assessment of Rhizoshperic Microbial flora on bamboo Growth and soil health for Waste development.	Co-Guide	Ongoing
9.	Suhel Aneesh Ansari	AcSIR, India	2025	Deciphering the role of Heat Shock Proteins (HSPs) in Stress tolerance of bamboo species	Guide	Ongoing

M.Sc. Students Supervised for Dissertation (M.Sc./B.Tech/ M.Tech Dissertation Awarded)

Sr. No.	Student Name	University/College	Year	M.Sc. Dissertation Title	Supervisor
1.	Bishnujeet Katre	Hislop College, Civil Line, Nagpur, India	2016-2017	Study for Endophytes in Bambusa Balcooa Roxb. and Dendrocalamus Asper Backer Of Khapri Village	Dr. Lal Singh
2.	Shivani Chourasiya	Mata Gujri Mahila Mahavidyalaya Jabalpur, M.P, India	2017	Study of Rhizospheric Diversity In Bamboo Plantation on Degraded land	Dr. Lal Singh
3.	Manish Sakhare	Dr. Ambedkar College, Deeksha Bhoomi, Nagpur, India	2017-2018	Rhizospheric Ecology of Bambusa vulgaris green and Yellow on waste land	Dr. Lal Singh
4.	Namrata Ruprela	Hislop College, Civil Line, Nagpur, India	2018	Study of Rhizosphere of Bamboo species	Dr. Lal Singh
5.	Khushbu Kumari	School of Natural Resource Management Central University Of Jharkhand, Brambe, Ranchi, India	2019	Eichhornia crassipes (water Hyacinth) used as a Bio manure Utilization for Agroforestry and Afforestation	Dr. Lal Singh
6.	Raushan Kumar	School of Natural Resource Management Central University of Jharkhand, Brambe, Ranchi, India	2019	Phyto-Sequestration of Fly Ash Dump Site for Environmental Amelioration through Bioenergy Plantation	Dr. Lal Singh

7.	Punam Sagne	Atash College of Management and Technology, Chhindwara, M.P, India	2019-2020	Isolation of Endophytes from the Root, Shoot and Apical Meristem of Bamboo Species at Suradevi,(Koradi) Site	Dr. Lal Singh
8.	Ankita Yuvgavkar	Atash College of Management and Technology, Chhindwara, M.P, India	2019-2020	Study for enhancing the growth Efficiency of plant using Eichhornia crassipes bio manure	Dr. Lal Singh
9.	Apeksha Bhondekar	Hislop College, Civil Line, Nagpur, India	2019-2020	Antimicrobial activity of bamboo leaf extract	Dr. Lal Singh
10.	Kalyani Wadbude	Atash College of Management and Technology, Chhindwara, M.P, India	2019-2020	Study of Rhizospheric Diversity In Thyrsostachys Oliveri Bamboo plantation on fly ash Dumped	Dr. Lal Singh
11.	Nutan Kawale	Sevadal Mahila Mahavidhyala Nagpur, India	2022	Physiochemical characteristics of dumped area after bamboo planta Koradi	Dr. Lal Singh
12.	Gayatri Tijare	Kamla Nehru Mahavidyalaya, Nagpur RTM Nagpur University, India	2023	Screening of Bamboo plant Species for power generation using plant (MFC)	Dr. Lal Singh
13.	Harshit Shil	Dr. Harisingh Gour Vishwavidyalaya, Sagar (M.P)	2024	Rhizome ecology of commercial bamboo species for degraded land restoration	Dr. Lal Singh
14.	Barsa Rani Pradhan	Dr. Harishsingh Gour Vishwavidyalaya, Sagar (M.P.)	2025	Traditional Bamboo Shoot-Based Food Systems of Indigenous Communities in Odisha.	Dr. Lal Singh
15.	Punam Pinjarker	Dr. Harishsingh Gour Vishwavidyalaya, Sagar (M.P.)	2025	Role of Mycorrhizal Diversity for Enhancement of Bamboo Productivity.	Dr. Lal Singh
16.	Hitakshi Khatri	Atash College of Management and Technology, Pandhurna (M.P.)	2025	Impact of heavy metals on microbial diversity in rhizospheric soil of *Bambusa nutans & Bambusa cacharensis*.	Dr. Lal Singh

External Reviewer/ Examiner for Ph.D. Thesis Evaluation

Sr. No.	Student Name	University/College	Year	Title of the Thesis
1.	Chayan	Dr. Harisingh	2024	Studies on diversity of wild medicinal flora of Panna

	Adhikari	Gour Vishwavidyalaya, Sagar (M.P)		District, Madhya Pradesh, India
2.	Ankita Bhatt	IIT Roorkee, Uttarakhand	2024	Microalgae mediated removal of waterborne pathogens for wastewater disinfection
3.	Katram Navya	Bharathiar University, Coimbatore, Tamil Nadu	2019	Studies on the protective effect of plant extracts on heavy metal-induced toxicity in experimental animals

External Examiner for Upgradation of JRF to SRF

Sr. No.	Student Name	University/College	Year	Upgradation
1.	Sachita Meshram	RTMNU	2023	Upgradation of JRF to SRF under the scheme "National Fellowship for Schedule Cast Student' to pursue Ph.D. Degree

Educational Details

PhD in Forest Ecology 2006-2010
Forest Research Institute University, Dehradun, India

Post Graduate Diploma in Biodiversity Conservation 2004-2005
Forest Research Institute University, Dehradun, India

M.Sc. Botany 2002-2004
C.C.S University, Meerut (UP), India

B.Sc. in Botany, Chemistry, Zoology 1999- 2002
C.C.S University, Meerut (UP), India

Research Project

Topic	Start Year	Role	Amount	Funding Agency	Status
Development of green Belt of Dust Suppression at Chandrapur Thermal Power Premises using Eco-	2022	Project Leader	10006400	CSTPS, Maharashtra State Power Generation Co.	Ongoing

Rejuvenation Technology				Ltd. Chandrapur	
Integrated Solid Waste Management Including Composting and Waste to Biochar, etc.	2022	Project Leader	1121000	DST-SERB, (New Delhi)	Ongoing
Integrated Solid Waste Management Including Composting and Waste to Biochar etc.	2022	Project Leader	9553000	CSIR-NEERI	Completed
Development of green Belt of Khaperkheda Thermal Power Premises using Eco-Rejuvenation Technology	2020	Project Leader	7528400	Maharashtra State Power Generation Co. Ltd, Khaperkheda	Ongoing
Development of green Belt of Bamboo diversity for Dust Suppression using Eco-Rejuvenation Technology at Mahagenco Land Area.	2019	Project Leader	11292600	MSPGCL, Koradi (MAHAGENCO)	Ongoing
Development of Bamboo Plantation using Eco-Rejuvenation Technology For dust suppression around Koradi Thermal plant area at Farm No. 5	2019	Project Leader	3764200	MSPGCL, Koradi (MAHAGENCO)	Ongoing
Development of Bamboo Plantation using Eco-Rejuvenation Technology For dust suppression around Koradi Thermal plant area at	2019	Project Leader	3764200	MSPGCL, Koradi (MAHAGENCO)	Ongoing

Farm No. 3

Development of Bamboo Diversity using Eco-Leader Koradi Rejuvenation Technology For dust suppression around Koradi Thermal Plant Area.	2019	Project	3764200	MSPGCL, (MAHAGENCO)	Ongoing
Development of Bamboo Diversity using Eco-Rejuvenation Technology For dust suppression around Koradi Thermal Plant area at farm no. 4	2019	Project Leader	3764200	MSPGCL, Koradi (MAHAGENCO)	Completed
Development of Greenery And Rejuvenation of water Well at CSIR-NEERI Premises for self-sustainability.	2019	Project Leader	8170000	CSIR-NEERI	Completed
Genetic and Chemical analysis to identify abiotic stress tolerant Bamboo species towards Climate Change mitigation	2019	Project Leader	22.09	ASEAN-India S&T Development Fund. DST, India	Completed
Development of Green Belt for Koradi Thermal Power Premises using Eco-Rejuvenation technology at MAHAGENCO	2019	Project Leader	7528400	Maharashtra State Power Generation Co. Ltd, Koradi	Completed
Development of Bamboo Diversity using Eco-Rejuvenation technology Koradi Thermal Plant Premises (4,5,6 fodder farm area)	2019	Project Leader	11292600	Maharashtra State Power Generation Co. Ltd.(MSPGCL) Koradi, Nagpur	Ongoing

Development of Green Belt for Khaperkheda Thermal Power Premises Using Eco-Rejuvenation Technology	2019	Project Leader	7528400	Maharashtra State Power Generation Co. Ltd. Khaperkheda	Ongoing
Strategically designed greenbelt for development along highways and its performance evaluation towards Eco-Capital Build-up	2019	Project Leader	122213780	National Highway Authority of India (NHAI), Nagpur	Ongoing
Development of Bamboo Diversity Model using Eco-Rejuvenation Technology for Farmers on Waste Land at Pandhurna Chindwara District	2018	Project Leader	1180000	Yahvii Foundation, Nagpur	Completed
Green Belt Development on the periphery of Gosikhurd Dam.	2018	Project Leader	2360000	Gosikhurd Dam Division (irrigation Dept.) Bhandara.	Completed
Development of Bamboo Diversity for/dust suppression At Koradi Thermal Power Premises using Eco-Rejuvenation Technology	2018	Project Leader	1180000	MSPGCL, Koradi (MAHAGENCO)	Completed
Development of Bamboo Diversity (Bambusetum) using Eco-Rejuvenation Technology at Snehal Kisan Nursery, Wardha District	2018	Project Leader	944000	Snehal Kisan Nursery, Hinganghat, Wardha	Completed

Genetic and Chemical analysis to identify abiotic stress tolerant Bamboo species towards Climate Change irrigation.	2018	Project Leader	1121000	DST-SERB, (New Delhi)	Completed

Genetic and Chemical analysis to identify abiotic stress tolerant Bamboo species towards Climate Change irrigation.	2018	Project Leader	1121000	DST-SERB, (New Delhi)	Completed

Publications

Refereed Journal Publications: ***Corresponding author is marked with ****

1. Suhel Aneesh Ansaria, Apurva Ramtekea, Riya Sawarkara, Tinku Kumara, Debishree Khan, Ashish Agashe, M.P. Patil, **Lal Singh**, 2025. Innovative approaches in microbial community engineering for food waste management: A comprehensive review. ***Journal of Environmental Management.*** *https://doi.org/10.1016/j.jenvman.2025.127000* (Q1, IF:8.4)
2. Gobade, M.B., Kumar, T., Ansari, S.A., Sawarkar, A., Garlapati, P.K. and **Singh, Lal**., 2025. Micro and mesofauna: Pioneering sustainable solutions for fly ash rejuvenation. ***Journal of Environmental Management,*** *379,* p.124768. *https://doi.org/10.1016/j.jenvman.2025.124768* (Q1, IF:8.4)
3. Poonam Bhanse, **Lal Singh,** and Asifa Qureshi, 2024. Functional and Genomic Potential of *Burkholderia contaminans* PB_AQ24 Isolate for Boosting the Growth of Bamboo Seedlings in Heavy Metal Contaminated Soils. ***Applied Biochemistry and Biotechnology,*** *197, p.* 2437–2456 *https://doi.org/10.1007/s12010-024-05156-2* (Q2, IF: 3.3)
4. Apurva Mishra, **Lal Singh**, Hemant J Purohit, Zubeen J Hathi, Annie Philip, MD Jessy, Thomas K Uthup, Dharmesh Singh, 2024. Assessing shifts in soil fungal community structure during the conversion of tropical semi-evergreen forest: implications for land use management. ***Environment, development and Sustainability,*** p. 1-25**.** *https://doi.org/10.1007/s10668-024-05422-7* (Q1, IF:4.2)
5. Maddalwar, S., Kumar, T., Tijare, G., Agashe, A., Kotangale, P., Sawarkar, A. and **Singh, L.*,** 2024. A global perspective on a bioengineering approach to landslide mitigation using bamboo diversity. ***Advances in Bamboo Science***, 8, p.100093. *https://doi.org/10.1016/j.bamboo.2024.100093* (Q2, IF: 3.7)
6. Ansari, S.A., Kumar, T., Sawarkar, R., Gobade, M., Khan, D. and **Singh, L***., 2024. Valorization of food waste: A comprehensive review of individual technologies for producing bio-based

products. ***Journal of Environmental Management,*** 364, p.121439. *https://doi.org/10.1016/j.jenvman.2024.121439* (Q1, IF: 8.3)

7. Yadav, S., Pandey, V.C. and **Singh, L**., 2024. Assessment of medicinal plants colonizing abundantly on metal-enriched fly ash deposits: phytoremediation prospective. ***International Journal of Phytoremediation***, pp.1-8. *https://doi.org/10.1080/15226514.2024.2331708* (Q2, IF:3.1)
8. Mahule, A., Sawarkar, A.D., Pakle, G., Pachlor, R. and **Singh, L.*,** 2024. AquaBamboo Data-Driven Suggested System for Water Management and Sustainable Growth of Bamboo: A Review. ***Advances in Bamboo Science***, p.100072. *https://doi.org/10.1016/j.bamboo.2024.100072* (Q2, IF: 3.7)
9. Sawarkar, A. D., Shrimankar, D. D., Ali, S., Agrahari, A., & **Singh, L.** (2024) Bamboo Plant Classification Using Deep Transfer Learning with a Majority Multiclass Voting Algorithm. ***Applied Sciences***, *14*(3), 1023. *https://doi.org/10.3390/app14031023* (Q2, IF: 2.5)
10. Shrirang R. Maddalwar, Kush Kumar Nayak, & **Lal Singh***, (2023) Performance assessment of commercial bacteria in microbial fuel cells designed using dry cell components. ***Bioresource Technology Reports,*** 25, p. 101703**.** *https://doi.org/10.1016/j.biteb.2023.101703* (Q2, IF:4.3)
11. Srinidhi Sridharan, Mahua Saha & **Lal Singh*** (2023) Evidence of Soil Microplastics Inhibiting the Germination of commercial Coriander Seeds under Field Conditions. ***Water, Air & Soil Pollution***, 234, p. 675. *https://doi.org/10.1007/s11270-023-06684-z* (Q2, IF: 3.0)
12. Ankush D. Sawarkar, Deepti D. Shrimankar, Swati C. Manekar, Manish Kumar, Phani Kumar Garlapati, **Lal Singh*** (2023) Bamboo as a sustainable crop for land restoration in India: challenges and opportunities. ***Environment Development and Sustainability,*** 27, p.157–189. *https://doi.org/10.1007/s10668-023-03977-9* (Q1, IF:4.2)
13. A. Shakeel, R. Sawarkar, P. Anerao, M. Kumar**, L. Singh*** (2023) Evaluation of ecological potency in bamboo species for phytoremediation and eco-rejuvenation of fly ash-degraded land: a two-year field study. ***International Journal of Environmental Science and Technology,*** 21, p. 3273–3288. *https://doi.org/10.1007/s13762-023-05188-x* (Q1, IF: 3.4)
14. Ankush D. Sawarkar, Deepti D. Shrimankar, Manish Kumar, Phani Kumar, **Lal Singh**, (2023) Bamboo as a cultivated medicinal grass for industries: A systematic Review. ***Industrial Crops and Products***, 203, p. 117210 *https://doi.org/10.1016/j.indcrop.2023.117210* (Q1, IF:6.2)
15. Apurva Mishra, Dharmesh Singh, Zubeen Hathi, Hemant J. Purohit, M.D. Jessy, Annie Philip, Thomas K. Uthup, **Lal Singh**, (2023) Soil microbiome dynamics associated with conversion of tropical forests to different rubber based land use management systems. ***Applied Soil Ecology***, 118, p. 104933. *https://doi.org/10.1016/j.apsoil.2023.104933* (Q1, IF: 5.0)
16. Riya Sawarkar, Adnan Shakeel, Tinku Kumar, Suhel Aneesh Ansari, Ashish Agashe, **Lal Singh,** (2023) Evaluation of plant species for air pollution tolerance and phytoremediation potential in proximity to a coal thermal power station: implication for smart green cities. ***Environmental Geochemistry and Health***, 45, p. 7303–7322. *https://doi.org/10.1007/s10653-023-01667-9* (Q1, IF: 3.8)
17. Shrirang Maddalwar, Kush Kumar Nayak, **Lal Singh,** (2023) Evaluation of power generation in plant microbial fuel cell using vegetable plants. ***Bioresource Technology Reports,*** 22, p. 101447**.** *https://doi.org/10.1016/j.biteb.2023.101447* (Q2, IF:4.3)

18. Suhel Aneesh Ansari, Adnan Shakeel, Riya Sawarkar, Shrirang Maddalwar, Debishree Khan, **Lal Singh**, (2023) Additive facilitated co-composting of lignocellulosic biomass waste, approach towards minimizing greenhouse gas emissions: An up to date review. ***Environmental Research***, *224, p. 115529*. *https://doi.org/10.1016/j.envres.2023.115529* (Q1, IF:7.7)
19. Shiv Bolan, Lokesh P. Padhye, Manish Kumar, Vasileios Antoniadis, Srinidhi Sridharan, Yuanyuan Tang, Narendra Singh, Choolaka Hewawasam, Meththika Vithanage, **Lal Singh**, Jörg Rinklebe, Hocheol Song, Kadambot H.M. Siddique, M.B. Kirkham, Hailong Wang, Nanthi Bolan, (2023) Review on distribution, fate, and management of potentially toxic elements in incinerated medical wastes. **Environmental Pollution**, 321, p. 121080. *https://doi.org/10.1016/j.envpol.2023.121080* (Q1, IF:7.3)
20. Apurva Mishra, **Lal Singh** and Dharmesh Singh, (2023) Unboxing the black box-one step forward to understand the soil microbiome: A systematic review. ***Microbial Ecology,* 85**, p. 669–683. *https://doi.org/10.1007/s00248-022-01962-5* (Q1,IF:4.0)
21. Zheli Ding, Sanjeev Kumar Awasthi, Manish Kumar, Vinay Kumar, Andrei Mikhailovich Dregulo, Vivek Yadav, Raveendran Sindhu, Parameswaran Binod, Surendra Sarsaiya, Ashok Pandey, Mohammad J. Taherzadeh, Rashmi Rathour**, Lal Singh**, Zengqiang Zhang, Zihao Lian, Mukesh Kumar Awasthi, (2023) A thermo-chemical and biotechnological approaches for bamboo waste recycling and conversion to value added product: Towards a zero-waste biorefinery and circular bioeconomy. ***Fuel,*** 333, part 2, p. 126469. *https://doi.org/10.1016/j.fuel.2022.126469* (Q1, IF:7.5)
22. Swati Yadav, Vimal Chandra Pandey, Munesh Kumar, **Lal Singh**, (2023) Corrigendum to "Plant diversity and ecological potential of naturally colonizing vegetation for ecorestoration of fly ash disposal area". ***Ecological Engineering,*** 176, p. 106533. *https://doi.org/10.1016/j.ecoleng.2023.107033* (Q1, IF:1.5)
23. Sawarkar, R., Shakeel, A., Kokate, P. A., & **Singh, L**., (2023) "Organic Waste Augment the Eco-Restoration Potential of Bamboo species on Fly Ash-degraded Land: A Field Study". ***Sustainability,*** *15*(1), p. 755. *https://doi.org/10.3390/su15010755* (Q1, IF:3.3)
24. Yuwen Zhou, Manish Kumar, Surendra Sarsaiya, Ranjna Sirohi, Sanjeev Kumar Awasthi, Raveendran Sindhu, Parameswaran Binod, Ashok Pandey, Nanthi S. Bolan, Zengqiang Zhang, **Lal Singh**, Sunil Kumar, Mukesh Kumar Awasthi, (2022) Challenges and opportunities in bioremediation of micro-nano plastics: A review. ***Science of the Total Environment,*** 802, p. 149823. *https://doi.org/10.1016/j.scitotenv.2021.149823* (Q1, IF:8.0)
25. Arun V. Baskar, Nanthi Bolan, Son A. Hoang, Prasanthi Sooriyakumar, Manish Kumar, **Lal Singh**, Tahereh Jasemizad, Lokesh P. Padhye, Gurwinder Singh, Ajayan Vinu, Binoy Sarkar, M.B. Kirkham, Jörg Rinklebe, Shengsen Wang, Hailong Wang, Rajasekhar Balasubramanian, Kadambot H.M. Siddique, (2022) Recovery, regeneration and sustainable management of spent adsorbents from wastewater treatment streams: A review. ***Science of the Total Environment,*** 822, p. 153555. *https://doi.org/10.1016/j.scitotenv.2022.153555* (Q1, IF:8.0)
26. Poonam Bhanse, Manish Kumar, **Lal Singh**, Mukesh Kumar Awasthi, Asifa Qureshi, (2022) Role of plant growth-promoting rhizobacteria in boosting the phytoremediation of stressed soils: Opportunities, challenges, and prospects. ***Chemosphere,*** *303, p.* 134954. *https://doi.org/10.1016/j.chemosphere.2022.1349* (Q1, IF:8.8)

27. Sanjeev Kumar Awasthi, Manish Kumar, Vinay Kumar, Surendra Sarsaiya, Prathmesh Anerao, Pooja Ghosh, **Lal Singh,** Hong Liu, Zengqiang Zhang, Mukesh Kumar Awasthi, (2022) A comprehensive review on recent advancements in biodegradation and sustainable management of biopolymers. ***Environmental Pollution,*** *307, p.* 119600. *https://doi.org/10.1016/j.envpol.2022.119600* (Q1, IF:7.3)
28. S. Ambika, Manish Kumar, Lakshmi Pisharody, Milan Malhotra, Gopalakrishnan Kumar, Vandana Sreedharan, **Lal Singh**, P.V. Nidheesh, Amit Bhatnagar, (2022) "Modified biochar as a green adsorbent for removal of hexavalent chromium from various environmental matrices: Mechanisms, methods and prospects". ***Chemical Engineering Journal,*** 439, p. 135716. *https://doi.org/10.1016/j.cej.2022.135716* (Q1, IF:13.2)
29. Srinidhi Sridharan, Manish Kumar, Mahua Saha, M.B. Kirkham, **Lal Singh**, Nanthi S. Bolan, (2022) "The polymers and their additives in particulate plastics: What makes them hazardous to the fauna?". ***Science of the Total Environment,*** 824, p. 153828. *https://doi.org/10.1016/j.scitotenv.2022.153828*. (Q1, IF:8.0)
30. Sachin Krushna Bhujbal, Pooja Ghosh, Virendra Kumar Vijay, Rashmi Rathour, Manish Kumar, **Lal Singh**, Atya Kapley, (2022) " Biotechnological potential of rumen microbiota for sustainable bioconversion of lignocellulosic waste to biofuels and value-added products". ***Science of The Total Environment,*** *814, p.* 152773. *https://doi.org/10.1016/j.scitotenv.2021.152773* (Q1, IF:8.0)
31. Sanjeev Kumar Awasthi, Manish Kumar, Surendra Sarsaiya, Vivek Ahluwalia, Hongyu Chen, Guneet Kaur, Ranjna Sirohi, Raveendran Sindhu, Parameswaran Binod, Ashok Pandey, Rashmi Rathour, Sunil Kumar, **Lal Singh,** Zengqiang Zhang, Mohammad J. Taherzadeh, Mukesh Kumar Awasthi, (2022) "Multi-criteria research lines on livestock manure biorefinery development towards a circular economy: From the perspective of a life cycle assessment and business models strategies". ***Journal of Cleaner Production,*** *341, p.* 130862. *https://doi.org/10.1016/j.jclepro.2022.130862.* (Q1, IF:10.0)
32. Rashmi Rathour, Hemant Kumar, Komal Prasad, Prathmesh Anerao, Manish Kumar, Atya Kapleya, Ashok Pandey, Mukesh Kumar Awasthi, and **Lal Singh,** (2022) Multifunctional applications of bamboo crop beyond environmental management: an Indian prospective. ***Bioengineered,*** 13, NO. 4, p. 8893–8914**.** *https://doi.org/10.1080/21655979.2022.2056689* (Q1, IF:12.4)
33. Kumar Abhishek, Anamika Shrivastava, Vineet Vimal, Ajay Kumar Gupta, Sachin Krushna Bhujbal, Jayanta Kumar Biswas, **Lal Singh,** Pooja Ghosh, Ashok Pandey, Prabhakar Sharma, Manish Kumar, (2022) Biochar application for greenhouse gas mitigation, contaminants immobilization and soil fertility enhancement: A state-of-the-art review. ***Science of The Total Environment,*** 853, p. 158562. *https://doi.org/10.1016/j.scitotenv.2022.158562* (Q1, IF:8.0)
34. Manish Kumar, Nanthi Bolan, Tahereh Jasemizad, Lokesh P. Padhye, Srinidhi Sridharan, **Lal Singh**, Shiv Bolan, James O'Connor, Haochen Zhao, Sabry M. Shaheen, Hocheol Song, Kadambot H.M. Siddique, Hailong Wang, M.B. Kirkham, Jörg Rinklebe, (2022) Mobilization of contaminants: Potential for soil remediation and unintended consequences. ***Science of the Total Environment,*** 839, p. 156373. *https://doi.org/10.1016/j.scitotenv.2022.156373* (Q1, IF:8.0)

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Book chapters

1. Shrirang R. Maddalwar, Swati Yadav, Mohit Mishra, Apurva Mishra, Ankush Sawarkar, **Lal Singh**, (2024). Application of Biochar for Achieving Carbon Neutrality in **Biochar Amendments for Environmental Remediation**. *https://doi.org/10.1201/9781003344803-8*
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12. **Lal Singh**, Sanjog T Thul, T Mohan Manu(2021) Development of bamboo biodiversity on mining degraded lands: A sustainable solution for climate change mitigation in **Phytorestoration of Abandoned Mining and Oil Drilling Sites** *https://doi.org/10.1016/B978-0-12-821200-4.00002-9*
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Conference published paper

1. Sawarkar, A. D., Shrimankar, D. D., **Singh, L**., Agrahari, A., Lachure, S., & Bokde, N. D. (2023) Commercial Indian Bamboo Species Classification on matK DNA Barcode Sequences using Machine Learning Techniques with K-mer in **2023 International Conference on Computer, Electronics & Electrical Engineering & their Apllications (IC2E3)** *https://doi.org/10.1109/IC2E357697.2023.10262781*
2. Sawarkar, A. D., Shrimankar, D. D., **Singh, L**., Agrahari, A., Lachure, S., & Bokde, N. D. (2023) Commercial Clustering of Indian Bamboo Species Using Machine Learning techniques in the Journal **IEEE Xplore,** *https://doi.org/10.1109/PCEMS58491.2023.10136094*
3. Prafulla Soni, Nirmal Ram, **Lal Singh** (2009) Shisham (Dalbergia sissoo) Mortality- Ecological Causes and Concerns in the Journal **IV National Forestry Conference**
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5. Prafulla Soni, **Lal Singh** (2008) Landscape Restoration in mined areas -An ecological approach in **Homi Bhabha Centenary DAE-BRNS national symposium on "Landscaping for Sustainable Environment.**

Honor and Awards

CSIR-NEERI 2024
Best Senior Scientist in NEERI

Bamboo Society of India 2023
Fundamental Contribution in Bamboo sector

CSIR-NEERI 2018
Best Junior Scientist in NEERI

Forest Research Institute 2009
Best Presentation Award

Membership in Committees

Chandrapur Forest Academy of Administration, Development & Management, Chandrapur 2024
Council Member

POST DISASTER NEEDS ASSESSMENT 2023
Team Member

Membership in Professional Bodies

Western Ghat Researcher Association of Agricultural Sciences and Technology (RAAST)	2025
The Indian Botanical Society	2025
Vigyan Bharti Life Member	2019
Bamboo Society of India Life Member	2017
Indian Science Congress Life Member	2016

Editorial Board Member

Advances in Bamboo Science Senior Editor	2023
Frontiers in Microbiology Associate Editor	2021
Frontiers in Energy Research Review Editor	2021
Frontiers in Sustainability Review Editor	2021

List of Articles Published in National as well as International News

Significant National and International media outlets have recognized and published the success of the ***Eco-Rejuvenation Technology (ERT)*** model for fly ash dump restoration, Mining dumps, urban wastelands and environmental regeneration:

S.No	Source	Title	Published Date
1.	AMAR UJJALA	Discussion on the Impacts on the Ecosystem	24-Feb-11
2.	AMAR UJJALA	Discussion on the Impacts on the Ecosystem	24-Feb-11
3.	DAINIK JAGRAN	A team of scientists arrived from Dehradun	March 6, 2011
4.	DAINIK JAGRAN	Team of Scientists Arrives from Dehradun	6-Mar-11
5.	DAINIK JAGRAN	Flourishing Greenery on Once Barren Slopes	16-Jul-11
6.	LOKMAT (SHAHR VISHESH)	A Single Site Hosting 50 Varieties of Bamboo	October 27, 2016
7.	THE HITAVADA	NEERI revives barren land at khapri village	Oct 27, 2016
8.	THE HITAVADA	NEERI, RTMNU discuss climate change policies	March 27, 2017
9.	THE HITAVADA	Scientists should work for Society	12-May-17
10.	NAGPUR NAVBHARAT PLUS	Cultivating Wealth on Barren Land: NEERI Developing a Bamboo Plot on 20 Hectares	Oct 03, 2017
11.	THE HITAVADA	President clears ordinance amending Forest Act; bamboo not a ‘Tree’ anymore	November 24, 2017
12.	THE HITAVADA	President gives assent to bankruptcy code ordinance	24-Nov-17
13.	DAINIK BHASKAR	NEERI’s Involvement Calls for Enhanced Judicial Cooperation in Safeguarding the Environment	April 09, 2018
14.	PUNYA NAGRI	NEERI’s Green Festival – A Call for Scientific Awareness	April 09, 2018
15.	SAKAL NEWS	Undertake People-Centric Research	April 09, 2018
16.	LOKMAT (MARATHI)	The end objective must always be a part of a researcher's vision	April 09, 2018
17.	DESHONNTI	Scientists should serve as role models for	April 09, 2018

	NEWS	farmers – NEERI's Harit Jayanti Mahotsav	
18.	MAHARASHTRA TIMES	Let Agricultural Innovation Take Priority	9-Apr-18
19.	THE HITAVADA	Think for society; work for nation	9-Apr-18
20.	LOKMAT	Keep the End Beneficiary at the Core of Research	9-Apr-18
21.	THE HITAVADA	Plan to bring farmers in bamboo cultivation	24-Apr-18
22.	THE HITAVADA	State- Level panel formed for national bamboo mission	August 1, 2018
23.	LOKMAT	No Need for NRC in Tripura	August 01, 2018
24.	THE HITAVADA	Deb visit CSIR-NEERI, discusses environmental issues of Tripura	3-Aug-18
25.	THE HITAVADA	Cabinet gives nod to form Bamboo promotion Agency	8-Aug-18
26.	THE HITAVADA	Nair's Essence International School	September 26, 2018
27.	THE HITAVADA	Society must work together to save biodiversity	6-Feb-19
28.	THE HITAVADA	Farmers should go for organic farming: Om Jajodia	30-Apr-19
29.	THE HITAVADA	CSIR-NEERI's brainstorming session today	Sep 18, 2019
30.	THE HITAVADA	Bamboo has tremendous untapped potential to transform rural economy	Sep 20, 2019
31.	THE HITAVADA	IISF brings together students, researchers, innovators and public	20-Oct-19
32.	THE HITAVADA	Students thrilled to discover mathematics during 'Jigyasa'	6-Feb-20
33.	THE HITAVADA	Erstwhile wasteland now a green patch, courtesy NEERI	Jan 20, 2021
34.	TIMES OF INDIA	Mitigating flyash pollution & rejuvenating degraded land	20-Jan-21

35.	LOKMAT	A green forest blooming on the thermal power plant flyash dump sites	20-Jan-21
36.	TARUN BHARAT	Bamboo production is beneficial for the economy.	17 April 2023
37.	THE HITAVADA	Need – based research important today: Gadkari	17 April 2023
38.	LOKMAT	Mass production will lay the foundation for a thriving bamboo economy	April 17, 2023
39.	DAINIK BHASKAR	Mass Production of Bamboo Will Generate Employment: Gadkari	17-Apr-23
40.	LOKMAT	Mass Production of Bamboo Will Generate Employment: Gadkari	17-Apr-23
41.	LOKSATTA	Honouring the 'Trimurti' for Outstanding Contributions in the Bamboo Sector	17-Apr-23
42.	SAKAL NEWS	Mass Production of Bamboo Is Essential: Gadkari	17 April, 2023
43.	SAKAL NEWS	Mass Production of Bamboo Is Essential: Gadkari	17 April, 2023
44.	NAVJYOTI NEWS	There is a need to purify the soil to improve the quality of medicinal plants	23 November 2023
45.	TARUN BHARAT (APLA NAGPUR)	Discussion on the Future Prospects of the Bamboo Sector	28 November 2023
46.	THE HITAVADA	CSIR-NEERI Celebrates 66th foundation day	April 09, 2024
47.	LOKMAT (MARATHI)	45 percent of land in the country has become suitable for cultivation	06 June 2024
48.	DESHONNTI NEWS	Preserving biodiversity is the need of the hour, asserts NEERI Chief Scientist Dr. Lal Singh	03 August 2024
49.	LOKMAT NEWS	Vidarbha of Life	03 August 2024
50.	DAINIK BHASKAR	Together, we will explore new paths of research	19 August 2024
51.	LOKMAT	The Stability of Global Temperatures Is	5-Oct-24

		Under Threat	
52.	PUNYA NAGRI	Mass production of bamboo is the need of the hour: Gadkari	17 April 2025
53.	THE HITAVADA	VIA's workshop on "Bamboo- opportunities in the Vidarbha" on April 26	April 23, 2025
54.	NAVBHARAT	VIA me Bamboo Vishay par charcha satra	01 May 2025
55.	SAKAL AGROWON (MARATHI)	Environmental protection should be achieved through bamboo cultivation	29 May 2025
56.	LOKMAT SAMACHAR (MARATHI)	Forest on the heap of stored waste – Employment for 460 women	05 June 2025
57.	LOKMAT TIMES (ENGLISH)	Green Miracle: Scientist Turns Toxic Fly Ash Dumps into Forests	05 June 2025
58.	LOKMAT SAMACHAR (MARATHI)	1,500 hectares of barren land in the country transformed into forest	09 June 2025
59.	THE BETTER INDIA (ENGLISH)	How a Scientist Is Growing Bamboo Forests To Heal Maharashtra's Villages	01 July 2025
60.	DAINIK BHASKAR (HINDI)	ERT Model: Giving New Life to Fly Ash Polluted Land	04 July 2025
61.	ANI	Green Miracle on Grey Land: NEERI Scientist Transforms Wasteland into Lush Bamboo Forest at Koradi	17 July 2025
62.	THE HITAVADA	Bamboo plantation can transform Bhandewadi	25 July 2025