1. **Name of the Laboratory :**

   CSIR-Central Road Research Institute New Delhi, India

2. **Name : Dr. Ravindra Kumar, Phd**

3. **Date of Birth: 26-12-1974 Nationality: Indian**

4. **Current Position and Address:** ***Chief Scientist and Professor AcSIR***

Room Number , N-113

Transportation Planning and Environment Division,

Traffic and Transportation Building,

CSIR-Central Road Research Institute New Delhi,

Delhi-Mathura Road, New Delhi-110025 (India)

Email : ravinder.crri@nic.in, ravinder@csir.res.in, Mobile : 9654732909

5. **Educational Qualifications:** *Post Doc.(Transportation Engineering) Transport Research Institute, United Kingdom 2014-2015*

6. **Educational Qualifications in Chronological Order**

Sl. No.	Degree/Certificate	Year of Passing	Status	University/Institute	Subjects
1	Post Doctorate	2015	Awarded	Transport Research Institute (TRI), Edinburgh, United Kingdom	Travel Behavior Study
2	Doctor of Philosophy	2009	Awarded	Edinburgh Napier University (ENU), United Kingdom	Modelling motorcycle driving cycles and emissions in Edinburgh
3	Doctor of Philosophy	2002	Course Completed	IIT Delhi	Transportation Engineering
4	Master of Engineering	1997	Ist Class Distinction	IIT Roorkee (Formerly University of Roorkee, UP)	Civil Engineering with Transportation Engineering Specialization
5	Bachelor of Science in Engineering	1995	Ist Class	NIT Jamshedpur (Formerly Regional Institute of Technology)	Civil Engineering

7. Academic/Research Experience/Employment

SI. No	From	To	Name of Organization	Position held
1	6 August 1997	31st December 2001	CSIR-CRRI	Scientist B -Merit
2	1st January 2002	31st December 2006	CSIR-CRRI	Scientist C
3	1st January 2007	31st December 2010	CSIR-CRRI	Scientist E1-Merit
4	1st January 2011	31st December 2015	CSIR-CRRI	Principal Scientist & **Associate Professor ACSIR in Faculty of Engineering Science , Acting Head RDM**
5	1st August 2013	30th June 2014	Transport Research Institute, Edinburgh, United Kingdom	Research Fellow
6	1st January 2016	31 December 2020	CSIR-CRRI	Senior Principal Scientist & **Professor ACSIR, Acting Head TPE**
7	1st May 2018	30th April 2020	CSIR-CRRI	**Head of Division,** Transportation Planning and Environment
8	1st November 2022	31st December 2024	CSIR-CRRI	**Head of Division**, Information Liaison and Training
9	1st January 2021	Till date	CSIR-CRRI	Chief Scientist

8. Areas of Specialization:

Transportation engineering with application to AI, Digital Twin, GIS-based Integrated Transportation network development planning, Environmental Impact Assessment, sustainable Green Highway and Transportation Sustainability Indicators and Eco-friendly transport, vehicular emission and driving pattern, and Transportation Data Science with Analytical techniques, Human Resource Development, Skill Development

9. Honors/Awards/Recognitions received: 65 (Award-27, *Fellowship: 7 (worth 82 Lakh)* Recoganisation-28,)

Awards-27 ,

1) ***Best Swachhta Pakhwada Award*** *(2024) – For exemplary contribution to cleanliness and hygiene initiatives.*
2) ***Fellow Award*** *– Fellow Institution of Engineers (India) (2024) – For outstanding contributions to the Transportation engineering profession.*
3) ***Certified Road Safety Auditor 2024****-MORTH and CRRI*
4) ***Best Display Division Award*** *– CSIR–CRRI (2023) – For excellence in technical presentation and public engagement.*
5) ***Best Display Award (2023)*** *– For excellence in scientific communication and outreach.*
6) ***CIDC Vishwakarma Award (2021)*** *– For distinguished performance in infrastructure research and innovation.*

7) ***Best Paper Award*** *– 8th International Conferences on Transportation Systems Engineering & Management (CTSEM) (2021) – For technical excellence in transportation systems research.* Cash Award Rs3000/-
8) ***Best Divisional Display Award*** *– CSIR–CRRI (2020) – For top performance in annual scientific exhibition.*
9) ***Award for Best Work in Hindi*** *– CSIR–CRRI (2020–21) – For leadership in promoting Hindi in scientific and official work.*
10) ***SKOCH Order of Merit Gold Award*** *– Best Mobility Project (2019) – Under Gold Category for a top-ranking national mobility project.*
11) ***Best Division Display Award –*** *CSIR–CRRI (2019) – For technical innovation and team leadership.*
12) ***Best Division for Hindi Working*** *– CSIR–CRRI (2019) – For excellence in official and technical communication in Hindi.*
13) **Best Scientist Award 2019** for Hindi work under Nideshak Puraskar Yojna CRRI. Cash Rs3000/
14) ***Best Paper Award*** Mukti Advani, Purnima Parida, Niraj Sharma, Ravindra Kumar and P.V. Pradeep Kumar (2019), "Estimation of Fuel Consumption during Idling of Vehicles at Bhikaji Cama Intersection and Savings after Employing Suitable Mitigation Measures", International Conference of Transportation Infrastructure Projects: Conception To Execution, January 2019. (Received BEST PAPER AWARD).
15) ***Best Paper Award*** *– ICSCAAIT (2018) – For a paper on vehicle detection and counting using image processing.*
16) ***First prize*** in Hindi ***पब्लिक परिवहन व्यवस्था की सक्षमता की ट्रांजिट स्टॉप पर माप आधारित गणना*** , Dr. S. Padma, Dr J Natraju, Dr E Madhu, Dr Ravindra Kumar 2018 -1019
17) ***Nominated –from CRRI for Raman Research Fellowship****, CSIR–CRRI (2017–18) – For international research exposure in transportation studies.*
18) ***Highly Commendable Paper Award*** *– Emerald Publishing, UK (2015) – For academic excellence in transport behavior research.*
19) ***Curriculum Vitae*** selected for IBC Cambridge as ***Top 100 Scientist 2016***
20) ***DST International Travel Grant – Istanbul, Turkey (2013)*** *– For participation in international research conference.*
21) ***Certified Researcher*** *– International Union of Research (IUR), IULTCS (2013) – For interdisciplinary research contributions.*
22) ***Fellow*** *– Association of British Scholars (British Council India) (2012) – For academic excellence and leadership.*
23) ***Biography*** *in Marquis Who Who in World 2011*
24) ***Young Scientist Award*** *– Transportation Engineering, CSIR–CRRI (2011) – For promising early-career contributions.*
25) ***Selected Researcher – CSIR-EMPOWER Scheme****, CRRI (2010) – For independent research under young scientist initiative.*
26) *Aerosol Society UK* ***International Travel Grant*** *–for Bahrain Visit(2010)- £1000*
27) *Royal Academy of Engineering, UK (2008)* ***International Travel Grant*** *— £1300 grant to present research internationally.*

Fellowship National (3 No) & International (4 No) =7 No

28) ***International Fellowship Award*** *– ICPLST, Taiwan (2024) – For international research collaboration; valued at ₹5 lakhs.*
29) ***Fellowship – Advanced Research on Travel Behavior and Safety***, University of Edinburgh *(2014–2015)- Rs25 Lakh*
30) ***AICTE Fellowship*** *– Sponsored FDP on Deep Learning in Big Data Analytics (2017) – 15-day national faculty development program. 2 Lakh*

31) ***Research Fellowship Award*** *– Edinburgh Napier University, UK (2011) – For research on Lothian Bus driving cycles and aqua solution use in public transport. 3 Lakh*
32) ***Fellowship*** *– ACTIV Programme on Technology Commercialization*, Venture Centre, Pune *(October 2010 , 1 Lakh*
33) ***Commonwealth fellowship and NOS fellowship Award*** *– Ph.D. Studies, Government of India (2006-2009) – For doctoral study support abroad. 55 Lakh*
34) ***Postgraduate Scholarship (GATE)*** *– Ministry of HRD, Government of India (1995-1997) – National scholarship for postgraduate engineering studies 1 Lakh*

Recognitions Received-27 No

35) ***Chairman*** *One Week One Theme OWOT 2024*
36) ***Chairman*** *One week One Lab OWOL 2023*
37) ***Chairman*** *Screening Committee for Normalization 2024*
38) ***Chairman*** *Staff Permanent Committee 2024*
39) ***Member*** *– Scientific CET Committee*(2022)
40) ***Chairman*** *– Scientific Investigation Board (SIB), CSIR–CRRI, New Delhi*(2022)
41) ***Nominated Head of Department***– *Information Liaison and Training (ILT), CRRI*(2022-2024)
42) ***Head of Peer Review Committee*** (ISTAG), CRRI, 2022-2024
43) ***Nodal Officer*** *– Visit of Hindi Rajbhasha Parliamentary Committee to CSIR–CRRI*(2021)
44) ***Youngest Chief Scientist*** *of CSIR-CRRI (2021) with 46 years of age*
45) ***Editor*** *– Special Issue,* Bhartiya Vaigyanik Evam Audyogik Anusandhan Patrika, "Role of Science and Technology in Infrastructure: Challenges in 21st Century", Vol. 28, Issue 1, pp. 1–115 (June 2020)
46) ***Organizing Secretary*** *– National Hindi Workshop*, CRRI–MoES, "Role of Science and Technology in Infrastructure" (2020)
47) ***Keynote Speaker*** *– Smart Transportation in Smart City*, Manav Rachna University (June 2019)
48) ***Project Investigator*** *– CSIR Mission Mode Project*, WP7, Task 7.1 on Mass Housing Environment Impact (2018–2020)
49) ***Nominated Head of Division*** *– Division of Transportation Planning & Environment (TPE), CRRI*(2018-2020)
50) ***Chief Guest*** *– Smart Transportation in Smart City*, Sharda University (June 2018)
51) ***Keynote Lecture*** *– Application of GIS in Construction Management*, MITS Gwalior, TEQIP-II (March 2017)
52) ***Workshop Coordinator*** *– EARNOVER*, Vehicular Emission Research Network under Auto Fuel Committee (2017)
53) ***Member*** *– Selection Boards for S&T, Admin, and Project Staff at CRRI*(2016–2018)
54) ***Expert Lecture*** *– Driving Cycle and GIS*, SVNIT Surat under TEQIP (May 2016)
55) ***Special Lecture*** *– AHP-based Evaluation of Sustainable Transport*, NIT Patna (September 2016)
56) ***Awarded*** *– ₹1.25 Crore Thematic Road Asset Management System Project*, RCD Bihar (2016)
57) ***Keynote Speaker*** *– Smart Cities Conference (SSCI)*, NISPANA, Bangalore (September 2015)
58) *Work Package Leader – CSIR SUSTRANS Project*, WP1 and WP8, ₹22 Crores (2013–2017)
59) *Work Package Leader – ELSIM Project*, WP5, Economic Loss Due to Idling Vehicles, ₹3.7 Crores (2013–2017)
60) *Special Lecture – Urban Transport Planning*, Indian Institute of Administration (2015)
61) ***Expert member***, Urban Transport Planning Tool Kit 2013 of IUT
62) *Panelist – 10th WASD International Conference*, Abu Dhabi (November 2013)
63) *Appointed – Team Leader (Northeast Region), GIS-based National Highway Inventory (MORTH)*, ₹10 Crores (2007–2012)
64) ***Awarded*** *– CSIR-EMPOWER Project on Micro-simulation-based Driving Cycle (Delhi)*(2010)

10. Professional Affiliations:-23 No

1) ***Member***, *Human Resource & Technology Development Committee (G-2), IRC [2025–2027]*
2) ***Life Member***, *Indian Building Congress (IBC) [2025]*
3) ***Fellow,*** *ICPLST – International Center for Land Policy Study and Training, Taiwan [2024]*
4) ***Fellow***, *Institution of Engineers (India) [2024]*
5) *Elected* ***Council Member***, *Indian Road Congress (IRC) [2023–2024]*
6) *Governing Body* ***Member***, *Master Mentor Geo-enabling for Indian Scholars (MMGEIS) Initiative [2023–Present]*
7) ***Member***, *DHI and DST Consortium on Electric Vehicles – Coordinated by TERI [2022–Present]*
8) ***Member,*** *GIS Consortium [2021–Present]*
9) ***Life Member,*** *Indian Geotechnical Society (Delhi Chapter) [Active since the 2020s]*
10) ***Expert Member***, *E-Highway Committee, NITI Aayog [2019–Present]*
11) ***Member,*** *Transport Working Group, NITI Aayog (Subcommittee on Transport) [2019–Present]*
12) ***Governing Body Member,*** *Innovative Institute for Development and Education of All [2019–Present]*
13) ***Member,*** *World Conference on Transport Research (WCTR) Society – Free Membership [2019]*
14) ***Member,*** *Transport Research Institute, Edinburgh Napier University, UK [Since before 2019]*
15) ***Member,*** *Chartered Institute of Logistics and Transport (CILT), UK [Since before 2018]*
16) ***Member,*** *Institution of Highway and Transportation (IHT), UK [Since before 2017]*
17) ***Advisory Panel Member,*** *3rd Edition of Sustainable Smart Cities India, Bangalore [2015–2018]*
18) ***Member, Empowered Committee,*** *National Rural Roads Development Agency (NRRDA), Ministry of Rural Development, Government of India [2010–2016]*
19) ***International Scientific Steering Committee,*** *USA, International Association of Maritime Economists (IAME) – [2014]*
20) ***Life Member,*** *Association of British Scholars (India) [Since before 2016; ongoing]*
21) ***Life Member,*** *Institute of Urban Transport (IUT) [Since before 2016; ongoing]*
22) ***Life Member,*** *Indian Road Congress (IRC) [Since before 2016; ongoing]*
23) ***Expert Member, Sub-group on*** *"Adopting GIS Architecture in Rural Roads including R&D and Environment" – Planning Commission of India [2013]*

11. *(a) List of Research Publications including popular (Total Publication 152) with SCI Total Value Total SCI Index Value = 37.85 for 38 in Journal Paper & 114 no in Conference

a. Journal, National International and Peer Reviewed

1. Sharma, H., Mathur, D., Kumar, R., & Singh, S. K. (2024). Evaluating transportation sustainability in Ajmer, Rajasthan: An indicator-based approach. *SKIT Research Journal*, 14(2), 70–76. https://doi.org/10.47904/IJSKIT.14.2.2024.70-76

2. Kumar, R., Chand, S., Saini, R., & Sharma, H. (2024). Sustainable driving: Zero-emission vehicles & eco-practices. *Journal of Environmental Toxicology Research*, 1(1), 1–12. https://doi.org/10.59462/JETR.1.1.103

3. Sithananthan, M., Kumar, R., Maheshwari, M., & Saxena, D. (2022). Real-world emissions and fuel economy of motorcycles. *SAE Technical Paper*, 2022-28-0435. https://doi.org/10.4271/2022-28-0435

4. Singh, M., & Kumar, R. (2021). Traffic analysis and forecast for Meghalaya road network. In *Recent Advances in Transportation Systems Engineering and Management* (pp. 657–672). Springer.

5. Kumar, R., Mishra, R. K., Chandra, S., & Hussain, A. (2021). Evaluation of urban transport-environment sustainable indicators during Odd–Even scheme in India. *Environment, Development and Sustainability*, 23(12), 17240–17262. https://doi.org/10.1007/s10668-021-01353-9**SCI 4.7**

6. Bagul, T., & Kumar, R. (2021). Auto rickshaw driving cycle: Present and future emissions. *Current **Sci**ence*, 121(4), 472. **SCI 1.102**

7. Bagul, T. R., Kumar, R., & Kumar, R. (2021). Real-world emission and impact of three-wheeler electric auto-rickshaws in India. *Environmental **Sci**ence and Pollution Research*, 28(48), 68188–68211. https://doi.org/10.1007/s11356-021-14805-6 **SCI**- 4.3

8. Ravi Sekhar, C., Sharma, N., Advani, M., & Kumar, R. (2021). Quantification of reduction in air pollution due to bypassing traffic in Delhi, India. *Current Science*, 120(10), 1600–1610.**SCI**1.102

9. Sithananthan, M., & Kumar, R. (2021). A framework for development of real-world motorcycle driving cycle in India. *Journal of Automobile Engineering (Proc. IMechE Part D)*, 235(6), 1497–1515. **SCI** 1.57

10. Kumar, A., & Kumar, R. (2020). Predictability measurement for travel time sequence using Lempel-Ziv and LCS algorithm. *Bharatiya Vaigyanik evam Audyogik Anusandhan Patrika*, 28(1), 19–24.

11. Parmar, J., Das, P., Azad, F., Dave, S., & Kumar, R. (2020). Evaluation of parking characteristics: A case study of Delhi. *Transportation Research Procedia*, 48, 2744–2756. 2.8 Cite Score

12. Saiyad, G., Minal, Kumar, R., & Rathwa, D. (2020). Trips generated by rickshaw pullers: A case study of Delhi. *Transportation Research Procedia*, 48, 2296–2312. 2.8CiteScore

13. Justin, R., & Kumar, R. (2018). Vehicle detection and counting using image processing in Python. *International Journal of Electrical Electronics & Computer **Sci**ence Engineering*, ICSCAAIT Special Issue, 141–147.

14. Bagul, T. R., Patil, K., Kote, A., Balpgold, B. S., Kumar, R., & Kumar, R. (2018). Analysis of auto rickshaw as intermediate paratransit. *International Journal of Pure and Applied Mathematics*, 118(24), 1–10. **SCI**-0.23.

15. Kumar, R., Parida, P., Errampalli, M., & Bharat Kumar, A. V. A. (2017). Does connectivity index of transport network affect driver delay? *Transportation Research Procedia*, 25, 4988–5002. Cite Score2.8

16. Kumar, R., Parida, M., &Parida, P. (2017). Transport infrastructure for smart cities. *Journal of the Institute of Town Planners, India*, 13(2), 32–47.

17. Al-Atawi, A. M., Kumar, R., & Saleh, W. (2016). Transportation sustainability index for Tabuk city: An AHP approach. *Transport*, 31(1), 47–55. **SCI-1**

18. Kumar, R., Parida, P., Tomar, S., & Chaudhary, S. (2015). Estimating emissions during idling using MOVES software for Indian conditions. *Bharatiya Vaigyanik evam Audyogik Anusandhan Patrika* 23(1), 1–16.

19. Appiah, J., Galevko, A., Saleh, W., & Kumar, R. (2015). Bus following model: Case study in Edinburgh. *International Journal of Transportation*, 3(2), 7–16. ***Scopus Index***

20. Kumar, R., & Saleh, W. (2015). Impact of motorcycle driving behavior on emissions and fuel use. *International Journal of Transportation*, 3(2), 31–44... ***Scopus Index***

21. Kumar, R., Parida, P., Shukla, S., & Saleh, W. (2015). MOVES model for idling emissions at signalized junctions. *World Journal of Science, Technology and Sustainable Development*, 12(1), 25–38. **SCI 0.507**

22. Kumar, R., Madhu, E., Maan, A., Sinha, S., & Akhtar, N. (2015). Exposure factor estimation for transport-related air/noise pollution. *World Journal of **Sci**ence, Technology and Sustainable Development*, 12(4), 269–280. **SCI 0.507**

23. Kumar, R., Madhu, E., Dahiya, A., & Sinha, S. (2015). AHP-based sustainability indicators for public transport in developing countries. *World Journal of **Sci**ence, Technology and Sustainable Development*, 12(4), 281–293. **SCI 0.507**

24. Kumar, R., Parida, P., & Saleh, W. (2014). Lead vehicle type and following headway in mixed traffic. *World Journal of Science, Technology and Sustainable Development*, 11(1), 28–43. **SCI 0.507**

25. Al-Atawi, A. M., Kumar, R., & Saleh, W. (2014). Accident reduction framework in Saudi Arabia. *World Journal of **Science**, Technology and Sustainable Development*, 11(3), 214–223. **SCI 0.507**

26. Kumar, R., Parida, P., Tiwari, D., & Gangopadhyay, S. (2013). Idling emissions and mitigation at intersections. *Journal of Traffic and Logistics Engineering*, 1(2), 184–190.

27. Kumar, R., Parida, P., Durai, B. K., & Saleh, W. (2013). Real-world driving cycles in heterogeneous traffic. *World Journal of Science, Technology and Sustainable Development*, 10(1), 66–80. **SCI 0.507**

28. Kumar, R., Durai, B. K., Parida, P., Saleh, W., & Gupta, K. (2012). Motorcycle driving cycle using micro-simulation. *Journal of Environmental Protection*, 3(9A), 1268–1273. SGIP 1.35

29. Kumar, R., Gupta, K., & Durai, B. K. (2011). Effect of driving cycle on emissions in BRT (Hindi). *Sagar Bodh*, 4, 89–98.

30. Kumar, R., Gupta, K., &Durai, B. K. (2011). Real-world driving cycles in Delhi BRT corridor. *Bharatiya Vaigyanik evam Audyogik Anusandhan Patrika*, 19(2), 74–182.

31. Kumar, R., Durai, B. K., Saleh, W., & Boswell, C. (2011). Emission comparison across motorcycle driving cycles. *Transportation Research Part D*, 16(1), 61–64. **SCI 7.4**

32. Kumar, R., Saleh, W., & Boswell, C. (2010). Modelling motorcycle emissions and driving cycles. *World Journal of **Science**, Technology and Sustainable Development*, 7(4), 357–368.**SCI 0.507**

33. Saleh, W., Kumar, R., & Sharma, A. (2010). Driving cycles in Edinburgh and Delhi. *World Journal of **Science**, Technology and Sustainable Development*, 7(3), 263–274.**SCI 0.507**

34. Saleh, W., Kumar, R., Kirby, H., & Kumar, P. (2009). Real-world driving cycle for motorcycles in Edinburgh. *Transportation Research Part D*, 14(5), 326–333.**SCI 7.4**

35. Kumar, R., Singh, B., Jain, P. K., & Chaudhary, S. (2005). Platoon size and headway under Indian traffic. *Bharatiya Vaigyanik evam Audyogik Anusandhan Patrika*, 13(1), 91–97.

36. Kumar, R., Jain, P. K., & Gupta, K. (2003). GIS-based property and road information system. *Journal of Building Road Congress*, 10(3), 23–32.

37. Sikdar, P. K., Durai, B. K., & Kumar, R. (2002). Rural road planning (IRC SP: 20-2002): Chapter contribution. *Indian Roads Congress*, New Delhi.

38. Chandra, S., & Kumar, R. (2001). Headway modeling under mixed traffic conditions. *Road and Transport Research*, 10(1), 61–71. **SCI 1.**

b. Conference International and National (No 11)

39. Kumar, R. (2025, April 25). Road network planning using GIS. Presented at the Geospatial World Forum 2025, Madrid, Spain. (Forum held from April 22–25, 2025)-I Digital

40. Kumar, R. (2025, May 8). Sustainability of the Digital-Cyber World. Attended one-day workshop organized by INSA and the Kotak School of Sustainability, IIT Kanpur, held at The Imperial Hotel, New Delhi.

41. Kumar, R. (2025). Sustainability-based planning in road infrastructure. Keynote address delivered at the International Conference on Innovation in Infrastructure Materials & Sustainability (IIMS-2025).

42. Padma, S., Velmurugan, S., Kumar, R., & Yendrembam, A. (2024). Area-based cross classification measure of social vulnerability with accessibility to health services and a heterogeneous customer satisfaction index for IPT services in Imphal. In Recent Advances in Traffic Engineering – Select Proceedings of RATE 2022, Lecture Notes in Civil Engineering. Springer, India. https://doi.org/10.1007/978-981-99-4464-4_32

43. Kumar, R., Raghubansi, R., & Verma, P. (2024). Navigating green routes: Transforming Meghalaya agriculture through integrated transport infrastructure planning. European Conference on Renewable Energy and Green Chemistry (ECRG 2024), UK. [Digital]

44. Kumar, R. (2024, November 21–22). Integrated transport network planning. Conference on Road Development in India, India Infrastructure, Mumbai. [Digital]
45. Sharma, H., Kumar, R., Mathur, D., & Singh, S. K. (2024). Accessing transportation sustainability using an indicator-based method: A case of Delhi, India. International Conference on Sustainable Materials, Environment and Technologies under Climate Change Scenario (SMET-2024), India. [Hybrid]
46. Padma, S., Velmurugan, S., Kumar, R., Parida, M., Errampalli, M., & Kayitha, R. (2024, July 19–20). Investigating the mode choice for work trip data of Imphal. 10th International Conference on Transportation Systems Engineering and Management (CTSEM 2024), VNIT Nagpur, India. [Digital]
47. Chand, S., Kumar, R., & Akhtar, N. (2024, October 15–18). Assessing traffic safety and efficiency: A comprehensive study of traffic circulation and transport infrastructure at TCIL Plant, Jamshedpur, India. IRF World Congress 2024. [Digital]
48. Lashkari, M., Chand, S., Narulkar, S. M., & Kumar, R. (2024, October). Optimizing intersection performance: Design and evaluation of improvement proposals in heterogeneous traffic conditions. IRF World Congress 2024. [Digital]
49. Akhtar, N., Chand, S., Kumar, R., & Ravisekhar, C. (2024, October 15–18). Strategies for tackling noise pollution: A comprehensive noise mapping in Jodhpur city. IRF World Congress 2024. [Digital]
50. Kumar, R. (2024, May 11). Impact of climate change on road infrastructure under the ambit of Assam PWD.
51. Kumar, R. Presented CRRI Achievement on National Technology Day, with Chief Guest Shri S.K. Nirmal, Secretary General, IRC (Former DG, Ministry of Road Transport and Highways), India.
52. Kumar, R. (2024). Route network planning in India: Possibilities for Hyperloop systems. Presented at the Global Hyperloop Conference, Indian Institute of Technology (IIT) Madras, "Parivahan" in April 2024 India.
53. Kumar, R. (2023, January 21–24). Screening of CRRI steel slag movies and posters. India International Science Festival 2022, Bhopal. [Online]
54. Sithananthan, S., Kumar, R., & Maheshwari, M. (2022). *Development of Indian motorcycle driving cycles: Evaluation for fuel economy and emissions*. International Association of Traffic and Safety Sciences (IATSS), Elsevier. Online
55. Sithananthan, M., Kumar, R., Maheshwari, M., &Saxena, D. (2022). *Real-world emissions of motorcycles in Delhi-NCR region, India*. SAE Northern India Section (NIS), TTTMS Conference 2022. [India]
56. Sithananthan, M., Kumar, R., &Maheshwari, M. (2022). *Admixture evaluation for fuel economy and emissions by new Indian motorcycle driving*. National Conference on Internal Combustion Engines and Combustion (NCICEC 2022), NCICEC-22. [India]
57. Ghosh, S. K., Roy, U. K., Parida, M., & Kumar, R. (2022). *Urbanization and vehicular traffic in hilly town and implementation of urban green space using geospatial techniques*. ISRS Annual Convention 2022. [India]
58. Sithananthan, M., Kumar, R., &Maheshwari, M. (2022). Development of Indian Motorcycle Driving Cycles: Evaluation for Fuel Economy and Emissions. International Association of Traffic and Safety Sciences (IATSS), Elsevier.
59. Sithananthan, M., Kumar, R., Maheshwari, M., &Saxena, D. (2022). Real-World Emissions of Motorcycles in Delhi-NCR Region, India. SAE Northern India Section (NIS) TTTMS Conference 2022.
60. Sithananthan, M., Kumar, R., &Maheshwari, M. (2022, December 12–14). Real-World Motorcycle Driving Cycle for Fuel Economy and Emissions Estimation. 11th International Conference on Industrial Tribology (ICIT), New Delhi.
61. Sithananthan, M., Kumar, R., &Maheshwari, M. (2022). Admixture Evaluation for Fuel Economy and Emissions by New Indian Motorcycle Driving Cycle. National Conference on Internal Combustion Engines and Combustion (NCICEC 2022).
62. Padma, S., Velmurugan, S., Kumar, R., &Yendrembam, A. (2022). Area-Based Cross Classification Measure of Social Vulnerability and Accessibility to Health Services, and Customer Satisfaction Index for IPT Services in Imphal. RATE 2022.
63. Ghosh, S. K., Roy, U. K., Parida, M., & Kumar, R. (2022). Urbanization and Vehicular Traffic in Hilly Towns: Implementation of Urban Green Space Using Geospatial Techniques. ISRS Annual Convention 2022.

64. Padma, S., Velmurugan, S., Kumar, R., &Yendrembam, A. (2022, November 11–12). *Area-based cross classification measure of social vulnerability and accessibility to health services and a heterogeneous customer satisfaction index for IPT services in Imphal*. RATE-2022, SVNIT, Surat. [Online]

65. Kumar, R. (2022, November 11–12). *MOU related activity with CRRI and SVNIT*. Conference on Recent Advances in Traffic Engineering (RATE-2022), SVNIT, Surat. [Online]

66. Sithananthan, M., Kumar, R., Maheshwari, M., & Saxena, D. (2022, November 16–19). Real-world emissions of motorcycles in Delhi-NCR region. SAE Northern India Section (NIS), TTTMS Conference 2022. [Online]

67. Kumar, R. (2022, November 22). Panel discussion on Sustainable Mobility. National Conclave, Seminar Hall, IIT Delhi. [Online]

68. Sithananthan, M., Kumar, R., Maheshwari, M., &Saxena, D. (2022, December 12–14). Real-world emissions of motorcycles in Delhi-NCR region, India. 11th International Conference on Industrial Tribology (ICIT), IndiaTrib – 2022, New Delhi. [Online]

69. Singh, M., & Kumar, R. (2021, August 26–27). *Traffic analysis and forecast for Meghalaya road network*. 8th Online International Conference on Transportation Systems Engineering and Management (CTSEM 2021), Centre for Transportation Research, NIT Calicut. [Online]

70. Singh, M., & Kumar, R. (2021, August 26–27). Traffic Analysis and Forecast for Meghalaya Road Network. 8th Online International Conference on Transportation Systems Engineering and Management (CTSEM 2021), NIT Calicut. [Online]

71. Kumar, R., & Saini, R. (2021, August 26–27). Strategies to Reduce Vehicular CO_2 Emissions Using Zero Emission Vehicles and Economical Driving Methods. 8th CTSEM 2021, NIT Calicut.

72. Kumar, R. (2020, September 5). *Air pollution due to road traffic and its health impacts*. Kerala Highway Research Institute (KHRI), PWD Kerala, with IIT Chennai. [Online]

73. Kumar, R., & Das, P. (2019, July 17–19). Critical Review of the Current E-Vehicle Policy of Government of NCT Delhi. International Conference on Smart Cities (ICSC 2019), Seoul, South Korea. (Accepted).

74. Ghoslya, S., Advani, M., & Kumar, R. (2019, May 26–31). Integrated Transportation and Land Use Activities for Mass Housing to Increase Non-Motorized Trips. World Conference on Transport Research (WCTR 2019), Mumbai, India.

75. Saiyad, G., Minal, & Kumar, R. (2019, May 26–31). Trips Generated by Rickshaw Pullers and Trip Rate for Cycle Rickshaws: A Case Study of Delhi. World Conference on Transport Research (WCTR 2019), Mumbai, India.

76. Parmar, J., Das, P., Azad, F., & Kumar, R. (2019, May 26–31). Evaluation of Parking Characteristics – A Case Study of Delhi. World Conference on Transport Research (WCTR 2019), Mumbai, India.

77. Kumar, R. (2019, February 11–14). The Effect of Vehicle-Usage Controlling Policies on Vehicular Pollution. The Asian Conference on Science and Technology, Dubai, UAE.

78. **कुमार**, **र**. (2019, **सितंबर** 6). "**भारत में अवसंरचनात्मक विकास**: **भू-स्थानिक तकनीकी का उपयोग**". **राष्ट्रीय कार्यशाला**, '**आधार भूत ढांचेके विकास में विज्ञान और तकनीकी का योगदान**: 21**वीं सदी की चुनौतियाँ**', CSIR–CRRI, **नई दिल्ली।**

79. **गायकर**, **नेहा**, **बागुल**, **तुषार**, **मोरे**, **अशोक**, **कुमार**, **र**. (2019, **सितंबर** 6). "**प्लास्टिक कचरे से ऊर्जा उत्पादन**". **राष्ट्रीयकार्यशाला**, CSIR–CRRI, **नई दिल्ली।**

80. Kumar, R., & Das, P. (2019). Critical review of current electric vehicle policy of Delhi Government. International Conference on Smart Cities (ICSC 2019), Seoul. (I)

81. Mukti Advani, Purnima Parida, Niraj Sharma, Ravindra Kumar and P.V. Pradeep Kumar (2019), "Estimation of Fuel Consumption during Idling of Vehicles at Bhikaji Cama Intersection and Savings after Employing Suitable Mitigation Measures", International Conference of Transportation Infrastructure Projects: Conception To Execution, January 2019.

82. **कुमार,अ**.,& **कुमार,र**.(2019).**ज़िवकं प्रेसन तथा लॉन्गेस्ट कॉमन सबसीक्वन्स एल्गोरिद्म के संयोजन से यात्रा समय के अनुक्रम के लिए पूर्वानुमान की माप**", **राष्ट्रीयकार्यशाला – आधार भूत ढांचेके विकास में विज्ञान और प्रौद्योगिकी का योगदान**: 21**वींस दी की चुनौतियां**, 6 **सितंबर** 2019, **सीएसआईआर-सीआरआरआई**, **नईदिल्ली।**

83. Kumar, R. (2018, February 17). Reducing Emissions by Capping Number of Vehicles on Roads. Workshop on Vehicular Pollution and Traffic Management, Clean Air for Delhi Campaign, MOEF.

84. Verma, S., Kumar, R., & Melkania, N. P. (2018, August 11–12). Alternate Vehicle-Usage Controlling Policies and Their Effect on Air Pollutants – A Case Study of Delhi. Recent Advances in Traffic Engineering (RATE), SVNIT Surat.

85. Kumar, R. (2018, September 18). Vehicular Emission Reduction by Travel Demand Management. Workshop on Traffic Strategies for Management of Air Pollution, NISTADS, CSIR, New Delhi.

86. Kumar, R., Choudhury, N., Kumar, P., & Chandra, S. (2018, August 13–14). Video Image Processing-Based Traffic Counting and Classification. Hindi Technical Seminar, CSIR–SERC, Taramani, Chennai.

87. Kumar, R. (2018). Reducing emissions by capping number of vehicles on roads. Workshop on Vehicular Pollution and Traffic Management, Clean Air for Delhi Campaign, February 17, MoEF.

88. Kumar, R. (2018). Alternate vehicle usage controlling policies & their effect on vehicular pollution – A case study of Delhi. Recent Advances in Traffic Engineering, SVNIT Surat, August 11–12.

89. Bagul, T., Shingare, V., Suryavanshi, P., Kumar, R., & Kumar, R. (2017). Development of three-wheeler autorickshaw driving cycle for Indian city. CTRG, 2017.

90. Bagul, T., Shingare, V., Suryavanshi, P., Kumar, R., & Kumar, R. (2017). Development of Three-Wheeler Auto-rickshaw Driving Cycle for Indian Cities. Conference on Transportation Research Group of India (CTRG 2017), IIT Bombay.

91. Kumar, R., Bharat Kumar, A. V. A., Parida, P., & Madhu, E. (2016). Does the connectivity index of a transport network impact driver delay? 14th World Conference on Transport Research, Shanghai, China. (I)

92. Kumar, R., &Parida, P. (2016, August 6–7). Application of Geospatial Technology in Effective Planning of PMGSY. National Conference on 15 Years of PMGSY (FYPMGSY), IIT Roorkee, India.

93. Kumar, R., &Parida, P. (2016). Does connectivity index of transport network impact driver delay? 14th World Conference on Transport Research, China. (I)

94. Kumar, R., &Parida, P. (2016). Application of geospatial technology in effective planning of PMGSY. National Conference on 15 Years of PMGSY, August 6–7, IIT Roorkee.

95. Bharat Kumar, A. V. A., Kumar, R., Parida, P., Madhu, E., & Saleh, W. (2015). Network connectivity index and delay optimization. 7th International Symposium on Travel Demand Management, Tucson, Arizona, 13–15 April. (I)

96. Bharat Kumar, A. V. A., Kumar, R., Parida, P., &Madhu, E. (2015). Exploring public transport connectivity index and delay in Delhi. CTRG Conference, Kolkata.

97. Kumar, R. (2015). Smart transportation in smart cities. Sustainable Smart Cities India (SSCI), NISPANA, Bangalore, 3–4 September.

98. Kumar, R. (2015). Idling fuel loss and emissions at intersections and their mitigation measures. TEQIP-II FDP on Urban Environmental Challenges and Control Strategies (UECCS-2015), 13–17 July.

99. Kumar, R., Parida, P., & Lal, R. K**.** (2015, November 26–27). *Application of satellite imageries, road conditions, and inventory database in smart journey planning: A case study of a district in Bihar State, India*. Presented at the Smart Urban Mobility Conference, United Kingdom.

100. Kumar, R., Parida, P., Shukla, S., & Saleh, W. (2014, August). Idling emissions at signalized intersections – A case study in Delhi. WASD 2014 International Conference, Le Meridian Versailles, Montreal, Canada. (I)

101. Bharat Kumar, A.V.A., Kumar, R., Parida, P., &Madhu, E. (2015). Exploring public transport connectivity index and delay in Delhi. CTRG, Kolkata.

102. Kumar, R. (2014). Sustainability indicators for sustainable transport infrastructure development. Souvenir, 'Infrastructure Development in Bihar: Strengths, Opportunities, and Challenges', NIT Patna & ICE Patna.

103. Saleh, W., Al-Atawi, A., & Kumar, R. (2014). Road users' travel behavior and sustainable transport in Tabuk city, Kingdom of Saudi Arabia. International Conference on Sustainable Energy & Environmental Protection, Dubai. (I)

104. Kumar, R., Saleh, W., & Ocana, L. (2014). Impact of motorcycle driving behavior on fuel consumption and emissions. 46th Annual UTSG Conference, Newcastle University. (I)

105.Al-Atawi, A.M., Kumar, R., & Saleh, W. (2014, August). Traffic accident reductions in Saudi Arabia: Barriers and the way forward. WASD 12th International Conference, Le Meridian Versailles, Montreal, Canada. (I)

106.Gupta, K., Kumar, R., &Tomar, S. (2014). Multinomial logistic regression modelling for commuter perception. Colloquium on Transportation System Engineering and Management, May 2014, NIT Calicut.

107.Gupta, K., Kumar, R., &Tomar, S. (2014). Quality parameters in public transportation systems in Delhi. WISE Conference, USA. (I)

108.Saleh, W., Al-Atawi, A., & Kumar, R. (2014, November). Road users' travel behavior and sustainable transport in Tabuk City, Saudi Arabia. International Conference on Sustainable Energy & Environmental Protection, Dubai. (I)

109.Kumar, R., Saleh, W., & Ocana, L. (2014). Impact of motorcycle driving behavior on fuel consumption and emissions. 46th Annual UTSG Conference, Newcastle University, UK. (I)

110.Kumar, R. (2014). Road network development plan in urban areas. National Workshop on Urban Transport, Ministry of Urban Development, Indian Institute of Public Administration, 20 August.

111.Al-Atawi, A. M., Kumar, R., & Saleh, W. (2014, August). Traffic accident reductions in Saudi Arabia: Barriers and the way forward. WASD 12th International Conference, Le Meridian Versailles, Montreal, Canada. (I)

112.Gupta, K., Kumar, R., & Tomar, S. (2014). Multinomial logistic regression modelling for perception evaluation of commuters to work. Colloquium on Transportation Systems Engineering and Management, NIT Calicut, May.

113.Gupta, K., Kumar, R., & Tomar, S. (2014). Quality parameters for public transportation system in Delhi. WISE Conference, USA. (I)

114.Kumar, R., Parida, P., Shukla, S., & Saleh, W. (2014, August). Idling emissions at signalized intersections – A case study in Delhi. WASD 2014 International Conference, Montreal, Canada. (I)

115.Kumar, R., Parida, P., Tiwari, D., & Gangopadhyaya, S. (2013). Idling emission at intersections and exploring suitable mitigation measures. 2nd International Conference on Traffic and Logistics, Istanbul, 14–17 March. (I)

116.Kumar, R., & Parida, P. (2013). Evaluation of following headway behavior in mixed traffic conditions in Northeast India. In World Sustainable Development Outlook 2013, WASD, London, 365–390. ISBN 978-1907106149. (I)

117.Saleh, W., Kumar, R., Ziolkowski, R., & Ostrowski, K. (2013, August). TDM and sustainability: International experiences. 6th International Symposium on Travel Demand Management, Dalian, China. (I)

118.Sinha, S., & Kumar, R. (2013). Driving cycle pattern for cars in medium-sized Indian cities. Proceedings of the Eastern Asia Society for Transportation Studies, Taipei, 224. (I)

119.Sinha, S., & Kumar, R. (2013). Driving cycle pattern for cars in a medium-sized city in India. Proceedings of the Eastern Asia Society for Transportation Studies, Taipei, p. 224. (I)

120.Kumar, R. (2014). Sustainability indicators for sustainable transport infrastructure development. In Souvenir on Infrastructure Development in Bihar, NIT Patna & ICE Patna

121.Kumar, R., Parida, P., Tiwari, D., &Gangopadhyaya, S. (2013). Idling emission at intersections and exploring suitable mitigation measures. 2nd International Conference on Traffic and Logistics, Istanbul, March 14–17. (I)

122.Kumar, R., & Parida, P. (2013). Evaluation of following headway behavior in mixed traffic conditions in North-East India. In World Sustainable Development Outlook 2013, World Association for Sustainable Development, London, pp. 365–390. ISBN: 978-1907106149. (I)

123.Saleh, W., Kumar, R., Ziolkowski, R., &Ostrowski, K. (2013, August). TDM and sustainability: International experiences. 6th International Symposium on Travel Demand Management, Dalian, China. (I)

124.Kumar, R., Gupta, K., &Durai, B.K. (2012). Real world driving cycle, emission and fuel economy for car – A case of East Delhi. 8th International Symposium on Fuels and Lubricants, March 5–7. (I)

125.Kumar, R., Parida, P., Durai, B.K., & Saleh, W. (2012). Real world driving cycle in heterogeneous traffic condition in Delhi for sustainable development. Abu Dhabi, United Arab Emirates, November 19–21. (I)

126.Kumar, R., Gupta, K., &Durai, B.K. (2012). Real world driving cycle, emission and fuel economy for car. National Workshop on Understanding Indian Driving Cycle, CSIR-CRRI, December 4, New Delhi.

127.Kumar, R., Gupta, K., &Durai, B. K. (2012). Real-world driving cycle, emission and fuel economy for cars – A case of East Delhi. 8th International Symposium on Fuels and Lubricants, March 5–7. (I)

128.Kumar, R., Parida, P., Durai, B. K., & Saleh, W. (2012). Real-world driving cycle in heterogeneous traffic conditions in Delhi for sustainable development. Abu Dhabi, UAE, 19–21 November. (I)

129.Kumar, R. (2012). Basics of headway and driving cycle modelling and its application in traffic engineering. Workshop on Advances in Transportation Engineering, NIT Silchar, 16–18 April.

130.Kumar, R., Gupta, K., &Durai, B. K. (2012). Real-world driving cycle, emission and fuel economy for cars. National Workshop on Indian Driving Cycle and Its Impact, CRRI, 4 December, New Delhi.

131.Kumar, R., Gupta, K., &Durai, B. K. (2011). Credibility of speed limit – A case study of Ghaziabad city. International Conference on National Road Safety Issues in India, School of Planning and Architecture, New Delhi. (I)

132.Kumar, R., Gupta, K., Durai, B. K., &Gangopadhyaya, S. (2011). Effect of driving cycle and emissions in BRT – Hindi. NIO, Goa, June.

133.Kumar, R., Gupta, K., Durai, B. K., &Gangopadhyaya, S. (2011). Driving cycle for measuring emissions in BRT. World Engineering Convention, Geneva, September. (I)

134.Kumar, R., Gupta, K., Durai, B. K., &Gangopadhyaya, S. (2011). Driving cycle and sustainable transport approach in BRT corridor – A case from Delhi. 1st Conference of the Transportation Engineering Research Group, Bangalore.

135.Gupta, K., Ravi, S., Kumar, R., &Durai, B. K. (2011). Provision of sustainable road transport infrastructure – Urban corridor in Delhi. 15th ICWES, Adelaide, Australia, 19–22 July. (I)

136.Kumar, R., Gupta, K., &Durai, B. K. (2011). Credibility of Speed Limit – A Case of Ghaziabad City. International Conference on National Road Safety, SPA.

137.Kumar, R., Gupta, K., Durai, B. K., &Gangopadhyaya, S. (2011, June). Effect of Driving Cycle on Emissions in BRT Systems – A Hindi Presentation. NIO, Goa.

138.Kumar, R., Gupta, K., Durai, B. K., &Gangopadhyaya, S. (2011, September). Driving Cycle and Sustainability Transport Approach in BRT Corridor – A Case in Delhi. World Engineer Convention, Geneva.

139.Gupta, K., Ravi, S., Kumar, R., &Durai, B.K. (2011). Provision of Sustainable Road Transport Infrastructure – Urban Corridor in Delhi. 15th International Conference of Women Engineers and Scientists (ICWES15), Adelaide Convention Centre, Australia, July 19–22. .

140.Saleh, W., Kumar, R., & Sharma, A. (2009). Comparison of Delhi and Edinburgh Motorcycle Driving Cycles. WASD 7th International Conference, Ahlia University, Bahrain. ISBN: 978-907106-05-7.

141.Saleh, W., & Kumar, R. (2009, December 13–18). Sustainable Transportation Development: Behavioral and Emission Modelling. International Conference, Jaipur, Rajasthan, India.

142.Kumar, R., Saleh, W., & Boswell, C. (2009). Onboard emission measurement of motorcycles in air quality management area of Edinburgh. In The Impact of the Global Financial Crisis on the Environment, Energy and Sustainable Development, WASD 7th International Conference, Ahlia University, Bahrain. WASD UK. ISBN 978-907106-05-7. (I)

143.Saleh, W., Kumar, R., & Sharma, A. (2009). A comparison of Delhi and Edinburgh motorcycle driving cycles. WASD 7th International Conference, Ahlia University, Bahrain. ISBN 978-907106-05-7. (I)

144.Saleh, W., & Kumar, R. (2009). Sustainable transportation development: Behavioral and emission modelling. 12th International Conference on Travel Behavior Research, Jaipur, India, 13–18 December. (I)Kumar,

145.R., Saleh, W., Howard, K., (2008). Investigation of the driving cycle of motorcycles in Edinburgh – A Simulation study. 10th World Congress on Environmental Health (Organized by International Federation of Environmental Health and Brisbane University), Brisbane, Australia, 11–16 May 2008

146.Kumar, R. (2007). Review of the driving cycle and its parametric comparison for motorbikes. Faculty of Engineering Computing and Creative Industries (FECCI) Postgraduate Research Conference, Edinburgh, 12–13. (I)

147.Rao, A. M., Kumar, R., Jain, P. K., & Durai, B. K. (2005, July 29–30). District-Level Location Planning for Educational Facilities Based on Rural Accessibility. NRDMS Workshop on GIS Applications. (Also selected as article in edited book).

148.Gupta, K., Kumar, R., Rao, A. M., & Kanagadurai, B. (2004). Socio-Economic Impact of Rural Connectivity. International Conference on Transportation Planning, WCTR, Kumar,

149.Kumar, R., Durai, B. K., & Nanda, P. K. (2003, December 15–16). Users' Equilibrium and Societal Optimization Approaches for Integrated Development of Road Network System. National Seminar, IRC, New Delhi, pp. I-159–166.

150.Kumar, R., & Sinha, A. (2002). Soil and Road Material Information System for Geo Engineers: A GIS Vision. Indian Geotechnical Conference, Allahabad, pp. 645–647.

151.Durai, B. K., Kumar, R., & Nanda, P. K. (2002). Institutional System and Capacity Building for Rural Roads. National Seminar on Financial Management and Institutional Reforms, IRC, New Delhi, pp. II-13–II-22.

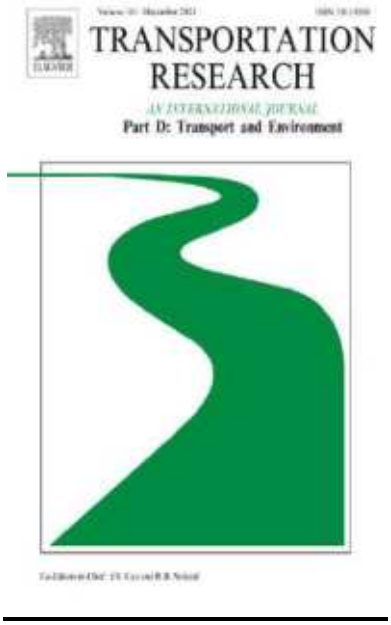
152.Kumar, R., Jain, P. K., Durai, B. K., & Rao, A. M. (2002). Rehabilitation and Resettlement Planning for Highways Project. 51st National Town and Country Planners Congress, Chandigarh.

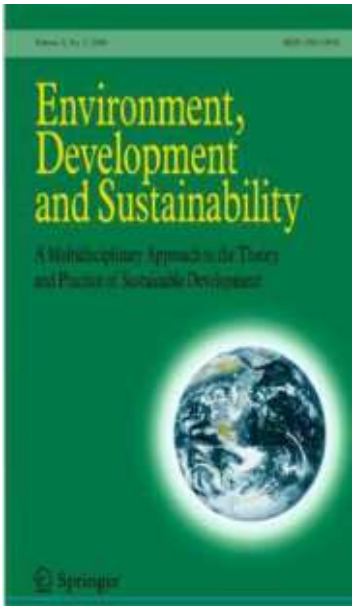
153.Sikdar, P. K., Kumar, A., & Kumar, R. (1999). Contract management for highway projects. Paper presented at the International Conference on Contract Management in Construction Industry, Singapore. (I)

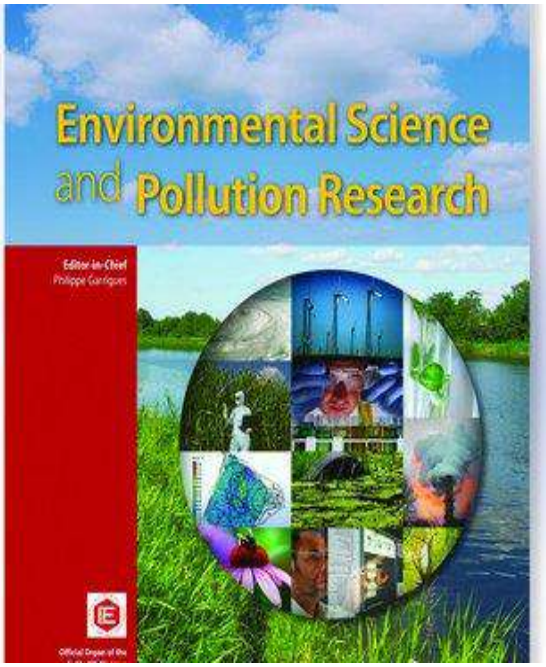
c. Important Popular Articles

1. Kumar, R., Saleh, W. and Bosewell, C. (2010), "Modeling motorcycle emissions and driving cycle in Edinburgh", World Journal of Science, Technology and Sustainable Development, Vol. 7 No. 4, pp. 357-368. https://doi.org/10.1108/20425945201000022
2. Application Of Geospatial Technology In Effective Planning Of PMGSY (2016)., A National Conference On Fifteen Years Of PMGSY (PMGSY) August 6-7, 2016 Transportation Engineering Group, Civil Engineering Department, Indian Institute Of Technology Roorkee,Roorkee-247667

d. Research in Cover page







Signature of MOU with RTU vice Chancellor DG CSIR and CRRI

IISF Guwahati Interaction of Honorable CM, Minister, DG CSIR, on Moon

Z Business Interview on Public Taxi Agreegators

CSIR-Foundation Day 2024 Interaction with Honorable Minsiter S& T Jitendra Singh Ji and team

CSIR-Foundation Day Vote of Thanks with DG CSIR, Directoe ACSIR

Z New Channel interaction on Impact of Raod Condition on Fule Concumtion –CRRI study PCRA Sponsered

INSA LEADS Programme 2024

Secretary Planning Reviewing ITNDP Project -2020-2024

Meeting with Director UP RESAC-2024

Election of Indian Road Congress-2023


1:26 AM
4G
Thread
Dr Harsh Vardhan
@drharshvardhan
हमें है किसानों की चिंता !
@CSIRCRRI ने किसान सभा ऐप लॉन्च किया है।
#lockdown के दौरान दूरदराज क्षेत्रों के किसान सप्लाई चेन व ट्रांसपोर्ट की सुविधा से जुड़ सकते हैं।
इस ऐप की मदद से किसानों की फसल की बिक्री और खाद-बीज खरीदने जैसी समस्या का समाधान होगा।
@CSIR_IND #COVID19
Translate Tweet
किसानों की सुविधा के लिए CRRI ने लॉन्च किया
किसान सभा ऐप
Tweet your reply


4 / 35
150%
MINISTRY
HEALTH
FARE


Guidelines for
Public Transport and Feeder Modes considering
Social Distancing Norms

Celebration of Chandrayaan-3 at CSIR HQ

One Week One Lab witness of Honorable Minister Launch Road Safety Game

One Week One Lab witness of Sri K Moses Chalai IAS Secretary NEC, Director IIT Guwahati Director, ADG BR KP Singh Closing of OWOL

Micro-mobility Workshop and Inauguration by Shri Pravesh Sahib Singh.

Kishan Sabha dissemination

services in the areas of transportation sector.

on the utilisation of various waste materials in road construction. The day concluded with a panel discussion on the way forward and felicitations to all speakers and the Chairman by Director CSIR-CRRI.

added significance to the event. During the industry meet, CSIR-CRRI scientists presented their latest inventions, technologies & possible areas for collaboration and Industries gave presentations of their latest products/services in the areas of transportation sector.

During the event following Project Agreement and Technology Transfer Agreements were signed:

(i) A Technology Transfer Agreement signed on 18 July 2023 with Somani Ecobuild Products LLP for the development of cementitious material for stabilisation of the Sub-Base & Base course in Flexible Pavement.

(ii) A Project Based Agreement

162 CSIR News September 2023

One Week One Lab Inauguration by Dr. Vijay Kumar Sara swat, P.K Sikdar President ICT under my Chairmanship

e. Research in a Nutshell

Sustainable Transport and Environmental Research

Dr. Ravindra Kumar's research over the past decade has centered on **sustainable transport and environmental impacts**, with a focus on real-world emission factors, driving behavior, infrastructure development, and integrated policy evaluation. His work has informed both national and international transport planning, sustainability policy, and emissions control strategies.

Emission Control through Real-World Driving Cycles

Dr. Kumar pioneered the use of **real-world driving cycles** to assess vehicular emissions and fuel consumption under Indian urban traffic conditions. His findings demonstrated that **12–15% of trip time is spent idling**, significantly impacting air quality and fuel efficiency.

- His research contributed to the **"Switch off Engine at Red Light"** policy in Delhi during severe AQI periods.
- He showed that driving at optimal speeds (around 50 km/h) could lead to **up to 15% improvement in fuel economy**.
- Dr. Kumar was among the first to synthesize driving cycles using:
  - **Minimization of absolute error** in deciding parameters
  - **Micro-trip-based patterns**
  - **Traffic micro-simulation tools**

This work laid the groundwork for **accurate emission factor estimation**, replacing outdated models and guiding improvements in emission regulation. He further validated these findings using **Onboard, Chassis Dynamometer, and Simulation Models**, comparing emissions for motorcycles and EVs across Indian and European cities. His studies identified key **kinematic parameters linked to higher CO and HC emissions**, and have been widely cited in the literature.

GIS-Based Master Planning for Road Infrastructure

Dr. Kumar has played a national leadership role in developing **GIS-based transport master plans**, contributing significantly to the **PM Gati Shakti National Master Plan for Multi-modal Connectivity**.

- He led planning efforts for:
  - **22 districts (685 mandals) in Andhra Pradesh undivided**
  - **55 districts across Bihar (534 blocks) and Jharkhand (260 Block)**
  - **11 districts (46 Block) in Meghalaya**
  - **GIS-based inventory system for 55,000 km of National Highways**

Through the integration of data from road agencies, census records, agriculture, tourism, and police departments, Dr. Kumar introduced a **layered geospatial approach** to infrastructure planning. His methodology enabled **cost-effective route optimization** while aligning infrastructure development with projected traffic, NSDP, and population trends.

His work supported the **PMGSY Rural Roads Manual** and demonstrated scalable methodologies now being adapted for **NHAI-wide implementation** by the Ministry of Road Transport and Highways.

Transportation Policy Evaluation using Hybrid Models

Dr. Kumar developed a **hybrid multi-criteria decision-making (MCDM)** model combining the **Analytical Hierarchy Process (AHP)** and **Dempster–Shafer Theory** to evaluate transportation policies like Delhi's **Odd-Even Scheme**.

- The evaluation considered **social, economic, and environmental indicators**, integrating expert opinion, public perception, and field measurements.
- His analysis showed:
  - **28.2% improvement** in the Transportation Sustainability Index
  - Notable reductions in **trip cost (42%)**, **congestion (16%)**, and **parking demand (33%)**
  - Positive changes in **safety**, **user satisfaction**, and **fuel use**

Published in *Environment, Development and Sustainability* (SCI journal), this research was appreciated by the **Minister of Transport, GNCTD**, and provides a template for assessing **future multimodal and sustainability-oriented policies**.

Impact and Recognition

Dr. Kumar's integrated and evidence-based approach to **sustainable transport planning**, **real-world emission modeling**, and **geospatial infrastructure development** has made him a key figure in shaping India's sustainable mobility landscape. His work bridges **scientific rigor and policy relevance**, making substantial contributions to both academic research and national infrastructure programs.

Integrated Transport Network Development Plan (ITNDP), Meghalaya

Dr. Ravindra Kumar has played a pivotal role in shaping the **Integrated Transport Network Development Plan (ITNDP)** – Phase 3, commissioned by the Meghalaya Infrastructure Development Finance Corporation (MIDFC) and developed by CSIR-Central Road Research Institute (CRRI). This phase of the plan focuses on enhancing connectivity across the underserved and remote regions of Meghalaya by proposing the **construction of 1,067 new roads**, integrated with bridge infrastructure and multi-modal transport linkages.

With an investment outlay of **₹11,247.6 crores over 20 years**, ITNDP Phase 3 places strong emphasis on:

- **Climate-resilient design** and use of sustainable, eco-friendly materials.
- **Integration of road, rail, and ropeway transport systems** to ensure seamless mobility across difficult terrains.
- **Community involvement** to ensure the plan is grounded in the needs and aspirations of Meghalaya's population.

This effort is aligned with India's larger agenda for **inclusive infrastructure development**, enhancing rural-urban connectivity, economic development, and environmental sustainability in the North East region.

Alignment with National Climate and Sustainability Missions

Dr. Kumar's extensive research and field engagement also contribute directly to India's national climate and sustainability programs, exemplifying his commitment to building a low-carbon, resilient transport infrastructure.

I Climate Change Missions (CCM)

Dr. Kumar has worked to raise awareness of climate risks and supported climate-resilient road and transport planning through both fieldwork and capacity-building lectures (e.g., at Assam). His work informs policy and adaptation strategies in vulnerable hilly regions like Meghalaya.

II. National Mission for Sustaining the Himalayan Ecosystem (NMSHE)

As a key contributor, he has applied **e**cological and socio-economic assessment frameworks to develop climate-responsive road networks in mountainous states. His studies of travel patterns in Imphal have informed improved Intermediate Public Transport (IPT) strategies in hill towns.

III. Long-Term Low Emission Development Strategy (LT-LEDS, COP 27)

In line with India's net-zero target by 2070, Dr. Kumar has conducted:

- Noise mapping for metro rail projects
- Projection modeling of electric three-wheelers
- Emission control strategies for urban vehicle fleets
  He has also completed specialized training in **Infrastructure Planning for Net Zero Emissions**.

IV. National Clean Air Programme (NCAP)

Dr. Kumar mentors PhD research focused on driving cycles and emissions of two-wheelers, aimed at reducing **PM_{10} levels by 15% annually**. He is also leading proposals such as **"Urban Road Traffic and Air Pollution"** in collaboration with IOCL.

V. National Mission for Sustainable Habitat (NMSH)

He has led the **development of Transport Sustainability Indicator Software** designed to support:

- Urban planning in small and medium cities
- Resilient infrastructure
- Climate adaptation and Smart City initiatives

VI. Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

Under AMRUT, Dr. Kumar has developed **sustainability indicators for motorized urban transport**, including cycling, enhancing inclusivity and environmental resilience in city design.

VII. CSIR Mission Lab Projects

Dr. Kumar is closely aligned with flagship CSIR initiatives such as the **AI Mission**, and serves as the **Nodal Officer for the CSIR Jigyasa Programme**, helping to bridge scientific research with student and community outreach.

VIII. A Model of Integrated, Sustainable, and Data-Driven Transport Planning

Dr. Ravindra Kumar's leadership across diverse projects reflects a rare combination of:

- Research innovation
- Policy integration
- Technology-driven infrastructure design
- Commitment to climate action and sustainability

From emission modeling and driving cycles, to GIS-based master planning and policy evaluation, his work serves as a foundation for creating smarter, greener, and more inclusive transportation systems in India's most challenging and ecologically sensitive terrain

IX "***Guidelines for Public Transport and Feeder Modes considering Social Distancing Norms during COVID 19 period***

11 b. *List of best professional outputs/outcomes in last 10 years, relevant to the present field of specialization (60 No Projects, 8300 Lakh, 23 as PL, 29 as member, 2 as WPL, 4 as COPL, 58 technical report Published) ;*

S. No	Project Title	Budget (in Lakh)	Role	Duration	Agency
1	Technical support to Training & Capacity Building for Road Engineers for Assam	625	Team Member	2024-2025	Assam PWD(pipe line)
2	CRRI Contribution to Sustainable Smart Cities	10	PL	2023-2024	CSIR-CRRI
3	Regular Calendar Training Programme	200	PL	2022-2024	Different Stake Holder
4	Customized Training Programme for NRIDA	38	PL	2022-2024	NRIDA
5	CSIR Jigyasa Skill Development Programme	30	PL	2022-2024	CSIR
6	Traffic Management Plan for Tinplate Plant of TCIL, Jamshedpur	16	Team Member	2022-2023	TCIL Jamshedpur
7	Bloomberg Initiative of Global Road Safety (BIGRS) Survey: Case study of Delhi	131	Team Member	2021-2023	Bloomberg Initiative of Global Road Safety (BIGRS) Survey
8	Feasibility study at Intersection Study – Surat	46	PL	2021–2022	Surat Municipal Corporation
9	TSI Software (Transport Sustainability Index)	8.6	PL	2020–2022	In House
10	Integrated Transport Network Development Plan – Meghalaya	222	PL	2020–2022	MIDFC
11	Traffic System Analysis – Alaknanda Community Centre	20.6	Team Member	2020–2021	Delhi Development Authority
12	EV Charging Infrastructure Optimization	10	Team Member	2020–2021	In House
13	National Highway Acoustic & Light Proofing	25	Team Member	2020–2021	NHAI
14	Alternative Route Study NH316 (eco-sensitive area) due to Noise and vibration	9.2	Team Member	2020–2021	NHAI

15	Acoustic & Light Proofing Study (Haryana-Rajasthan to Kota)	25	PL	2020–2021	NHAI
16	Acoustic & Light Proofing Study (Vatdau-Ranmanpura-Patan)	11.8	Team Member	2019-2023	NMHS
17	Trip patterns and its implications on Intermediate public transport services in Imphal, India	44	Team Member	2019-2023	PCRA / CRRI
18	Idling Emission Studies at Traffic Intersections at 100 intersection	140	Team Member	2019-2022	Ahmedabad Police
19	Comprehensive Mobility Plan – Ahmedabad City	70.8	PL	2019–2021	CRRI (In-house)
20	Deep Learning-based Vehicle Classification (YOLO)	10	PL	2019-2020	NCRTC
21	Noise & Vibration Study – Delhi–Meerut RRTS Corridor	140	PL	2019-2020	In-house
22	Customized MOVES Software for India	6	PL	2018-2024	CRRI
23	Automatic Vehicle Classification using AI	10	Team Member	2018–2020	In-house
24	Kisan Sabha Freight App	9.75	Team Member	2018–2020	Sarvoday InfoTech
25	Design Guidelines – Road Systems in Housing	99.5	PL	2018-2020	CSIR , Dept. of Expenditure, GOI
26	Awareness Campaign – Idling Emissions	27	Team Member	2018–2019	PCRA
27	Vadodara Traffic Study	13	PL	2018–2019	Vadodara Municipal Corporation
28	Eastern Peripheral Expressway – Air Pollution Reduction Study	46	Team Member	2018–2019	Dept. of Environment, Govt. of Delhi
29	BPCL Colony Noise Barrier Design	50.97	Team Member	2018–2019	BPCL, Mumbai
30	Intersection Traffic Studies – Vadodara	13	Team Member	2018–2019	Vadodara Municipal Corporation
31	Noise Barrier Design – BPCL Colony, Mumbai	50.97	PL	2017–2019	BPCL
32	Impact of Road condition on fuel consumption	25	Team Member	2017–2018	PCRA, Govt. of India
33	Noise Mitigation Study – Noida Metro (Sec 61–62)	18	Team Member	2016–2018	Noida Metro Rail Corporation
34	Safe Road Connectivity for Tripura State of North East Region of India	46.85	CO-PL	2016–2018	NMHS
35	Low-Cost Road Asset Management Using GIS	6.4	Team Member	2015–2017	CSIR-CRRI
36	Travel Behavior Study – Tabuk, Saudi Arabia	200	Team Member	2014-2015	University of Tabuk
37	Noise, Vibration & Privacy Study – JJ Flyover Mumbai	24	Team Member	2013–2014	MSRDC
38	Economic Loss due to Idling (ELSIM)	1000	WPL	2012–2017	Planning Commission / CSIR

39	Sustainable Transport Technology (12th FYP)	2400	WPL	2012–2017	CSIR / Planning Commission
40	Mobile Air Pollution Monitoring System	126	Team Member	2012–2017	In-house
41	Noise Mitigation for Metro Corridors	171	Team Member	2010-2024	Various Metro Agencies
42	Driving Cycle Modelling – Delhi,	200	PL	2010–2012	CSIR-In-house
43	GIS-Based NH Information System	1000	PL	2006-2009	MoRTH
44	Real-World Driving Cycle Models for Indian Traffic	10	PL	2003–2009	CSIR-EMPOWER Project
45	Core network Road Pan – Bihar & Jharkhand	55	CO-PL	2025.00	Rural Engineering Org., Bihar & Jharkhand
46	Training Programmes GIS application on Road and Transport Sector	10	Coordinator	2024.00	Various Stakeholder
47	Customized Training Programme for Engineer of Greater Noida Authority	8	PL	2024.00	Greater Noida Authority
48	Customized Training Programme for Rural Road Network Planning in Meghalaya	8	PL	2024	Meghalaya PWD
49	Driving Cycle , Electric Vehicle Policy & Infrastructure Planning	240	Team Member	2020	MSME/DHI / DST
50	Traffic Impact Study – Alaknanda	20	PL	2018	Delhi Development Authority
51	Pune Metro Noise Study	24	Team Member	2016	Maharashtra Metro Rail Corporation
52	Karwar Naval Base Traffic Study	48	Team Member	2015	Indian Navy
53	Developing Thematic GIS database tor Integrating Road Management System of RCD,	140	PL	2015	World Bank / DFID / Govt. of Bihar
54	Noise Mapping Study – Trivandrum City	30	CO-PL	2012	Kerala Pollution Control Board / PWD
55	Evaluation of Delhi BRT Corridor	100	Team Member	2010	NCT of Delhi / CRRI
56	Adopting GIS Architecture in Rural Roads including R&D and Environment	10	PL	2003	Planning Commission
57	GIS-Based Road Network Planning for Rural Road Network Nagaon Assam	1.5	Team Member	2002	In-house
58	Urban Road Traffic & Air Pollution	140	Team Member	2001	Ministry of Petroleum / CHT
59	Technical Assistance to PMGSY (National)	70	Team Member	2001	Ministry of Rural Development, GOI
60	Review of Rural Road Design – Andhra Pradesh	10	CO-PL	1999	PRED, Andhra Pradesh

	8300.5445
Total Project Handled in Lakh	**8301 Lakh**
Position as Project Leader (PL)	**23**
CO=PL	**4**

Role as Member	**29**
Role as Coordinator	**1**
Role as Expert Member	**1**
Role WPL	**2**
Total number of Project Handle	**60**
Total Technical Report Published	**58**

Key Outcomes in terms of Guideline/ Report /Software from Major Projects Led by Dr. Ravindra Kumar

1) **Guidelines for Public Transport and Feeder Modes considering Social Distancing Norms** for COVI19
2) **Developed integrated design guidelines** for internal roads, eco-friendly transport, safety, and NMT in mass housing projects.
3) **Created TIA and NIA modules** to assess traffic and noise impact in urban developments.
4) **Formulated eco-efficient construction practices** promoting energy savings and emissions reduction.
5) **Established strategic institutional partnerships** with DMRC, NHAI, PCRA, NCRTC, etc., under the Transportation Planning ad Environment Division activities.
6) **Mobilized over ₹83crore in sponsored research funding** from World Bank, MoRTH, DMRC, etc.
7) **Trained over 20,000 professionals** through targeted programs on road safety, air pollution, and sustainable mobility.
8) **Won multiple national awards**, including SKOCH, CIDC, and CRRI Best Display Division.
9) **Institutionalized the Traffic Impact Assessment (TIA)** tool for housing project approvals and infrastructure planning.
10) **Quantified air pollution reductions** via Eastern Peripheral Expressway—PM2.5 (0.9 t/day), NOx (7.1 t/day).
11) **Developed a GIS-based road asset management system** used in Bihar, integrated with NIC and WB support.
12) **Showed fuel cost increase of ₹1/km due to poor pavement conditions**, linking road quality to energy consumption.
13) **Identified socio-economic factors in mode choice** and accident trends from Tabuk travel behavior analysis.
14) **Integrated EIA as a core decision-support tool** for expressways, metros, and corridors.
15) **Led GIS-based National Highways Information System**, digitizing road/bridge assets for MoRTH and NHAI.
16) **Developed Transport Sustainability Index (TSI) software**, India's first multi-indicator tool for urban mobility planning.
17) **Enabled rural road connectivity via PMGSY**, with planning manuals, technical scrutiny, and capacity building.
18) **Formulated multimodal transport strategies in Meghalaya ITNDP**, with ₹11,247 Cr investment over 20 years.
19) **Delivered 25+ national training programs** on pavements, bridges, geotechnics, and road safety audits.
20) **Championed the use of hybrid sustainability frameworks** integrating environmental, economic, and social indicators.
21) **Kishan Sabha Trade Mark** launched by Honorable Minister S&T
22) **Supported policy formulation and stakeholder engagement** through tools for transparency and participatory governance

11 c. Highlights of contributions to the area of specialization.

Dr. Ravindra Kumar joined CSIR–Central Road Research Institute (CSIR–CRRI) in 1997 as a Scientist B and currently holds the position of Chief Scientist since January 2021, completing 28 years of dedicated service in transportation research and development. His academic and professional trajectory includes over four and a half years of research and study abroad in the United Kingdom, significantly enriching his global perspective and research depth.

Over the course of his career, Dr. Kumar has authored and co-authored more than 153 research papers, technical reports (58), and book publications, (18) and has consistently demonstrated excellence in project leadership, innovation, and academic contribution. His research areas span transportation planning, sustainable mobility, emission modeling, GIS-based infrastructure planning, road safety, and environmental impact assessment.

Dr. Ravindra Kumar has handled 60 projects worth ₹8,301 lakh, serving as Project Leader in 23, Co-Project Leader in 4, Member in 29, Coordinator in 1, Expert Member in 1, and Work Package Leader in 2 projects, with 58 technical reports published. He has published his article in news and print media and covered outreach up to school level by training of 3000 no.

Dr. Kumar has proven to be a dynamic and visionary leader. During his tenure as Head of Division, he successfully managed multiple R&D projects, generating an annual cash flow exceeding ₹10 crores, and played a vital role in institutional growth. He has delivered a cash flow of 2 crore during his tenure as Head Information Liaison and conducted 24 training sessions for more than 700 engineers. He has served in key administrative roles including:

- Chairman, Scientific Investigation Board
- Chairman, Screening and Scrutiny Committees
- Acting Head of Division (2015–2018) Head TPE(2018-2020), Head ILT(2022-2024)
- Expert Member, NITI Aayog Scientific Committee
- Member, Empowered Committee, NRRDA (supporting national rural road development)

He played a pivotal role in building R&D infrastructure, overseeing the procurement and installation of essential scientific and IT equipment including UPS systems, laptops, GIS software, servers (SAN disc), webcams, and RO systems. He has also actively contributed to institutional governance through his involvement in Hindi Rajbhasha Committee, purchasing committees, and mentorship of junior scientists, ACSIR scholars, and Group II & III staff, fostering a collaborative and productive research environment.

Dr. Kumar's collaboration footprint is extensive, having worked with organizations like the Kerala Pollution Control Board, Road Construction Departments, the World Bank, Heriot-Watt University (UK), Government of Bihar, Government of Meghalaya, IITs, and NITs, enhancing CRRI's national and international presence.

Important Administrative Responsibilities undertaken- 8 years' experience

1) Head – Information, Liaison, and Training (ILT), CSIR–CRRI *(November 2022 – December 2024)*
    - Led planning and coordination of major institutional programmes including:
        - One Week One Lab, One Week One Theme, Janjatiya Gaurav Divas, National Science Day, National Technology Day, CRRI Foundation Day, Independence Day, Yoga Day, New Year Celebration

- Responsible for production of CRRI Movies, Annual Report, Newsletter, and media engagement.
- Coordinated CSIR Skill Development, Jigyasa Programmes, and Regular/Customized Training Programs for engineers, officials, and students of 2 crore Cash Flow
- Swachhta Pakwara

2) Chairman – Scientific Investigation Board, CSIR–CRRI *(2021-till date)*
   - Chaired scientific and research governance activities under CSIR guidelines on ethics and investigation procedures.
3) Recruitment & Assessment Responsibilities *(2016–till date)*
   - Served as Chairman/Member of selection and assessment committees for recruitment of Group III & IV S&T and project staff in IGIB, CRRI
   - Oversaw transparent evaluation, screening, and selection procedures.
4) Head of Division – Transportation Planning and Environment Division, CSIR–CRRI *(May 2018 – May 2020)*
   - Headed a merged division of 24 staff including 14 scientists.
   - Managed recruitment of 7 research interns, 4 project assistants, technical staff, and student researchers.
   - Delivered a project cash flow of ₹10 crores during the tenure.
   - Coordinated MoUs, research outputs, inter-divisional projects, and HR functions.
5) Acting Head of Division, Road Development and Planning CSIR–CRRI *(2016–2018)*
   - Led administrative and operational functions, bridging between transitions in leadership.
   - Handled day-to-day management, coordination, and reporting tasks.
6) Task Force Member – ISO Implementation *(2016–2024)*
   - Contributed to maintaining ISO procedures, documentation, audits, and quality control across the institute.
7) Reporting & Compliance Officer *(2016–2021)*
   - Responsible for preparation of:
     - Annual Appraisal Reports, Monthly and Annual Reports, PIR and DIR Registers, RTI, CSIR PME responses, and recruitment reports.
   - Ensured timely submissions and accuracy in compliance documents and institutional reporting.
8) Event & HR Coordination Lead *(2016–2025)*
   - Organized institutional events (farewells, workshops, official visits).
   - Played key motivational and coordinating role in enhancing research, training, and outreach efforts across the division.

Major Initiatives Taken Towards Better Positioning of the Organization

a) ***National and International Representation*:** Represented CSIR–CRRI at multiple international forums and national-level high-powered committee meetings, including NITI Aayog, Planning Commission, MoRD, MoRTH, World Bank, ADB, University of Surrey, DDA, and other policy bodies.
b) ***Regional Outreach and Field Office Establishment*:** Successfully opened and operated CRRI branch/camp offices in Patna (4 months) and Shillong (1.5 years) for project execution, stakeholder engagement, and data collection, CSIR Jigyasa and JNV Navoday
c) ***Quality Systems and ISO Compliance*:** Consistently implemented CRRI's quality policy and supported ISO documentation and audit processes.
d) ***Division Leadership and Revenue Generation*:** Led the division in maintaining annual cash flow exceeding ₹5 crores and 2 Crore for Training as and generated over ₹800 lakh through externally funded projects.

e) **Public Communication and Media Outreach:** Disseminated CRRI research and technologies via Rajya Sabha TV, India Science Channel, social media, news outlets, and print publications.
f) **Technology Transfer and Industry Uptake:** Actively facilitated commercialization and ensured uptake of research deliverables by government and industry stakeholders.
g) **Academic and Research Engagement:** Maintained strong presence through SCI-indexed journal publications, international conference participation, and strategic academic outreach., with other Institute
h) ***Institutional Collaboration and MoUs*:** Instrumental in signing 15 MoUs between CRRI and institutions including DTU, IIT BHU, IIT Madras, NIT Delhi, MNAIT Bhopal, IIT Guwahati, NATPAC Trivandrum, KIT Bhubaneswar, RTU Kota, SVNIT Surat, MNIT Allahabad, NIT Rourkela, BITS Pilani, MNIT Jaipur, and for technology transfer in noise reduction with Industry MOU .

Participation and Research Contributions Made for Strategic Sector of Road and Transport- 9 No

Dr. Ravindra Kumar has actively contributed to projects of national and strategic importance by integrating advanced transportation planning, geospatial analytics, and multimodal connectivity with a strong emphasis on border-area infrastructure and defense-sensitive zones. His efforts are aligned with India's broader goals of national security, regional development, and disaster resilience.

1) **Joint Research Initiative with IIT Kanpur**: Led the development of a joint research proposal on the application of Unmanned Aerial Vehicles (UAVs) for disaster management**,** specifically tailored for deployment in remote and inaccessible areas. The proposal aims to strengthen emergency response infrastructure and decision-making capabilities in sensitive regions.
2) **GEOINFRA Proposal for BRICS Countries**: Contributed to the formulation of a **GEOINFRA** proposal **focused on** smart city infrastructure management across BRICS nations. The proposal emphasizes collaborative research, urban resilience, and geospatial technologies for sustainable infrastructure planning.
3) **Strategic Defense Project –** Naval Base, Karwar (Project Seabird)**:** Participated as a key team member in the Transportation and Traffic Study at Naval Base Karwar, Karnataka. Engaged in high-level meetings with the Director General, Indian Navy**,** and conducted a detailed traffic impact assessment due to the deployment of INS Vikramaditya**.** The study included:
    a. Traffic and congestion analysis before and after the induction of the naval fleet
    b. Safety audits, parking evaluation, and infrastructure planning
    c. Development of a **GIS-based transport database** for mobility enhancement within the naval base
4) **Border Area Road Mapping – Bihar**: Led the preparation of a GIS database and road network mapping for regions adjacent to the India–Nepal international border in Bihar, facilitating better logistical connectivity, surveillance, and border-area planning.
5) Project Leader – Meghalaya Integrated Transport Network Development Plan (ITNDP): Currently leading the Meghalaya ITNDP, which involves planning for sustainable rural and regional connectivity in a state that shares 450 km of international border with Bangladesh. The project has significant geostrategic importance in enhancing trade, security, and regional integration.
6) **Capacity Building in Strategic Northeastern States**:

    1) Assam Capacity Building Mega Project: Supporting institutional strengthening and sustainable transport planning in flood-prone and security-sensitive zones
    2) Safe Road Connectivity in Tripura: Participated in a National Mission on Himalayan Studies (NMHS) project addressing road safety, terrain adaptability, and strategic corridor planning
    3) IPT (Intermediate Public Transport) System in Imphal, Manipur: Contributed under NMHS to innovative mobility planning for the border city of Imphal, focusing on lightweight, secure, and efficient transport options.

7) **Training and Knowledge Dissemination**: Organized and delivered training programs on rural road planning and network optimization with a focus on connectivity, security, and infrastructure resilience in strategically significant states of Northeast India.

Through these initiatives, Dr. Kumar has significantly contributed to strategic infrastructure development, integrating defense needs, environmental resilience, and cross-border planning into the national transportation agenda. His work continues to support **India's internal security, defense mobility, and regional development efforts** in a sustainable and technologically forward manner.

Activities leading to foreign exchange saving:

S&T Collaboration established with other countries including regional collaboration: United Kingdom, NIT Surat, NIT Patna, and BRICS proposal on Geospatial Application for infrastructure development in Smart City Collaboration with Herriot Watt University, United Kingdom collaboration formed for solar base EV Charging infrastructure. The project on Impact of road condition on fuel consumption if implemented by authority it has huge forex saving.

Country Visited -11

(I)United Kingdom (ii) Switzerland (iii) Australia (iv) Bahrain (v) Abu Dhabi (vi)Dubai (vii) China (viii) Taiwan (ix)Spain (x) Thailand (xi) Turkey

International Workshops and Conferences Attended (Abroad Only-10)

1) **Kumar, R.** (April 21–26, 2025). *Road network planning using GIS*. Presented at the **Geospatial World Forum 2025**, Madrid, Spain.
2) **Kumar, R.** (March 6–7, 2024). *Navigating green routes: Transforming Meghalaya agriculture through integrated transport infrastructure planning*. Presented at the **European Conference on Renewable Energy and Green Chemistry (ECRG 2024)**, London, United Kingdom. [Digital]
3) **Kumar, R.** (February 11–14, 2019). *Effect of vehicle-usage controlling policies on vehicular pollution*. Presented at the **3rd Asian Conference on Science and Technology**, Dubai, United Arab Emirates.
4) **Kumar, R.** (July 10–15, 2016). *Does the connectivity index of a transport network impact driver delay?* Presented at the **14th World Conference on Transport Research (WCTR 2016)**, Tongji University, Shanghai, China.
5) **Kumar, R.** (January 6–8, 2014). *Impact of motorcycle driving behavior on fuel consumption and emissions*. Presented at the **UTSG Conference 2014**, Newcastle University, United Kingdom.
6) **Kumar, R.** (March 15–16, 2013). *Idling emissions at intersections and mitigation strategies*. Presented at the **International Conference on Traffic and Logistics**, Istanbul, Turkey.
7) **Kumar, R.** (November 19–21, 2012). *Real-world driving cycle in heterogeneous traffic conditions in Delhi for sustainable development*. Presented at an **International Transport Conference**, Abu Dhabi, United Arab Emirates.
8) **Kumar, R.** (November 9–11, 2009). *Comparison of Delhi and Edinburgh motorcycle driving cycles*. Presented at the **WASD 7th International Conference**, Ahlia University, Manama, Bahrain.
9) **Kumar, R.** (May 11–16, 2008). *Investigation of the driving cycle of motorcycles in Edinburgh – A simulation study*. Presented at the **10th World Congress on Environmental Health**, organized by the **International Federation of Environmental Health (IFEH)**, Brisbane, Australia.
10) **Kumar, R.** (December 12–13, 2007). *Review of the driving cycle and its parametric comparison for motorbikes*. Presented at the **FECCI Postgraduate Research Conference**, Edinburgh, United Kingdom.

Contribution towards upliftment of science & technology in the country some highlights:

Role in Environmental Sustainability

1. Innovation in Cost-Effective Rural Road Design-Funded by PRED as Project Leader

- Developed a systematic methodology for optimizing rural road designs under World Bank funding in Andhra Pradesh (1999).
- Prioritized blacktop roads using Economic Rate of Return (ERR) thresholds and recommended gravel surfaces where suitable.
- Resulted in up to **20% cost savings** while maintaining safety and performance.

2. Eco-Friendly Technologies for Mass Housing- CSIR Funded as WP Leader

- Contributed to CSIR's Mass Housing Mission through innovative internal road designs using:
  - **Cold mix asphalt**, **precast concrete panels**, and **plastic waste** in pavement layers.
- Reduced **greenhouse gas emissions by 10–20%**, supporting India's NAPCC and SDGs.

3. Quantifying Environmental Benefits of Major Projects-Funded by Department of Environment as PL

- Led environmental impact quantification of the **Eastern Peripheral Expressway (EPE)**, demonstrating a **7% reduction in NOx** emissions.
- Showcased how bypass and ring roads reduce pollution in congested urban cores.

4. National Auto Fuel Policy Contributions-Funded by CHT as Team Leader

- Served as key technical expert on the **National Auto Fuel Policy Committee** (chaired by Dr. R.A. Mashelkar).
- Conducted urban traffic and pollution studies in **8 major Indian cities**, providing scientific inputs for adopting Bharat Stage II–IV norms.

5. Delhi Metro Environmental Assessment-Funded by DMRC as Team member

- Conducted CO_2 emission reduction study: over **90,000 tons of CO_2 prevented** (2004–07), saving **106,493 tons of fuel annually**.
- Provided quantifiable justification for **carbon credit registration** under the UN framework.

6. National Noise Mapping and Mitigation Strategies-Funded by Pollution Control Board as a Team Member

- Developed **noise and vibration mitigation techniques** for metros and highways.
- Conducted city-level noise mapping and field assessments in urban eco-sensitive zones.

7. Urban Transport Emission and Fuel Studies-Funded by PCRA as Project Leader

- Led studies funded by PCRA on idling behavior, road surface impact on fuel use, and congestion analysis.
- Developed **real-world Indian driving cycles** to assess vehicular emissions and fuel losses.

8. Support to E-Highways and Clean Mobility Planning

- Worked on **EV fleet sizing**, **charging infrastructure planning**, and use of **green construction materials**.
- Partnered with **NITI Aayog** in advancing India's **clean mobility agenda**.

Role in Socio-Economic Sustainability

9. PMGSY and Rural Transport Development

- Technical lead on planning, evaluation, and monitoring of **Pradhan Mantri Gram Sadak Yojana (PMGSY)**.
- Developed **Core Network Approach** for master planning and co-authored **IRC: SP: 20-2002**.
- Conducted scrutiny of 100% project packages and contributed to field inspections and training programs.

10. Capacity Building and Technology Transfer as Head ILT

- Delivered training to **State Technical Agencies** and NRIDA officials in **Surat, Rajasthan, Bihar**, promoting use of local materials and sustainable techniques.
- Training to 300 children and 1000 engineers/academic/professional

11. Integrated Transport Planning for Meghalaya as a Project Leader

- Led preparation of **Integrated Transport Network Development Plan (ITNDP)** with a ₹11,247 crore investment roadmap.
- Promoted multi-modal connectivity, resilient infrastructure, and inclusive planning in the North-East region.

Role in Economic Sustainability

12. Master Planning of Rural Roads (Andhra, Bihar, Jharkhand) as a Project Leader

- Prepared phased investment strategies for 200,000 km of roads.
- Applied cost-effectiveness criteria and GIS tools for prioritization.
- Total project fee: ₹77 lakh (₹22 lakh for Andhra; ₹55 lakh for Bihar/Jharkhand).

13. GIS-Based Highway Information System for MoRTH as a Team Leader for North East

- Led development of a **50,000 km National Highways Information System** under a ₹10 crore project.
- Enabled e-governance, traffic data digitization, and improved maintenance planning.

14. Thematic GIS for Bihar's Road Construction Department as a Project Leader

- Delivered GIS-integrated road asset management platform under a **World Bank–DFID grant (₹1.25 crore)** implemented by NIC in their web GIS portal

15. World Bank Rural Connectivity Planning (AP Districts) as a Subproject Leader

- Led socio-economic impact study in Adilabad, Karimnagar, and Warangal.

- Reduced overall project cost by two-thirds through design optimization, enhancing connectivity in India's poorest districts.

Role in Social Sustainability Research

16. Road Safety and Connectivity in North-East India as a Team Member

- Conducted accident analysis and road safety prioritization in **Tripura and surrounding NE states**, funded by **National Mission on Himalayan Studies (₹46.8 lakh)**.

17. International Research on Travel Behavior (Tabuk, KSA) as a Research Fellow

- Conducted accident pattern and behavioral research funded by **University of Tabuk** (£50,000), in collaboration with **Edinburgh Napier University**.
- Supported global sustainable mobility frameworks aligned with **UN Habitat SDG**

Contribution to Indigenous Technology, Guideline, System Design, and Product Development (9-N0)

Dr. Ravindra Kumar has made significant contributions to the development of indigenous technologies, engineering system designs, and software tools, aimed at addressing India's unique transportation and infrastructure challenges. His work reflects a deep integration of scientific innovation, field applicability, and policy relevance.

1) **Driving Cycle Derivation Process**:

   Developed a scientifically robust and context-specific process for **deriving Indian driving cycles**, validated under Edinburgh driving conditions. The process has been published in **international journals and academic books** and has been formally **copyrighted by CSIR under cinematography category**, reflecting its innovative visual and simulation-based approach. This methodology supports accurate vehicular emission modeling, fuel consumption studies, and sustainable mobility research in Indian conditions.

2) **Guidelines for Public Transport and Feeder Modes considering Social Distancing Norms**
3) **Developed integrated design guidelines** for internal roads, eco-friendly transport, safety, and NMT in mass housing projects.
4) **The "Kisan Sabha**" trademark is associated with the CSIR-Central Road Research Institute (CSIR-CRRI). They developed the Kisan Sabha app, which connects farmers with supply chain and freight transportation management systems. The app is designed to help farmers, mandi dealers, transporters, and other stakeholders in the agricultural sector .The app includes modules for farmers, mandi dealers, transporters, mandi board members, service providers, and consumers.
5) **Civil Engineering System Design for E-Highway Project**:
   Contributed to the **engineering design and planning framework** for India's **Electric Highway (E-Highway)** initiative. This includes infrastructure adaptation for electric vehicle corridors, road geometrics, and integrated support infrastructure planning.
6) **Strategic Integrated Transportation Network Planning** :

   Developed and implemented a **unique strategic planning approach** for integrated transportation networks using a combination of **satellite imagery, road asset inventory databases**, and **multi-criteria prioritization models**. This method has been applied in large-scale infrastructure planning projects, including national and border-state networks.

7) **Transport Sustainability Index (TSI) Software**:

Conceptualized and led the development of the **Transport Sustainability Index (TSI)** for Indian cities—an analytical software tool that quantifies urban transport performance across environmental, social, and economic indicators. The TSI has been used for comparative evaluation of mobility systems and guiding city-level sustainability initiatives.

8) **RouteScan – OCR-Based Road Analysis Tool**:

Developed **RouteScan**, a low-cost innovation that utilizes **Optical Character Recognition (OCR)** and geotagging techniques for rapid road dimension analysis, asset monitoring, and documentation. This technology is designed for scalable use in resource-constrained environments, aiding local governments and infrastructure agencies.

9) **Integrated Transport Network Database – Meghalaya Application**:

Created a GIS-based integrated transport network database for the state of Meghalaya**,** used in the Integrated Transport Network Development Plan (ITNDP). The system supports strategic planning, connectivity analysis, and data-driven policy interventions in a state with complex terrain and international border considerations.

Number of EIA Projects Undertaken and ECF Generated Total Projects (8 no) Total ECF Generated: ₹557.19 lakh

1. **Noise Pollution Mapping of Trivandrum City** (Shared Responsibility) – ₹30.00 lakh – Sponsored by Government of Kerala
2. **Pollution Impact Assessment of Eastern Peripheral Expressway** – ₹43.20 lakh – Sponsored by Department of Environment, Government of NCT Delhi
3. **Noise Mapping for Pune and Mumbai Metro Projects** (Shared Responsibility) – ₹60.00 lakh – Sponsored by Maharashtra Metro Rail Corporation Ltd. & MMRDA
4. **Environmental Impact Assessment for NHAI Projects** – ₹59.00 lakh – Sponsored by National Highways Authority of India (NHAI)
5. **EIA and Noise Mapping – MMRDA, Mumbai Metropolitan Region** – ₹25.49 lakh – Sponsored by MMRDA
6. **Noise Mapping – Maharashtra Metro Rail Corporation Ltd. (Nagpur & Pune)** – ₹42.48 lakh – Sponsored by MAHA-Metro
7. **Pollution and Noise Impact Assessment – Delhi–Meerut RRTS Corridor** – ₹96.76 lakh – Sponsored by National Capital Region Transport Corporation (NCRTC)
8. **Noise Mapping for Metro Rail & Cities – Jaipur, Kota, Rajkot, Surat, Vadodara, Goa** – ₹200.00 lakh – Sponsored by Gujarat Metro Rail Corporation Ltd.

a. Invited Lecture Keynote/Expert Lecture /Special Lecture-59

1) **Invited International Speaker** – *Accessibility-Based Planning Using GIS*, Geospatial World Forum, Spain – **2025**

2) ***Transport Environment Expert Lecture*** *on invitation by Dr. KK's HCFI - Heart Care Foundation of India (bimonthly) 2022-2025*

3) ***Invitation for Round Table Discussion*** *and at IInvenTiv 2025 IIT Madras*

4) **Keynote Speaker and Chair-** *Innovations in Infrastructural Materials & Sustainability (IIMS-2025)" on 18 - 19 April 2025, Madan Mohan Malaviya University of Technology, Gorakhpur.*
5) ***Invitation to Evaluation Report*** *for the Ph.D. Thesis entitled, "Examining Commuters' Spatial Accessibility to Bus Rapid Transit Stations" submitted by Fatima S Electricwala (D19CE004).*
6) ***Invite to attend*** 'Vigyanika - Science Literature Festival, IISF 2024
7) ***Invite to attend*** *SAMERPAN - Sustainable Action & Mobility for Emission Reduction and Promoting Awareness Nationwide , DTU 2024*
8) **Keynote Address** – *Impact of Climate Change on Roads*, Assam PWD & World Bank, Assam – **2024**
9) **Keynote Lecture** – Judging the route planning in Global Hyperloop Competition IITM, IIT Chennai – **2025**
10) **Invited Panel Speaker** – *Climate Change Impacts on Roads*, Assam Public Works Department, Guwahati – **2024**
11) **Invited Academic Lecture** – *Special Lecture to B.Tech Students*, NIT Jamshedpur, Jharkhand – **2024**
12) **Invited as speaker at our conference on "Road Development in India (Mumbai Edition)," being organized by** *Indian Infrastructure* **magazine scheduled on** November 21**-22, 2024**
13) **Invited Speaker** ***European Conference on Renewable Energy and Green Chemistry (ECRG 2024), UK***
14) **Chairperson, International Workshop** – *Air Pollution and Public Health*, New Delhi – **2024**
15) **Keynote Lecture** – *Future of the Hyperloop Transport Network in India and Intelligent Construction in Transportation Infrastructure*, Parivahan, IIT Chennai – **2023**
16) **Invited Panel Lecture** – *Gaps and Opportunities for Non-CO_2 and Methane Emissions Control from the Transport Sector*, International Centre of Climate and Sustainability Action Foundation – **2023**
17) **Invited Speaker** – *Geospatial-powered BIM and Digital Twin Applications for Road and Highway Infrastructure Projects*, Geospatial World – **2023**
18) **Keynote Speaker** – *Urban Regeneration and Renewal: Infrastructure and Service Provision in Himalayan Cities*, World Bank – **2023**
19) **Invited Presentation** – *Road Asset Management and Roadmap for Development of RAMS in Uttarakhand*, Uttarakhand Disaster Management Department – **2023**
20) **Chairperson** – *Air Pollution and Public Health: Challenges and Interventions*, International Workshop, New Delhi – **2023**
21) **Invited Lecture** – *Special Lecture to Students*, NIT Jamshedpur, Jharkhand – **2023**
22) **Keynote Lecture** – *Future of Micro-Mobility in India and Intelligent Construction in Transportation Infrastructure*, Panel Discussion, Geo Smart Dwaraka – **2022**
23) **Invited Panel Lecture** – *Urban Planning and Mobility*, IIT Delhi – **2022**
24) **Chairperson** – *Session on Traffic Operations*, RATE 2022 Conference, SVNIT Surat – **2022**
25) **Chairperson** – *Session IV: Smart Mobility – Adopting Best Practices in EV Technology*, National Conference on Electric Mobility – **2022**
26) **Invited Lecture** – *GIS Application in Transportation Engineering*, BITS Pilani – **2022**
27) **Invited Lecture** – *Sustainable Transportation Index and Emission Impact*, CSIR-CRRI Training Program, NIRDA – **2022**
28) **Invited Lecture** – *Urban Emissions, Climate, and Health Hazards*, Delhi Technological University – **2023**
29) **Invited Speaker** – *Panel Discussion on Sustainable Mobility*, IIT Delhi – **2022**
30) **Invited Presenter** – *CRRI Steel Slag Movie & Poster Screening*, India International Science Festival, Bhopal – **2023**
31) **Keynote Lecture** – *Application of GIS in Transportation Planning and Environmental Issues*, National Forum, India – **2021**
32) **Invited Lecture** – *GIS Application in Transportation Engineering*, NIT Jamshedpur, Jharkhand – **2021**
33) **Invited Speaker** – *Social Distancing Norms for Transportation in COVID-19: Need and Challenges*, International Webinar, CRRI – **2020**

34) **Invited Lecture** – *Air Pollution due to Road Traffic and its Health Impacts*, Kerala Highway Research Institute (KHRI), IIT Chennai – **2020,** CD KHRI, September 05, 2020.
35) **Invited Lecture** – *Improving Road Condition Strategies to Reduce Fuel Consumption and CO_2 Emissions*, International Workshop on Air Pollution and Public Health, NAM Science Centre, New Delhi – **2020**
36) **Special Lecture** – *Application of GIS/GPS Technologies in Urban and Rural Transportation*, Special Invitee Lecture – **2021**
37) **Special Lecture** – *GIS and Real-Time Driving Cycle Demonstration*, Training Program for PG/PhD Students, ACSIR – **2021**
38) **Invited Lecture** – *Need and Application of Driving Cycle in India*, Special Lecture, National Forum – **2019**
39) **Invited Lecture** – *Research Methodology*, Special Lecture, ACSIR – **2019**
40) ***Invitation as an Expert*** in Poster Presentation Event at 80th Annual Session of the Indian Road Congress (IRC) to be held at Patna (Bihar) from Dec. 19th to 22nd , 2019
41) **Invited Lecture** – *Road Safety*, NIT Surat, Surat, Gujarat – **2019**
42) **Keynote Lecture** – *Smart City and Transportation*, Sharda University, Greater Noida – **2019**
43) **Chairperson** – *International Workshop on Air Pollution and Public Health: Challenges and Interventions*, New Delhi – **2019**
44) **Invited Lecture** – *Application of GIS in Road Construction Planning*, Madhav Institute of Science and Technology, Gwalior – **2018**
45) **Invited Lecture** – *Driving Cycle and Vehicular Emission*, Indian Institute of Petroleum (IIP), Dehradun – **2018**
46) **Invited Lecture** – *GIS Applications and Rural Roads Connectivity*, BITS Pilani, Rajasthan – **2018**
47) **Special Lecture** – *Need and Application of Driving Cycle in India*, ACSIR–CRRI, New Delhi – **2018**
48) **Special Lecture** – *Research Methodology*, ACSIR–CRRI, New Delhi – **2018**
49) *Expert lecture* for workshop on "Challenges & Advancements in Transport Planning in the Era of Urbanization" Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad , 29.10.18 to 2.11.18.
50) **Expert Lecture** *on workshop on Traffic Strategies for management of Air Pollution over Delhi, scheduled on 18 September 2018. CSIR-NISTADS*
51) **Expert Lecture** *Workshop on 'Vehicular Pollution and Traffic Management' scheduled to be held on 17/02/2018 at Indira Prayavaran Bhawan, Jor Bagh New Delhi, MoEF&CC*
52) **Expert Lecture** *On Traffic* ***management in smart cities of future India".2017***
53) **Expert Lecture** – *Driving Cycle and GIS Application*, TEQIP Short-Term Course on Road Planning, Design, Construction, Operation, Evaluation and Rehabilitation, SVNIT Surat – **2016**
54) **Special Lecture** – *AHP-Based Evaluation of Sustainable Transportation System*, Sustainable Urban Transportation for Patna: A Curtain Raiser, NIT Patna – **2016**
55) **Member, Selection Board** – *Assessment and Recruitment of S&T, Administrative, and Project Staff*, CSIR–CRRI, New Delhi – **2016–2018**
56) **Keynote/Panel Speaker** – *Smart Transportation in Smart City*, Sustainable Smart Cities India (SSCI), NISPANA, Bangalore – **2015**
57) **Special Lecture** – *Transport Planning & Management*, TEQIP-II FDP on Urban Environmental Challenges and Their Control Strategies (UECCS-2015), Delhi Technological University – **2015**
58) **Special Lecture** – *Urban Transportation Planning*, Indian Institute of Public Administration (IIPA), New Delhi – **2014**
59) **Chairperson** – *WASD 11th International Annual Conference on Sustainable Development: New Multi-Disciplinary Approaches and Methodologies*, London School of Economics (LSE), London, United Kingdom – **2013**

Training/Workshop Programs Conducted Organized/ Coordinated /organizing Secretary –Total no 82 no. Workshop -58, No Regular Training -16 no, Customized-8no

1) Training Programme on Application of Geospatial Technology in Road and Transport Sector – Course Coordinator, 2025.
2) Workshop on ITNDP Phase 3, Meghalaya (Shillong, Nongstoin & Mawkyrwat) – Organizer Secretary & Project Leader, Jan 2024.
3) Workshop on ITNDP Phase 3, Meghalaya (Williamnagar/Baghmara) – Organizer Secretary & Project Leader, Jan 2024.
4) Workshop on ITNDP Phase 3, Meghalaya (Tura) – Organizer Secretary & Project Leader, Jan 2024.
5) Workshop on ITNDP Phase 3, Meghalaya (Resubelpara) – Organizer Secretary & Project Leader, Jan 2024.
6) Workshop on ITNDP Phase 3, Meghalaya (Nongstoin) – Organizer Secretary & Project Leader, 2024.
7) Workshop on ITNDP Phase 3, Meghalaya (Mendipathar) – Organizer Secretary & Project Leader, 2024.
8) Workshop on Integrated Transport Network Development Plan (ITNDP) Phase 3 – Organizer Secretary & Project Leader, 2024.
9) Workshop on ITNDP Phase 3, Meghalaya – Organizer Secretary & Project Leader, 2023–2024.
10) Programme on CSIR Foundation Day – Organiser (as Head, ILT), 2024
11) Programme on National Science Day – Organiser (as Head, ILT), 2024
12) Programme on CRRI Foundation Day – Organiser (as Head, ILT), 2024
13) Programme on Independence Day Celebration – Organiser (as Head, ILT), 2024
14) Programme on International Yoga Day – Organiser (as Head, ILT), 2024
15) Programme on Swachhta 4.0 Campaign – Organiser (as Head, ILT), 2024
16) Programme on IISF One-Day Outreach Activity – Organiser (as Head, ILT), 2024
17) Programme on IISF Janjatiye Gaurav Divas – Organiser (as Head, ILT), 2024
18) Programme on CSIR Foundation Day – Organiser (as Head, ILT), 2023
19) Programme on National Science Day – Organiser (as Head, ILT), 2023
20) Programme on CRRI Foundation Day – Organiser (as Head, ILT), 2023
21) Programme on Independence Day Celebration – Organiser (as Head, ILT), 2023
22) Programme on International Yoga Day – Organiser (as Head, ILT), 2023
23) Programme on Swachhta 4.0 Campaign – Organiser (as Head, ILT), 2023
24) Programme on IISF One-Day Outreach Activity – Organiser (as Head, ILT), 2023
25) Programme on IISF Janjatiye Gaurav Divas – Organiser (as Head, ILT), 2023
26) . Workshop on ITNDP Phase 2, Meghalaya (11–26 April across 11 districts) – Organizer Secretary & Project Leader, 2022.
27) Stakeholder Workshop under ITNDP Phase 2 at Khliehriat (East Jaintia Hills) – Project Leader & Organizing Secretary, 26-04-2022.
28) Stakeholder Workshop under ITNDP Phase 2 at Jowai (West Jaintia Hills) – Project Leader & Organizing Secretary, 25-04-2022.
29) Stakeholder Workshop under ITNDP Phase 2 at Nongpoh (Ri Bhoi) – Project Leader & Organizing Secretary, 22-04-2022.
30) Stakeholder Workshop under ITNDP Phase 2 at Shillong (East Khasi Hills) – Project Leader & Organizing Secretary, 21-04-2022.
31) Stakeholder Workshop under ITNDP Phase 2 at Mawkyrwat (South West Khasi Hills) – Project Leader & Organizing Secretary, 20-04-2022.
32) Stakeholder Workshop under ITNDP Phase 2 at Nongstoin (West Khasi Hills) – Project Leader & Organizing Secretary, 19-04-2022.

33) Stakeholder Workshop under ITNDP Phase 2 at Resu (North Garo Hills) – Project Leader & Organizing Secretary, 18-04-2022.
34) Stakeholder Workshop under ITNDP Phase 2 at Williamnagar (East Garo Hills) – Project Leader & Organizing Secretary, 14-04-2022.
35) Stakeholder Workshop under ITNDP Phase 2 at Baghmara (South Garo Hills) – Project Leader & Organizing Secretary, 13-04-2022.
36) Stakeholder Workshop under ITNDP Phase 2 at Tura (West Garo Hills) – Project Leader & Organizing Secretary, 12-04-2022.
37) Stakeholder Workshop under ITNDP Phase 2 at Ampati (South West Garo Hills) – Project Leader & Organizing Secretary, 11-04-2022.
38) Block-Level Interaction Workshop for Mylliem & Mawryngkeng Blocks (East Khasi Hills) – *Day 1: Monday, 3rd January 2021*, Shillong – *Project Leader & Organizing Secretary*.
39) Block-Level Workshop for Umling, Jirang, Thadlaskein, Mawrang, Umsning (Ri Bhoi, West Jaintia Hills) – *Day 2: Tuesday, 4th January 2021*, Shillong – *Project Leader & Organizing Secretary*.
40) Block-Level Workshop for Amarlarem, Laskein, Khliehriat, Saipung (West & East Jaintia Hills) – *Day 3: Wednesday, 5th January 2021*, Khliehriat – *Project Leader & Organizing Secretary*.
41) Block-Level Workshop for Shella, Laitkroh, Mawkynrew, Mawsynram, Mylliem (East Khasi Hills) – *Day 4: Thursday, 6th January 2021*, Pynursla – *Project Leader & Organizing Secretary*.
42) Block-Level Workshop for Ranikor, Mawkyrwat, Mawthadraishan (West & South West Khasi Hills) – *Day 5: Friday, 7th January 2021*, Nongstoin – *Project Leader & Organizing Secretary*.
43) Block-Level Workshop for Mawshynrut, Betasing, Zikzak, Selsella (West Garo Hills, South West Garo Hills) – *Day 6: Monday, 10th January 2021*, Nongstoin – *Project Leader & Organizing Secretary*.
44) Block-Level Workshop for Baghmara, Rongra, Chokpot, Samanda, Gasuapara, Dalu (South & East Garo Hills) – *Day 7: Tuesday, 11th January 2021*, Williamnagar – *Project Leader & Organizing Secretary*.
45) Block-Level Workshop for Rongjeng, Kharkutta, Songsak (North & East Garo Hills) – *Day 8: Wednesday, 12th January 2021*, Williamnagar – *Project Leader & Organizing Secretary*.
46) Block-Level Workshop for Tikrikilla, Dadenggre, Resubelpara (West & North Garo Hills) – *Day 9: Monday, 17th January 2021*, Tura – *Project Leader & Organizing Secretary*.
47) Workshop on Road Inventory, Condition Survey, and OD Survey, Meghalaya – Organizing Secretary, 2020.
48) International Seminar on Social Distancing Norms during COVID-19 – Organizing Secretary, 2020.
49) National Hindi Workshop on Role of S&T in Infrastructure Development – Organizing Secretary, Editor, Speaker, 2018–2019.
50) Workshop on Impact of Road Condition on Fuel Consumption – Organizer Secretary & Project Leader, 2016–2017.
51) EARNOVER Workshop, Funded by Shakti Foundation – Organizer Secretary & Project Leader, 2015.
52) State-Level Training on GIS & Road Asset Management, Bihar – Organizer Secretary & Project Leader, 2015.
53) Workshop on Understanding Driving Cycle in India – Organizing & Technical Secretary, 2012.
54) Workshop on Rural Road Master Planning (Bihar 55 districts) – Organizer Secretary & Sub-Project Leader, 2001–2004.
55) Project Scrutiny Workshop of PMGSY Proposals – Organizer Secretary & Project Leader, 2000–2001.
56) Training Programme on Geospatial Technology in Road and Transport Sector – Course Coordinator, 2000–2004.
57) Rural Roads & Master Plan Training, Andhra Pradesh (19 districts) – Organizer Secretary & Project Leader, 1998–1999.
58) Workshop on Rural Transport Survey, Karimnagar (World Bank Aided) – Organizer Secretary & Project Leader, 1997.

Regular Calendar 8 no x2 =16 no (2022-2024) Training Programs (TSP-1149) for 2 Crore Cash Flow as Organizing Secretary cum Project Leader

Sr. No	Title	Participating Agencies	Role
59)	Traffic Engineering & Road Safety Audit	Various Govt. & Private	Project Leader
60)	Design, Construction, Quality Control and Maintenance of Rigid Pavements	Various Govt. & Private	Project Leader
61)	Pavement Evaluation Techniques for Maintenance and Rehabilitation	Various Govt. & Private	Project Leader
62)	Design of Bridge Structure and Foundation	Various Govt. & Private	Project Leader
63)	Quality Assurance, Health Assessment & Rehabilitation of Bridges	Various Govt. & Private	Project Leader
64)	Design, Construction, and Quality Control in Flexible Pavements	Various Govt. & Private	Project Leader
65)	Geotechnical and Landslide Investigations for Highway Projects	Various Govt. & Private	Project Leader
66)	Planning for Sustainable Transportation System	Various Govt. & Private	Project Leader

Customized Training Programs-8 No as Organizing Secretary cum Project Leader

Sr. no	Title	Project Code	Agency	Role
67)	Orientation Programme on NQM at CRRI	CNP-2886	NRIDA	Project Leader
68)	Design, Construction, and Quality Control of Flexible & Rigid Pavements	CNP-2924	NRIDA	Project Leader
69)	Maintenance of Rural Roads – Asset Management & Budgeting	CNP-2924	NRIDA	Project Leader
70)	Design of Flexible and Rigid Pavements	CNP-2924	NRIDA	Project Leader
71)	New Technology Initiatives in Rural Roads incl. Marginal Materials	CNP-2924	NRIDA	Project Leader
72)	Training on Road network Planning	CNP-2924	Government of Meghalaya	Project Leader
73)	Customized Training on Rural Road Network Planning	CNP-2950	Meghalaya PWD	Project Leader
74)	Training Program: Latest Trends in Pavement Design, Evaluation & Maintenance	CNP-2943	Greater Noida Authority	Project Leader

Training Attended-20 nos

1) **Workshop on iGoT MDO Portal for CSIR Lab iGoT Nodal Officers**, December 17–19, 2024.
2) **Infrastructure Planning and Net Zero Emission**, ICLPST Taiwan, September 25 – October 25, 2024.
3) **INSA-NCGG Leadership in Science & Technology (LEADS) Programme**, July 08–14, 2024.
4) **Code of Conduct Rules for Scientists and Technologists**, iGOT Platform, June 9, 2024.
5) **'PM Gatishakti' Training**, iGOT Karmayogi Platform, January 7, 2024.
6) **Road Safety Audit Training Programme**, November 15–20, 2023.

7) **Energy Literacy Training Programme**, Energy Swaraj Foundation, 2023.
8) **Imap**, Imap – 1-day training on accident mapping, 2022.
9) **Sigma Plot**, Systat – 1-day training on data analysis, 2020.
10) **S-Paramic**, S Paramic Asia – 3-day simulation model training, 2019.
11) **ESRI CityEngine**, ESRI – 3-day training on city model development tools, 2019.
12) **ArcGIS**, ESRI ArcGIS India – 1-week training on GIS techniques, 2009–2019.
13) **VISSIM, S-Paramic, TransCAD, Microsoft Office, REIDs, HDM-4**, 1-day integrated tools training, 2019.
14) **NLOGIT**, Binary Semantics Ltd. – 1-day training on logistic analysis, 2019.
15) **SIR-Leadership Development Programme**, HRDC Ghaziabad, February 16–22, 2019.
16) **Big Data and Machine Learning**, SKIT Jaipur – 15-day training on data analysis, 2017.
17) **ESB PDF**, ESBPDF – 1-day training on probability density functions, 2014.
18) **TNT Mips**, MicroImage, USA – 3-day training on GIS applications, 2012.
19) **Paramics**, Edinburgh Napier University, UK – 2-week training on micro-simulation, 2009.
20) **VISSIM 5.2**, PTV, Newcastle, UK – 1-week training on micro-simulation modeling, 2009.

Reviewer in reputed journals -16 No

1) **Reviewer – Transportation Research Part D: Transport and Environment**, Elsevier – *Impact Factor: 6.248 (2024)*.
2) **Reviewer – Transportation Research Part A: Policy and Practice**, Elsevier – *Impact Factor: 5.780 (2024)*.
3) **Reviewer – Vehicular Communications**, Elsevier – *Impact Factor: 6.332 (2024)*.
4) **Invited Reviewer – Sensors**, MDPI – *Impact Factor: 3.4 (2023)*, 2024.
5) **Invited Reviewer – Sustainability**, MDPI, 2024.
6) **Invited Reviewer – Applied Sciences**, MDPI – *CiteScore: 3.7 (2021)*, 2023.
7) **Reviewer and Associate Editor – International Journal of Traffic and Logistic Engineering**, USA, 2022.
8) **Invited Reviewer – British Journal of Education, Society & Behavioral Science**, UK, 2022.
9) **Reviewer – Journal of Cleaner Production**, Elsevier – *Impact Factor: 11.072*, Year not clearly mentioned 2022
10) **Reviewer – Journal of Transport & Health**, Elsevier – *Impact Factor: 4.763*, 2021.
11) **Reviewer – Science of the Total Environment**, Elsevier – *Impact Factor: 10.753*, 2020.
12) **Special Invited Editor – Bhartiya Vaigyanik Evam Audyogik Anusandhan Patrika**, NISCAIR, New Delhi, *Volume 28, Issue 1*, June 2020.
13) **Invited Reviewer – Case Studies on Transport Policy**, Elsevier, 2019.
14) **Selected Reviewer – International Association of Maritime Economists (IAME) Conference**, 2019.
15) **Reviewer – Environmental Management**, Springer, USA – *Impact Factor: 4.310*, 2018.
16) **Invited Reviewer – Transportation in Developing Economies**, Springer, 2015.

Internal / External PhD/M.Tech Thesis Examiner / Examination Board Assignments/ACSIR (14)

1. *Examination Board Setting for TA Question*, CSIR-IGIB – 2025.
2. *Ph.D. Thesis Evaluation*: *Examining Commuters' Spatial Accessibility to Bus Rapid Transit Stations* by Fatima Electric Walaa, SVNIT Surat – 2025.
3. *CSIR – Combined Administrative Services Examination (CASE – 2023)* – 2023.
4. *Recruitment Assessment Board for Technical Assistant*, CSIR-CRRI – 2023.

5. *Ph.D. Thesis Evaluation*: *Development of Data-Driven Decision-Support Approaches Using Non-Destructive Testing for Enhancing Pavement Management Systems* by Ms. Vidhi Vyas, BITS Pilani – 2020.
6. *M.Tech Thesis Evaluation*: *Simultaneous Measurement and Analysis of PM_{10}, $PM_{2.5}$ and PM_1 Emitted During Fireworks in India* by Dasmeet Singh, DTU – 2020.
7. *M.Tech Thesis Evaluation*: *Impact Analysis of Firecrackers on Ultrafine and Quasi-Ultrafine Particle Number Concentration During Diwali Festival in Delhi* by Ajay Singh (2K18/ENE/01), DTU – 2020.
8. *Ph.D. Thesis Evaluation*: *Development of Sustainable Transport Strategies for a Low Carbon Urban Environment* by Ms. Pooja Singh, IIT Roorkee – 2019.
9. *Doctoral Review Committee Member*, AcSIR – 2019–2021.
10. *Course Coordinator*, AcSIR – 2014–Onward.
11. *Examination Board Member*, Diamond Jubilee Research Intern Examination – 2019.
12. *Ph.D. Thesis Evaluation*: *Study of Traffic Jam Noise at Different Floor Levels Near Intersection of Varanasi City* by Ms. Kanakabandi Shalini, IIT (BHU) – 2018.
13. *Ph.D. Thesis Evaluation*: *Characterization and Development of Emission Index for Petrol Driven Passenger Car* by Shaillendra Kumar Yadav, DTU – 2018.
14. *M.Tech Thesis Evaluation*: *Development of Real-World Driving Cycle for Various Modes of Urban Transport* by Mayur, SVNIT Surat – 2013.

12. Number of Books authored/edited: 6Edited+12 Authored=18

1) Editor- Kumar, Ravindra., Saleh, Wafaa. (2010). *Motorcycle Emission - Effect of Driving Cycle in Urban and Rural Area: Estimation of Motorcycle Emission Factor using Onboard and Chassis Dynamometer Technique under Different Driving Conditions.* VDM Verlag, Germany.
2) Rao, M.A., Kumar, Ravindra. Jain, P.K., Durai, B.K. (2005). A case of district-level location planning for educational facility based on rural accessibility approach. In *Geo-Spatial Technology for Development and Planning*. Allied Publishers Pvt. Ltd., New Delhi.
3) Kumar, R., Saleh, W., Kirby, H. (2007). Development of driving cycle for motorcycle for Edinburgh. In: *5th Int. Conf. on Managing Knowledge, Technology and Development in the Era of Information Revolution*, Griffith University, Australia. *World Association for Sustainable Development (WASD)*, Vol. 7, pp. 357–364. Outlook UK. ISBN: 0-9551771-3-8.
4) Kumar, R., Saleh, W., Boswell, C. (2009). Onboard emission measurement of motorcycles in Air Quality Management Area of Edinburgh. In: *Impact of the Global Financial Crisis on the Environment, Energy and Sustainable Development*, WASD 7th Int. Conf., Ahlia University, Bahrain. Outlook UK. ISBN: 978-907106-05-7.
5) Saleh, W., Kumar, R., Sharma, A. (2009). A comparison of Delhi and Edinburgh motorcycle driving cycles. In: *Impact of the Global Financial Crisis on the Environment, Energy and Sustainable Development*, WASD 7th Int. Conf., Ahlia University, Bahrain. Outlook UK. ISBN: 978-907106-05-7.
6) Kumar, R., Parida, P., Bhujang, K.D., Saleh, W. (2012). Real-world driving cycle in heterogeneous traffic condition in Delhi. In: *WASD Outlook 2012*, pp. 439–456. Brighton: WASD-SPRU. ISBN: 978-1-907106-194; eISBN: 978-1-907106-20-0. Greenleaf Publishing (Routledge, Taylor & Francis Group).
7) Kumar, R., Parida, P. (2013). Evaluation of following headway behavior in mixed traffic condition in Northeast India. In: *World Sustainable Development Outlook 2013*, pp. 365–390. Greenleaf Publishing (Routledge, Taylor & Francis Group), UK.
8) Dahiya, A., Kumar, R., Madhu, E., Sinha, S. (2015). National comprehensive assessment of sustainability indicators for public transportation including pedestrians and feeder services – A case study of Delhi. In: *Green Behavior: Rethinking Policy for Sustainability*, pp. 151–162. WASD, Outlook UK. ISBN: 978-1-907106-35-4.

9) Kumar, R., Madhu, E., Maan, A. (2015). Determination of combined exposure factor of different transport-related environmental pollutants by assessing air quality and noise levels: A case study of Delhi. In: *Green Behavior: Rethinking Policy for Sustainability*, pp. 1–11. WASD, Outlook UK. ISBN: 978-1-907106-35-4.
10) Verma, S., Kumar, R., Melkania, N.P. (2020). Vehicle usage controlling policies and their effect on vehicular pollution – Case study of Delhi. In: *Recent Advances in Traffic Engineering*, pp. 461–478. Springer, Singapore.
11) Kumar, R. (2020). Role of Science and Technology in Infrastructure Development. In: *Bhartiya Vaigyanik Evam Audyogik Anusandhan Patrika*, Vol. 28, Issue 1, pp. 1 & 115. NISCAIR, New Delhi. ISSN: 0971-7706; eISSN: 0975-2412.
12) Padma, S., Velmurugan, S., Kumar, R., Yendrembam, A. (2023). Area-based cross-classification measure of social vulnerability and accessibility to health services and a heterogeneous customer satisfaction index for IPT services in Imphal. In: *Lecture Notes in Civil Engineering (LNCE)*, Vol. 377. Springer Nature, Singapore
13) Editor Kumar, Ravindra., et al ., Central Road Research Institute CRRI Annual Report 2022- 2023 pp 1-276
14) Editor Kumar, Ravindra ., et al ., Central Road Research Institute CRRI Annual Report 2020-21 pp 1-235
15) Editor Kumar, Ravindra CSIR-CRRI Newsletter October 2022 - March 2023 Issue No.66 pp 1-64
16) Editor Kumar, Ravindra CSIR-CRRI Newsletter April 2022 - September 2022 Issue No.65 pp 1-50
17) Editor Kumar, Ravindra CSIR-CRRI Newsletter October 2021 - March 2022 Issue No.64, pp 1-45

13. *(a) Number of Patents/Copyrights/Trade Mark/IPR granted/applied for & highlights of translational research contributions: 6 No

Sl. No	Application Number	Title	Application Date	Status
1.	201911009347	Synthesis Of Energy Fuel From Plastic Waste And Its Efficiency	27/08/2019	TRL 4* Collaborative Research
2	4265168	Trademark, Kisan Sabha	14-08-2019.	TRL 8
3	CF-3719/2014	Understanding of real world driving cycle and its cinematography	10-06-2013	TRL 7
4	In Process	Transport Sustainability Index Software (TSI) for Indian Cities	03-06-205	TRL 7 _in principal Approved
5	In Process	RouteScan: Utilizing OCR for Low-Cost Road Dimension Analysis and Geo-Tagging,	03-06-205	TRL 7 _in principal Approved
6	In Process	Database of Integrated Transport Network	03-06-205	TRL 7 _in principal Approved

12b. Technologies developed, Licensed and/or commercialized with details (5 no -4.84 Crore)

S.N.	Technology /Process	Period during which developed	Date of transfer	Client	Total fees realized /commercialized	Your role
1	Geospatial Technology application in road asset and transport management system, master plan approach	1997 -2010	Jan-15	Road Construction Department, Bihar	1.4Crore	As the team leader/Project Leader of the developing technology and instrumental in successful absorption by the client
				Ministry of Road Transport and Highway	10 Crores (part Share)	Team Leader North East part NH
				Rural Works Department, Government of Bihar and Jharkhand	55 Lakh	Team Leader for 10 district
				Panchayati Raj Engineering Department, Govt of Andhra Pradesh	19 Lakh (Part Share)	Sub-Project Leader
				World Bank	7 Lakh	Member
				Meghalaya Infrastructure Development Finance Corporation	171 Lakh	Project Leader
2	Methodology for Driving cycle for emission and fuel and their impact assessment	2006 -2009	Mar-16	Petroleum Conservation Research Association, Govt of India	25 Lakh	Project Leader
			Oct-16	Shakti Foundation, India	16 Lakh	Project Leader
			Aug-13	Edinburgh Napier University, UK	50 Lakh	Post Doc Research Fellow
			2015-2016	Noise Pollution Mapping of Trivandrum City	30 Lakh (Part Share)	Subproject Leader
			2018-2019	Department of Environment	43 Lakh	Project Leader
3	Kishan Sabha - Connect farmers to the supply chain and freight transportation management system	2019	2019	Sarvodaya Infotech Pvt. Ltd.	20	Member
4	Procedure for Traffic Impact Assessment	2018 -2020	2019	Delhi Development Authority (DDA)	17 Lakh	Project Leader
			2020	Surat Municipal corporation	17 Lakh	Project Leader
5	Bicycle based Road asset management system.	2017-18	Yet to Commercialized			Project Leader

14. Dissertation supervised: 25

(a) Ph.D.-6
(b) Post-Graduation: 19

Ph.D. Scholars Co-Supervised/Supervised-6 (3 Completed 3 Ongoing)

S. No.	Name of Student	Institution with Joint Supervision	Title / Topic	Status
1	Tushar R Bagul	SVNIT	Auto Rickshaw Driving Cycle in Surat City	Completed 2012- 2017
2	Joseph Appiah	Edinburgh Napier	Car Following Driving Model	Completed *for 1 year* 2013 to 2018
3	M. Sitanathan	AcSIR	Driving Cycle, Fuel and Emission	Completed 2019-2023
4	Asif Hussain	DTU	Sustainable Transportation and Environment	Ongoing 2022-
5	Rohit Raghuvanshi	AcSIR	Accessibility-Based Planning	Ongoing 2022-
6	Anil Man	DTU	Transport Sustainability Indicators	Ongoing 2023-

List of M.Tech. And M.Sc. Students Supervised -19

S. No.	Name of Student	Degree	Title of Dissertation / Thesis
1	Deepdev (2024), CJU Jharkhand	M.Tech	Parameter-Based Reclassification of Indian Roads – A Case Study on Meghalaya
2	Hemendra Sharma (2023), Kautilya Institute of Technology	M.Tech	Transportation Sustainability Index in Urban Areas
3	Prateek Verma (2023), NIT Kurukshetra	M.Tech	Agriculture-Based Transportation Network Planning
4	Karri Abhi Ram (2022), BITS Pilani	M.Tech	Agriculture-Based Transportation Planning
5	Yenugandula Shashank (2022), BITS Pilani	M.Tech	Accessibility of Tourism in Meghalaya Using GIS
6	Ajay Masilamani (2022),	M.Tech	Geo-Spatial Analysis for Unconnected Habitations and Agricultural Clusters – Meghalaya Case Study
7	Ragini Saini (2020), IIT BHU	M.Sc.	CO_2 Emission Reduction Strategy Using Electric Vehicles and Economical Driving
8	GulnazbanuSaiyad (2020), MSU Baroda	M.Tech	Trip Generation and Travel Pattern of Rickshaw Pullers – Delhi
9	Gourav Chauhan (2020), TIET, Patiala	M.Tech	Trip Generation Modelling for Mass Housing Areas
10	Priyanka C.U. (2018–2019), Jawaharlal Nehru National College of Engineering, Shimoga	M.Tech	A Case Study of Microsimulation Modelling in Mass Housing
11	Praveen Kumar (2018–2019), DCRUST, Murthal	M.Tech	Traffic Impact Assessment & CO Variation – Greater Noida
12	Shivani Verma (2017–2018), Gautam Buddha University	M.Tech	Vehicle Usage Control Policies and Their Effect on Air Pollutants – Delhi Case Study
13	Asif Hussain (2015–2016), DTU	M.Tech	Sustainability Index Using Dempster-Shafer Theory
14	Ashutosh Yadav (2015), BITS Pilani	M.Tech	GIS-Based Database Development – Case Study
15	A. Bharat Kumar (2015), Jawaharlal Nehru Technological University Hyderabad (JNTUH)	M.Tech	Relationship Between Connectivity and Delay
16	Amit Dahiya (2014), National Institute of Technology Patna	M.Tech	AHP-Based Sustainability Indicator
17	S. Lakshmi (2014), NIT Surathkal	M.Tech	Micro-simulation Based Driving Cycle Using VISSIM
18	Surbhi Shukla (2013–2014), Madan Mohan Malaviya Engineering College, Gorakhpur	M.Tech	Idling Emission Using MOVES
19	Vedajit (2002), MS University Baroda	M.Tech	Model Master Plan of Rural Roads for Nagaon District

15.1-2 Page summary of vision as Leader of CSIR-CRRI:

Dr. Ravindra Kumar, Chief Scientist at CSIR–CRRI, brings over 28 years of distinguished scientific, technical, and leadership experience—including international research exposure in the UK and over eight years of senior administrative roles. As a prolific contributor with more than 170 publications, including in SCI-indexed journals, book, technical report, he envisions transforming CSIR–CRRI into a globally recognized center of excellence that spearheads India's journey toward safe, smart, inclusive, and sustainable road and transport infrastructure.

India's economic diversity and rapid growth—across sectors such as agriculture, logistics, tourism, mining, and horticulture—necessitate a region-specific, data-driven, and future-ready approach to infrastructure development. Dr. Kumar emphasizes the importance of customized solutions for geographically challenging and socioeconomically lagging areas, especially in border and tribal regions. His leadership aims to enhance CRRI's role in multi-modal transport research and its implementation, supported by cutting-edge tools such as AI, ML, remote sensing, and sensor networks.

A strong advocate of India's self-reliance goals, Dr. Kumar calls for reducing dependency on imported petroleum-based bitumen. He proposes a national research thrust on bio-bitumen, long-lasting cement-grouted bituminous pavements, and pavement recycling techniques, stabilizers, and alternative binders — positioning CRRI as a catalyst for 'Atma Nirbhar Bharat'. These innovations will also contribute to reducing lifecycle costs, enhancing durability, and advancing climate-resilient infrastructure solutions.

In alignment with India's Net Zero 2070 goal and the SDGs, Dr. Kumar proposes CRRI-led initiatives on solar pavements, electric highways, and materials recycling. His vision emphasizes lifecycle-based design standards and sustainable engineering models that translate science into real-world impact. A critical component of his agenda includes the identification of problematic soil areas—such as BC soil, soft clay, and desert soils—well in advance, enabling standardization of geotechnical investigations and preventing mishaps like the one on NH-66 in Kerala.

Road safety, another national priority, will be addressed through safety-centric engineering interventions, crash modeling, ITS deployment, and universal accessibility. The focus will be on high-risk zones, including schools, rural intersections, and urban corridors. CRRI's continued support to flagship national missions like PMGSY, Smart Cities, and PM Gati Shakti will ensure inclusive last-mile connectivity and mobility equity for all.

Digital transformation forms the backbone of Dr. Kumar's institutional vision. CRRI under his leadership will create real-time digital repositories, AI-enabled asset management platforms, and GIS-based road inventories, enabling data-driven governance and transparent decision-making. The development and national adoption of a Transport Sustainability Index (TSI) will support benchmarking of transport systems based on performance and environmental impact.

Recognizing that human capital is the foundation of national progress, Dr. Kumar is committed to skilling the next generation of transport engineers and planners. Through expanded postgraduate programs, AcSIR and other MOU signed Institution doctoral training, and industry-oriented certifications, CRRI will nurture a future-ready workforce equipped in areas like geotechnics, safety, bridge and pavement technology, automation, climate adaptation, and intelligent infrastructure systems.

Skilling India's transportation workforce is a critical mission. Dr. Kumar envisions CRRI as a national training hub—expanding postgraduate and AcSIR doctoral programs, and launching certification modules focused on

geotechnics, pavement systems, smart mobility, and infrastructure resilience. He also plans to strengthen CRRI's role in mentoring academia, collaborating with industry, and driving interdisciplinary R&D.

Recognizing the strategic and socio-political importance of India's North-Eastern and hilly states, Dr. Kumar advocates for intensified research in landslide-prone zones, ropeway-integrated systems, and all-weather roads. Such interventions will foster regional equity, support disaster preparedness, and secure border connectivity.

Dr. Kumar's mission-driven approach aligns closely with national flagship programs like Bharatmala, Sagarmala, Swachh Bharat, Digital India, and Gati Shakti. As a key player under CSIR's Civil Infrastructure and Engineering (CIE) theme, CRRI will foster synergy across ministries, state governments, and international partners such as the World Bank and AIIB.

Public engagement and outreach are also central to his strategy. Through initiatives like "One Week One Lab," "One Week One Theme," CSIR Jigyasa and dissemination via Sansad TV, India Science Channel, and social media platforms, Dr. Kumar ensures CRRI's research outcomes reach policymakers, practitioners, and the general public.

His leadership is already evident: under his tenure, CRRI has achieved ISO implementation, established regional offices in Patna and Shillong, and generated over ₹80 crores in project revenues. These outcomes reflect a track record of strategic vision, operational excellence, and national relevance.

As India moves toward Viksit Bharat @2047, Dr. Kumar's leadership promises to place CSIR–CRRI at the forefront of global transport research, building infrastructure that not only meets current demands but anticipates future aspirations—sustainable, safe, and smart.

"Our scientific expertise must translate into meaningful transformation for society. CSIR–CRRI should not only respond to present needs but lead India into a future of world-class mobility and infrastructure".

.

1) **Contact if any further details**

Director, CSIR–Central Road Research Institute (CRRI)
Delhi–Mathura Road, P.O. CRRI, New Delhi – 110025, India
Phone: +91-11-26848917
Email: director.crri@nic.in

I hereby declare that all the information mentioned above is true to the best of my knowledge.

Dr. Ravindra Kumar