

Dr. Pradeep Kumar, Chief Scientist, CSIR-CRRI, New Delhi, India



Dr. Pradeep Kumar is **doctorate** from Civil Engineering Department (Geometrics Engineering Group), **Indian Institute of Technology Roorkee, Roorkee.**

He is currently working as **Chief Scientist and Professor Academy of Scientific and Innovative Research at CSIR-CRRI.** He has more than 27 years' experience in R&D activities. The various projects undertaken by him are related to **Road Asset Management/Road Maintenance Management, Airfield Pavement Management and Non-Destructive Test Techniques for Pavement Evaluation.**

He has made significant contributions to the 10th, 11th, and 12th five-year plan projects of CSIR. He is the key person for the successful implementation of **modern pavement evaluation technologies** in India, mainly the **first Network Survey Vehicle (NSV)** for automated road inventory and pavement condition monitoring of highways and contributed as key member for **first GIS Based National Highways Information System in India.**

As a technical member of Road Maintenance and Asset Management Committee of Indian Roads Congress, he has major contribution for development of various guidelines for the country and other important codes. Some of his recent major contributions are:

- **Guidelines on Measuring Road Roughness and Norms, IRC SP16: 2019;**
- **Model Contracts for Maintenance of Roads (Based on Single Percentage Rate), IRC SP124:2019;**
- **Guidelines for Road Asset Management System, IRC 130:2020;**
- **Guidelines of Skid Resistance of Pavement Surfacing, IRC: 134-2022;**
- **Code of Practice for Maintenance of Bituminous Roads (Second Revision), IRC: 82-2023, Indian Roads Congress**

He is the **course coordinator** for CSIR-CRRI Regular Training Program on **Pavement Evaluation Techniques and Their Applications for Maintenance and Rehabilitation; and Road Asset Management / Highway Development and Management Tool (HDM-4).**

Apart from various publications in National and International Journals, Conferences and Seminars, he has published two books as principal author. His first book is on **Pavement Surface Condition Evaluation and Classification Using Geospatial Tools** and Second book is on **Manual on Pavement Evaluation Techniques.**

Area of Expertise:

- Road Asset Management (RAM)
- Airfield Pavement Management (APM)
- Non Destructive Test Techniques for Pavement Evaluation

Membership of Professional Bodies:

- Indian Roads Congress – Life Member (e-LM100731)
- Instrument Society of India, Indian Institute of Science, Bangalore – Life Member (LM-925, 10.06.2000)
- Indian Society of Remote Sensing-Life Member (L-4100, 01.01.2013)
- Geotechnical Society of India- Life Member (LM-1169, 23.03.2018)
- Alumni Association-University of Roorkee, Roorkee (LM-10258)
- American Society of Civil Engineers (ASCE memberID#10011198)

Participation in National and Internal Committees/Positions:

- Member of Road Maintenance and Asset Management Committee from 2018, Indian Roads Congress, New Delhi
- CSIR-CRRI Representation as Principal Member for Resource Management Sectional Committee, MSD 12, Management and Systems Division Council (MSDC), Bureau of Indian Standards, India
- Chairman, CRRI Welfare Committee, 2016-2020.
- Head, Pavement Evaluation Division, CSIR-CRRI from 01.05.2018 to 30.04.2020.
- Chairman, Resident Welfare Committee, CRRI Staff Colony Maharani Bagh, 2018-2020.
- Member Management Council of CSIR-CRRI from 01.01.2022 to 31.12.2023.
- Associated with Academy of Scientific and Innovative Research (AcSIR) as Professor, Member, Doctoral Assessment Committee (DAC) and supervising Ph.D. Students
- Chairman/Member in other Administrative Committees of CSIR-CRRI

Major Projects:

(M-Member, TL-Team Leader, PL-Project Leader)

Completed Projects

- Development of a Model Highway. (M)
- Development of Road Survey System for the Measurement of Road Geometrics and Surface Characteristics. (TL)
- Evaluation of Delhi Roads for Maintenance & Rehabilitation Strategies. (M)
- Evaluation of Pavement and Database Development for Selected Road Network of Mizoram State. (TL)
- Assessment of Pavement Surface Condition of Golden Quadrilateral Road Network under NHDP. (TL)
- Assessment of Riding Quality of Core Road Network in the State of Uttar Pradesh. (TL)

- Determination of Pavement Classification Number of the Runways at Indira Gandhi International Airport, New Delhi using Falling Weight Deflectometer. (M)
- Determination of Pavement Classification Number (PCN) and Suitability of Existing Runway for use at Surat Airport. (M)
- Evaluation of Serviceability of Pavement Surface of Eastern and Western Express Highways in Mumbai Region from traffic safety point of view by assessing / measuring Roughness Index and Skid Resistance. (PL)
- Evaluation of ARRB Roughometer-II under Indian Conditions. (PL)
- Evaluation of Intelligent Transport Systems (ITS) for Indian Conditions. (M)
- Evaluation of Electronic Toll Collection System using Radio Frequency Identification based on Dedicated Short Range Communication Technology. (M)
- Development of GIS Based National Highways Information System (TL-SSP4444-2006-2011)
- Development of National Document /Guidelines on Use of Weigh-In-Motion System in India for Axle Load Monitoring.(PL)
- Feasibility Study to Examine the Possibility for Installation of Weigh-In-Motion (WIM) System at Various Entry Points of Delhi (M)
- Functional and Structural Evaluations of Delhi-Noida-Delhi Flyway and Mayur Vihar Link Road Towards Determining the Maintenance and Strengthening Requirements (PL)
- Quality Audit of Lucknow-Muzzaffarpur National Highway Project (LMNHP) Works
- Consultancy Services for Conducting Road Safety Audit for PPP Projects on DBFO Basis. (M)
- Development of Management System for Maintenance Planning and Budgeting of High Speed Road Corridors (TL-SIP30-2007-2013)
- Road Inventorisation and Pavement Condition Survey on the Selected Road Stretches on National Highways using Vehicle Mounted Digital Video System Integrated with Global Positioning System (PL-CNP1928-2014-15)
- Assessment of Orissa Road Network Using Falling Weight Deflectometer (FWD) and Automated Road Survey System (ARSS) (PL-CNP1929-2014-15)
- Development of Database Management System for Delhi PWD Roads (Inner Ring Road and Outer Ring Road) (PL-CNP1857-2013-2014)
- Evaluation of Economic Loss Due to Idling of Vehicles at Signalized Intersection and Mitigation Measures (M-ESC0204-2012-2017)
- Development of Models between Fuel Loss and Emission
- Development and Application of Technologies for Sustainable Transportation (M-ESC0106-2012-2017)
- Design of Advanced Public Transport Information System using ITS Technologies
- Development & Design of Advance Driving Simulator
- Development of Indian Highway Capacity Manual (M-ESC0304-2012-2017)
- Bicycle based Road Asset Management system (PL-OLP0583-2017-2018)
- Impact of Road Condition on Fuel Consumption of Vehicle (M-GAP4564-2017-2018)
- Self-healing Technology for Bituminous Pavements through Induction Energy (M-OLP0585-2016-2018)
- Water Harvesting Using Porous Flexible Pavements (M-OLP0592-2016-2019)

- Assessment of Odisha Road Network (Works Department) Using Modern Data Collection Techniques Such as Automated Road Survey System and Falling Weight Deflectometer (CoPL-CNP2323-2017-2020)
- Assessment of Rural Road Network of Odisha Using Modern Data Collection Techniques Such as Automated Road Survey System and Falling Weight Deflectometer (CoPL-CNP2512-2019-2020)
- Development of Road Maintenance Management System for Kerala PWD Roads (M-SSP4631-2019-2020)
- Study on Decay in Modulus of Stabilized Aggregate in Flexible Pavement (M-SSP4618-2019-2022)
- Development of Pavement Structural Health Index for Network Level Evaluation of Flexible Pavement (M-OLP-0634-2021-2022)

Major Ongoing Projects

- Development of Airfield Pavement Management System (PL-CNP2507-2019-2024)
- Condition Assessment Using Modern Data Collection Techniques and Preparation of Annual Maintenance Plan using HDM-4 of Odisha PWD Roads (PL-SSP4704-2023-2025)

Other Important Works

- Guiding B.Tech./M.Tech. Students of various universities for their dissertation work
- Supervising Ph. D. thesis of AcSIR Students

Research Papers

- Published research papers in National and International Journals, Conferences /Seminars. (<https://scholar.google.com/citations?user=XaatYkkAAAAJ&hl=en>)

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Google Scholar: <https://scholar.google.com/citations?user=XaatYkkAAAAJ&hl=en>