

Minutes of the 135th Research Council (RC) Meeting

The 135th Research Council (RC) Meeting was held on 25.11.2025 and 26.11.2025 in the Council Hall of the Institute on a hybrid mode. The following RC members have attended the meeting:

Research Council Members (attended physically):

1. **Prof. Mahesh Tandon, RC Chairman**, Tandon Consultants Pvt. Ltd., New Delhi.
2. **Prof. Manoranjan Parida**, Director, CSIR-Central Road Research Institute (CRRI), New Delhi.
3. **Prof. R. Pradeep Kumar**, Director, CSIR - Central Building Research Institute (CBRI), Roorkee
4. **Sh. Mayank Mathur**, Chief Scientist, Central Planning Directorate (CPD), CSIR HQ, New Delhi.
5. **Dr. Errampalli Madhu**, Chief Scientist, TPE Division, Member Secretary, RC, CSIR - CRRI, New Delhi

Research Council Members (attended online):

6. **Sh. Dharmanand Sarangi**, Director General (Retd.), MoRT&H & Special Secretary, GoI.
7. **Prof. Lelitha Devi Vanajakshi**, Department of Civil Engineering, IIT Madras.
8. **Dr. (Ms). Minimol Korula**, Head, Strategic Projects, Maccaferri Environmental Solutions Ltd.
9. **Prof. K. Sudhakar Reddy**, Department of Civil Engineering, IIT Kharagpur.

Item 1: Welcome Address by Prof. M. Parida, Director CSIR - CRRI

At the outset, **Prof. Manoranjan Parida** welcomed the RC Chairman and other RC members present physically as well as on online mode for the 135th RC meeting. He mentioned that institute has made significant achievements in terms of technology transfers. He also mentioned that recruitment activity of 22 new scientists in various divisions has been completed successfully and out of that, 12 scientists have already joined the institutes especially in BES, FP, GTE, TPR and TES divisions. He also emphasised that RC meeting of the institute is an important activity and inputs of RC are valuable to conduct high level of research. Thereafter, he requested RC Chairman to deliver his opening remarks.

Item 2: Opening Remarks by Prof. Mahesh Tandon, RC, Chairman

Prof. Mahesh Tandon started his address by appreciating the work done by CRRI and praised the leadership of Prof. Parida as Director and also as IRC President in a balanced way. He made a note on Prof. Parida and it says that "Today, the Research Council Meeting is a special one. Prof Parida, our respected Director prepares to step back into an old chapter to IITR as Professor of Civil Engineering. His journey at the Central Road Research Institute has been defined not just by leadership, but by grace in leadership. Even while carrying the immense responsibility as Director CRRI, he has remained a constant source of guidance, support, and encouragement to many researchers and PhD scholars. It is rare to find someone who balances both responsibility and time management so well. He still finds the time-and the heart-to nurture academic curiosity in others. He has also just completed his tenure as the President of the Indian Roads Congress, a role that he carried out with great distinction. Leadership comes to him as a natural extension of who he is. From my interactions with the scientists of CRRI and Engineers of IRC, I could visualise that he has inspired the engineering fraternity not through his brilliance alone, but through his-demeanour of calm, grounded, and deep commitment to the growth of every individual around him.

His move back to academia is not just a transition-it is a homecoming to the field he has always cherished. While CRRI will miss his presence, his wisdom and his gentle leadership, we are also genuinely happy to see him return to what he loves most: teaching, mentoring, and shaping the next generation of engineers.

Sir, on behalf of the Research Council, I wish you the very best at IITR. May this next chapter bring fulfilment and joy to you and your family. Thank you”.

2.1 Viewpoints of Prof. Pradeep Kumar, CSIR - CBRI

Prof. Pradeep Kumar praised the efforts of Prof. Parida to elevate the image of CSIR-CRRI by accomplishing the tasks like recruitment, technology development and commercialisation, projects as part of CIE theme.

2.2 Viewpoints of Sh. Dharmanand Sarangi, Director General (Retd.), MoRT&H

Sh. Sarangi appreciated Prof. Parida in terms of his leadership and driving whole CRRI in positive direction, and also for significant contribution through IRC as well, solving issues in road infrastructure and sustainability and resilience. He also appreciated him for promoting application oriented research. The institute has been playing a major role in projects, not only lab based projects but also live projects which are very important and needs to be continuously taken up. These projects have to be implementable in the field and accordingly the proposals can be submitted to various funding agencies.

2.3 Viewpoints of Prof. K. Sudhakar Reddy, IIT, Kharagpur

Prof. Sudhakar Reddy appreciated Prof. Parida for he has patiently managed the institute and brought value to CRRI. Accordingly many research projects are taken up.

2.4 Viewpoints of Dr. (Ms.) Minimol Korula, Maccaferri Environmental Solutions Ltd.

Dr. Minimol Korula has also appreciated Prof. Parida for inspiring many researchers and also ensured dignity and discipline for the team working in the area of road research.

2.5 Viewpoints of Prof. (Ms.) Lelitha Devi, IIT Madras

Prof. Lelitha Devi thanked RC Chairman and Director CRRI. She appreciated that the excellent efforts carried out by Prof. Parida as Director and president IRC as well.

2.6 Viewpoints of Sh. Mayank Mathur, CPD, CSIR

Sh. Mathur appreciated the work done by CRRI in terms of completion of recruitment activity successfully. And also achieving last mile connectivity i.e. technology transfers which has happened for several technologies in the last 3 years.

Responding to the above, **Prof. Parida** informed that it is a team work and thanked all the staff who has worked to make this happen.

Item 3: Confirmation of the Minutes of the 134th RC Meeting

Dr. Madhu, Secretary RC, informed that the minutes of the 134th RC meeting held on 9.8.2025 and 10.8.2025 was circulated to all the RC members. Since there were no comments from the members, he requested the august gathering to approve the above minutes which was proposed by RC Chairman and agreed by the RC Members. From this, the minutes were declared as confirmed.

Item 4: Report of Director, CSIR - CRRI

Prof. Manoranjan Parida, Director CSIR-CRRI has presented Director's Report and the presentation covered a detailed summary of the institute's status, projects,

achievements, and activities since the last RC meeting on July 9th, 2025. The presentation included an update on the recruitment status and the present strength of the CSIR-CRRI staff, projects undertaken/completed, intellectual property rights, publications, foreign travel, training/skill development, events organized, honors/awards, and media coverage.

As of November 24th, 2025, the recruitment status showed that 16 administrative staff had joined. Out of 23 sanctioned Scientist posts, 12 Scientists have joined, with 10 yet to join, and 1 post remained unfilled due to the lack of a suitable candidate. The total sanctioned staff strength is 442, with a present strength of 245. The breakdown of present strength includes 53+12 Scientists in Group IV (sanctioned 110), 63 in Group III (sanctioned 80), 30 in Group II (sanctioned 69), 7 in Group I (sanctioned 45), and 80 in Administration (sanctioned 138).

Regarding projects from 2015-16 to November 24th, 2025, CSIR-funded projects (including In-house R&D, FBR, FTT, RDSF, FCP, etc.) had 8 awarded, 36 completed, and 8 ongoing. Contract R&D projects totalled 24 awarded, 11 completed, and 121 ongoing. Consultancy saw 16 awarded, 15 completed, and 139 ongoing projects. Technical Services included 15 awarded, 13 completed, and 34 ongoing projects. The total number of projects was 63 awarded, 39 completed, and 330 ongoing, with some projects having spilled over from previous years.

Since the last RC meeting, significant achievements include MoUs signed with Thapar Institute of Engineering & Technology (T.I.E.T), Patiala, Punjab for academic and research collaboration on October 8th, 2025 and an International MoU with the National Transport Research Organisation (NTR0), Australia, for cooperation in the Field of Road and Transport Industry on October 10th, 2025. Project Based Agreements were signed with the Udaipur Development Authority, Ajmer Development Authority, Municipal Corporation, Bikaner for Comprehensive Mobility Plans for their respective cities. Other agreements included projects with M/s TATA Steel Limited, M/s Jindal Steel & Power Limited (JSPL), M/s TACC Limited, and Indian Oil Corporation Limited (IOCL) for innovative materials and construction methodologies, such as steel slag utilization and graphene-enhanced pavement mixes.

Technologies transferred since the last RC meeting include "Indigenized Pelletized Fiber for Stone Matrix Asphalt" to M/s Ashita Renewables, Muzaffarnagar, U.P., on July 16th, 2025 and the renewal of "Modified Mix Seal Surfacing (MSS+)" to M/s JMVD Industries Private Limited, Lucknow, U.P., until August 24th, 2031. "Automatic Vehicle Counting Classification System Software (AVCC)" technology was transferred to M/s Coact Solutions Private Limited, Hyderabad, Telangana, on June 23rd, 2025. The license for "Development of Ready to Use Pothole Mix using Iron and Steel Slag Aggregates" was extended to M/s Ramuka Global Ecowork Private Limited, Andhra Pradesh on September 25th, 2025.

In terms of Intellectual Property Rights (IPR) since the last RC, two patents were filed: "Development of Technical Textile Using End of Life Plastic" on August 6th, 2025 and "Process for Producing Uncoated Cellulose Fiber Pellets for Binder Retention in Stone Matrix asphalt mixes and its Application" on August 25th, 2025. Two trademarks were filed: "Automatic Vehicle Counting Classification System Software (AVCC)" on June 2nd, 2025 and "Two Pack PatchFill" on August 6th, 2025. One copyright was registered for the work titled "MSS+ Brochure" on September 8th, 2025.

Major R&D projects taken up since the last RC meeting cover a variety of topics, including: virtual reality-based assessment of road signs, the impact of road roughness on energy consumption of electric vehicles, quantitative assessment of milling-induced structural changes in asphalt pavement, driver behaviour analysis at urban intersections, development of performance-based warrants for prevention of surface courses under

overloading conditions, and the development of a Smart Bridge Inspection & Rating System. Other projects focus on laboratory and field assessment of FDR Mixes, Vehicle Kilometres and Safety Assessment of Gig Workers in India's Urban Transport Sector (VIKAS), comprehensive mobility plans for Ajmer, Udaipur, and Bikaner, and various investigation and evaluation projects for national highways, including those in Gujarat, Tripura, and the Eastern Peripheral Expressway (NE 2). Material-focused projects include the laboratory evaluation of Iron Ore tailing, development of Bitumen Emulsion for structural layers, and the development and evaluation of Graphene-Enhanced Pavement Mixes.

A large number of consultancy and other projects were also taken up, involving pavement design, feasibility studies for road improvements, pavement evaluation, technical advice, structural audits, and quality audits across various locations and projects in India.

Major projects completed since the last RC included pavement testing and ACN/PCN determination for Savitri Jindal Airstrip, evaluation of distresses on the Hero Honda chowk Flyover, assessment of waterlogging problems in Haryana, load testing of bridges in Odisha, External Technical/Quality and Safety Audit of UER-II and Dwarka Expressway stretches, determination of Resilient Modulus of WMM material, and condition assessment and maintenance planning for Odisha PWD Roads using HDM-4. Other completed works involved structural health assessment of a minor bridge in Uttar Pradesh, inspection of bearings on the Delhi Meerut Expressway, preparation of an Integrated Transport Network Development Plan for Meghalaya, failure investigations and remedial suggestions for various national highways in Gujarat, Tripura, and Madhya Pradesh, utilization of biomass incinerator ashes, and assessment and evaluation of COP of HSRP.

In terms of publications between July 2025 and October 2025, a total of 81 papers were published or accepted, including 34 in SCI/Refereed Journals (with 7 accepted papers included), 47 in International and National Conferences, and 10 in Books/Chapters. Additionally, 14 accepted papers for forthcoming international conferences, including 10 for the 105th TRB Annual Session in Washington D.C., were not included in this count.

Three scientists performed foreign travel since the last RC meeting on July 9th, 2025. Sh. Ganvir Dinesh Vasantrao, Senior Principal Scientist, RPD, attended the 14th International Conference on Road and Airfield Pavement Technology 2025 in Thailand from July 16th to 18th, 2025. Dr. Ravindra Kumar, Chief Scientist, TPE Division, attended the Asia Pacific Conference on Road User Charging in Singapore on October 1st-2nd, 2025. Prof. Manoranjan Parida, Director, attended the PIARC TC 1.3 International Workshop in South Korea from October 25th-30th, 2025.

CSIR-CRRI conducted several training and skill development activities, including an interactive event for 29 Assistant Executive Engineers on July 28th, 2025, and 5-day regular training programs on Pavement Evaluation Techniques (July 7th-11th, 2025), Design of Bridge Structure and Foundation (August 4th-8th, 2025), and Rigid Pavement Design, Construction, Quality Control and Maintenance (August 25th-29th, 2025). A 6-day regular training program on Road Asset Management (RAM) was held from September 22nd-27th, 2025. Internships were completed by 36 M.Tech, 2 MURP, 8 M.Sc., and 119 B.Tech students between July and October 2025.

Workshops and conferences organized include the 11th International Conference on Transportation Systems Engineering and Management (CTSEM-2025) in collaboration with MANIT, Bhopal, a "One Day as a Scientist" initiative for 540 school students (July 21st-25th, 2025), and a workshop on Bridge Deck Waterproofing Systems for Highway Structures on August 26th, 2025. The 8th Dr. P. Raychaudhuri Memorial Lecture was held on August 26th, 2025, with Prof. Prem Krishna delivering the lecture. The conference

"Transportation Research Efforts for Ecological Sustainability (TREES 2025)" was jointly organized with VNR VJIET, Hyderabad (October 24th-25th, 2025). Other events included a conference on Traffic Noise Modelling in association with DTU, IIT-BHU, and CSIR-NPL (November 21st-22nd, 2025), and a seminar on Standardization of Bituminous Binder jointly organized with BIS on November 24th, 2025.

Events organized since the last RC include the celebration of the 74th CSIR-CRRI Foundation Day on July 16th, 2025, the 79th India Independence Day on August 15th, 2025, National Sports Day on August 29th, 2025, and the 84th CSIR Foundation Day on September 29th, 2025. National Unity Day was celebrated on October 31st, 2025, and a Special Campaign 5.0 for Swachhata and disposal of pending matters was conducted during October 2nd-31st, 2025. Hindi activities included a Hindi workshop on August 25th, 2025, and Hindi Pakhwada from September 15th-30th, 2025. The JIGYASA Students Outreach Program also continued with visits by students from Kendriya Vidyalaya.

Honours and awards received since the last RC include the Bihar PWD Medal for Best Paper on Road Research to Sh. Sachin Gowda and Dr. Aakash Gupta, and a Certification for Winner of Ministry of Road Transport and Highways Hackathon 2024 to Sh. Satish Pandey. Sh. Satish Pandey also received a Certificate of Appreciation for the Modified Mix Seal Surfacing (MSS+) Technology. Dr. Errampalli Madhu, Chief Scientist, Dr. Kayitha Ravinder, Chief Scientist, Dr. A. Mohan Rao, Chief Scientist and Dr. S. Padma, Senior Principal Scientist received Certification of Competence: Road Safety Auditor - Observer Level from IRF International. Dr. Siksha Swaroopa Kar received the Civil Engineering & Construction Review Award for the "Development of Pothole Repair System". The Best Paper Award at the TREES-2025 conference was received by Sh. Sachin Gowda, Dr. G. Bharath, and Dr. Deepa, S. Dr Naveet Kaur received multiple awards, including the Best Case Study (2nd Runner Up) Award at the CII National Corrosion Management Practices Competition, the Special Jury Award by CE&CR, Engineer of the Year (Female) 2025, the Ashoka Award 2025 and the IAStructE Award for "Outstanding Women Engineer of the year 2025".

At the end, Prof. Parida informed that CRRI was also featured in the media for the steel slag pilot project for road repairs in Andhra Pradesh, a study on noise barriers on Delhi flyovers, India's first road trial using waste plastic geocells, and the MSS+ Technology paving the way for green road construction in Uttar Pradesh.

Prof. Mahesh Tandon appreciated the Director's Report which is reflecting team work of the institute. He mentioned that the projects in Odisha state especially studying 334 bridges is commendable and involving multiple teams and multidisciplinary efforts which is a good thing. Regarding scientists recruitment, with the 22 new scientists, it has become healthy mix of scientists which is very important. The interaction between these across all age groups would carry lot of weightage to the research. In the report, the last mile connectivity in terms of technology transfers were also can be seen. The translational research outcomes should be taken up as "Freedom to Inform" by attending conferences, other platforms etc. He further informed that IAHE is leading in terms of taking up lot of training activities and should be allowed to use R&D facilities of CRRI. In response to that, **Prof. Parida** informed that usage of R&D facilities by IAHE is not possible with the present conditions of projects, scientific strength and increasing number of students, however technical assistance can be given to them in establishing their own facilities. **Sh. Sarnagi** also acknowledged that there was a continuous flow of faculty from CRRI to IAHE training programs. **Prof. Sudhakar Reddy** mentioned that the research carried out was very good

in terms of projects, publications, technology transfers, trainings etc. however, the contribution of rigid pavement area seems to be less. In response to that, **Prof. Parida** agreed that Rigid Pavement Division needs to be strengthened. With the new joining of scientists, this can be discussed and taken up accordingly [Action: Head RPD].

Prof. Lelitha emphasised that work was very impressive in terms of projects especially CMP for different cities, high quality publications etc. She mentioned that the newly joined scientists need to focus on fundamental research rather than routine works. And they need to be told the time distribution to these activities. In response to that, **Prof. Parida** informed that as per CSIR directions, the distribution has to be 70% translational and 30% high science research. By conducting divisional meetings, the high science journals where these new scientists can put their efforts in publishing can be deliberated. **Dr. Minimol** mentioned that she is very happy to see the achievements of the institute also achieving gender balance and age balance in new recruitment. **Prof. Pradeep Kumar** mentioned that Director's report showcased excellent indicators- projects, publications, technologies, recognitions and the visibility of CRRI contributions also increased. In the end, **Prof. Mahesh tendon** agreed the fact that women taking lead in research activities and also taking responsibility and it is good to have such a healthy mix for the institute.

Presentation of Research Projects:

Item 5: Pavement Engineering Area

Flexible Pavement (FP) Division, Rigid Pavement (RP) Division and Pavement Evaluation Division (PED)

S. No.	Details of Project, Project Leader and Funding / Sponsoring Agency	Comments / Suggestions of the RC members
5.1	“Development of Fatigue Performance Model for the Full Depth Recycling (FDR) Pavement Layer (FBR-040302)” CSIR FBR Project, Presented by Dr. Bharath G, Senior Scientist, Flexible Pavements Division (FPD)	• In UP, the sections constructed using FDR use chemical additives. How will the field data from UP help the current study since the present project considers only cement as an additive? • It is suggested to provide relations such as UCS vs. Modulus and UCS vs. Flexural Strength. • For the field samples, are you collecting modulus values? • Are you correlating the mechanical properties of the mixes with the gradations? • It is suggested to superimpose the fatigue data from the study with the AASHTO fatigue plots. • Shift factors – do you need more data?
5.2	Artificial intelligence-based tools for estimating in-situ moduli of pavement layers and Assessment of Geo-structures incorporating uncertainty of soil properties (MMP-015203)” CSIR-Mission	• Will the proposed model capture the variation of base, binder & surface layers in existing pavements or is there a requirement of different models for different pavement combinations? • It is suggested to have data collection sites which are fairly distributed throughout the country to validate the model.

	Mode Project Dr. Abhishek Mittal, Senior Principal Scientist, Flexible Pavements Division (FPD)	• How is the validation going to happen? From what sources? • Are you planning laboratory testing on the samples, if so, what kind of validation is proposed? Is it lab based? • Lab tests are suggested to find out the lab-field shift factors
5.3	“Characterization of Asphalt Film Thickness and its Impact on Bituminous Mixtures” (IHP240001) , CSIR-RDSF Project, Presented by Dr. Rajiv Kumar, Scientist, Flexible Pavements Division (FPD)	• Are you suggesting any change the current mix design procedure, how are you proposing to use the results of your study in the mix design procedure? • What are the other international standards where film thickness is an additional require? • In field how will you ensure the film thickness, is it practical? • The effect of change in design gradation on the film thickness and further on performance of the mix can be showcased for a few combinations
5.4	“Assessing the Suitability of Reclaimed Asphalt Pavement (RAP) as Coarse Aggregate with Nanomaterial as Construction Material in Concrete Road Construction (IHP240002)” , CSIR-RDSF Project, Presented by Sh. Romeil Sagwal, Senior Scientist, Rigid Pavements Division (RPD)	• How much RAP use do you propose in PQC layers? • Pilot section may be useful to demonstrate the proposed technology • Are different types of CNTs used in the study or is this proposed? • The influence of the water content in the mix may be investigated.
5.5	“Feasibility of using Reclaimed Asphalt Pavement (RAP) in High Performance Bituminous Mixes (Hiper) for Sustainable Road Construction” (IHP240005) , CSIR-RDSF Project, Presented by Dr. Safaraz Ahmed, Scientist, Flexible Pavements Division (FPD)	• Are you planning to collect data from test sections? • What modification should be added to the existing IRC specification based on your study?
5.6	“A Framework for Life Cycle Assessment of Hot and Cold Recycling Technology (IHP240006)” , CSIR RDSF Project, Presented by Dr. S. Deepa, Scientist, Pavement Evaluation Division (PED)	• As the title says are different alternate technology compared? • Was there any difficulty while implementing CCPR technology during construction? • Based on the study, can we establish rankings for different recycling options?
5.7	Development of Performance-Based Warrants for Prevention of Surface Courses under Overloading Conditions (RDS-250007) , CSIR-RDSF	• Are you concluding that the rutting failure in major highways is happening only in bituminous layers? • Based on the study, are you focusing on changing the mix design? what changes are you proposing

	Project, Presented by Dr. Ashish Walia, Senior Scientist, Flexible Pavements Division (FPD)	• Check the title • How will you find correlation between the lab observations and field observations -for development of warrants?
5.8	Quantitative Assessment of Milling-Induced Structural Changes in Asphalt Pavement for Improved Overlay Design (RDS-250009) CSIR-RDSF Project, Presented by Dr. Sampath Kumar Pasupunuri, Principal Scientist, Flexible Pavements Division (FPD)	• Will the depth of milling affect the Modulus Reduction factor? How is this addressed in the study? • How effective will be FWD survey on a rough, milled surface? • How do you plan to incorporate the results of the study in specifications? • It is suggested to use moisture damage and existing distress as variables in the model. It is also suggested to take cores, before/ after milling for analyzing mechanical properties
5.9	Impact of road roughness on energy consumption of electric vehicles (EVs) (RDS-250010) , CSIR-RDSF Project, Presented by Dr. Vidhi Vyas, Senior Scientist, Pavement Evaluation Division (PED)	• Is it possible to theoretically calculate the energy / fuel consumption given that rolling resistance is independent of vehicles? • Can you develop fuel consumption equation for electric vehicles based on the study?

Item 6: Traffic Engineering and Transportation Planning (TTP) Area

Traffic Engineering and Safety (TES) Division and Transportation Planning and Environment (TPE) Division

6.1	Driver Behaviour analysis at urban intersections under traffic blinker/ flashing signal (RDS-250007) CSIR-RDSF Project, Presented by Dr. Minal Chandra, Principal Scientist, Transportation Planning and Environment (TPE) Division	• More clarity on Dilemma Zone needed, maybe the term “Dilemma zone” needs to be renamed under a flashing red signal. • Driver behavior assessment through a questionnaire of the drivers may be considered. • The final outcome of the project should be a pointwise guideline, especially for night time safety and driver behavior • Driver behavior maybe included through an interview/ survey of the drivers at night time under flashing signal
6.2	“Exploring the Impact of Emergency Evacuation Caused by Flooding on an Established Transportation Network in a Level Landscape (IHP-240003)” , CSIR RDSF Project, Presented by Dr. Ramesh Chandra Majhi, Senior Scientist, Traffic	• Data concerns, as in was the data like traffic volume, etc. collected during flooding situation for the study area? • How was the emergency evacuation simulation scenario done? What strategies were used? What was the actual flood strategy deployed in the area? • Should try to include real data on what happened during the actual flood in the model. • The result shows no congestion on the routes (which is a concern), during evacuation. It means

	Engineering and Safety (TES) Division	that no evacuation strategy is needed under this situation. • More clarity on the input features used in different models, for comparing them to decide the better model. • Dr. Saragi commented that he got in touch with the officials in the study area and was informed that there has been no flood there since last 10 years. So he suggested that the study be switched to an area that has seen flooding in recent years.
6.3	“Development of Innovative Materials for Emission Absorbing Pavement System (FIR-040305)” CSIR FIRST Project, Presented by Dr. Rina Singh, Senior Principal Scientist, Transport Planning and Environment (TPE) Division	• Prof. Reddy inquired whether vehicular emissions have any impact on pavements when no photocatalytic material is incorporated. In response, it was clarified that, in the absence of photocatalytic additives, such emissions do not influence the pavement.
6.4	Study of effect of motor headlight beam on traffic safety (OLP-0661)” CRRRI In-house Project, Presented by Dr. Vinod Karar, Chief Scientist, Traffic Engineering and Safety (TES) Division	• Relationship between reaction time and light intensity maybe added to the study. • Suggested to connect Glare reduction with reaction time, emphasizing that the reaction time stays under threshold.

Item 7: New In-House Projects

7.1	“Virtual reality based assessment of road signs on driver behavior” Presented by Dr. S. Padma, Senior Principal Scientist, Transport Planning and Environment (TPE) Division	• The key performance indicators at the end of the project needs to be spelt out. • Can we include road markings as one of the input parameters? • How drivers who are in different lanes have an effect on driver information load? How this impact would be quantified in this VR model?
7.2	“Development of Smart Bridge Inspection & Rating System” Presented by Dr. Naveet Kaur, Principal Scientist, Bridge Engineering and Structures (BES) Division	• It is suggested to look into the similar application being developed by MoRTH. • How the changes were made/limitations of IRC 35 will be addressed in this application. • Can we have an NDT, such as for carbonation and chloride-induced damage in drones?
7.3	“Laboratory and field Assessment of FDR Mixes: Effect of Binder Types and Quality Control Parameters” Presented by Sh. Sachin Gowda, Senior Scientist, Pavement Evaluation Division (PED)	• It is suggested to use the curing compounds for curing the FDR mixes

7.4	“VIKAS: Vehicle Kilometres and Safety Assessment of Gig Workers in India's Urban Transport Sector” Presented by Dr. Mukti Advani, Senior Principal Scientist, Transport Planning and Environment (TPE) Division	- How to address the safety due to oversized bags used by gig workers - A Clear Data collection procedure has to be explained
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Item 8: Interaction with Newly Joined Scientists

The list of newly joined scientists is given below:

S. No.	Name of the Employee	Designation
1	Dr. Shubham Raj	Scientist (RP Division)
2	Dr. Taraka Malleswara Rao	Scientist (BES Division)
3	Dr. Shubham Saurabh	Scientist (BES Division)
4	Dr. Gavadakatla Vamsikrishna	Scientist (FP Division)
5	Sh. Aman Srivastava	Scientist (BES Division)
6	Dr. Vaibhav Mittal	Scientist (BES Division)
7	Sh. Amim Altaf Nabi	Scientist (TPE Division)
8	Dr. Dharitri Kahali	Scientist (TES Division)
9	Sh. V. Mukesh Vashan	Scientist (BES Division)
10	Sh. A. Porchelvan	Scientist (PE Division)
11	Sh. Soumyarup Biswas	Scientist (PE Division)
12	Dr. Hrishkesh Sahane	Scientist (GTE Division)

All the above scientists have presented their introduction very briefly about their educational qualification, area of research etc. The suggestion came from RC Members are summarized below:

- Integrate with on-going projects and team
- Establish technical and personal relationships by interacting people
- Work as member of the project initially to start with, later on opportunities would come as PI or Co-PI
- Identify the problems what India wants to solve
- Write some proposals and get new data and publish
- Conceive applied research as expectations from CRRI is high
- Consider P², T² and D² – Publish and Patent; Technology and Transfer; Delivery and Dissemination
- On board to existing projects, free to choose company, align with CRRI Vision

Item 9: Bridge Engineering and Structures (BES) Division

S. No.	Details of Project, Project Leader and Funding / Sponsoring Agency	Comments / Suggestions of the RC members
9.1	“Structural Safety Audit of Hero Honda Chowk Flyover and Underpass at Km 37.75 on	Try to explore more reasons for failure of deck slab including the records for the slump of concrete.

	Delhi – Gurgaon Section of National Highway NH-8 in the State of Haryana (CNP-2997) , Consultancy Project, NHAI, Presented by Dr. Naveet Kaur, Principal Scientist, Bridge Engineering and Structures (BES) Division	• Depth of cracks may also be mentioned along with their width • Sequence of construction shall be provided to ensure safety while reconstruction of deck slabs in continuous modules • Can some other option like FRP etc. instead of reconstruction of deck slabs be explored?
9.2	“Creation of Comprehensive Independent Testing Facilities for Bridge Expansion Joints at CRRI (GAP-4486)” Sponsored Research Project, MoRT&H, Presented by Dr. Rajiv Goel, Chief Scientist, Bridge Engineering and Structures (BES) Division	• By when the first commercial specimen can be tested in the facility being developed? • Issues with the vendors shall be resolved as per PO. • Possibility of engaging a new Consultant may be explored, if required. [Action: Head BES]
9.3	“Facility creation for the Condition Assessment and Testing for the Structural Safety Audit of Bridges in the form of Mobile Bridge Inspection Unit (FCP-512405)” CSIR Facility Creation Project, Presented by Sh Nitish Goyal, Senior Principal Scientist, Bridge Engineering and Structures (BES) Division	• What is the reason for procuring an assembled MBIU instead of completely integrated unit • Consider hiring of manpower for the operation of the new MBIU to be procured. [Action: Head BES]
9.4	“Third Party Quality Audit of Structures during construction period for 4-laning of Behsuma-Bijnor section of NH-119 (New NH-34) from Design Ch-39.250 Km (Existing chainage 39/240) to Design Ch 78.810 Km (Existing chainage 89/950) with Design length 39.560 Km in the State of Uttar Pradesh on Hybrid Annuity Mode under Bharatmala Pariyojna (SSP-4805)” , Sponsored Research Project NHAI, Presented by Sh. Nitesh Kumar Goyal, Senior Principal Scientist, Bridge Engineering and Structures (BES) Division	• Detailed methodology covering the number and type of tests, testing frequency, sampling criteria, location of test, permissible limits, shall be prepared and executed and report the results in format prescribed by MoRTH. • Please ensure the presence of all the stakeholders during CRRI visit and take the monthly progress reports from them and accordingly give your observations/recommendations and formally create the Minutes of meeting.

Item 10: Geo Technical Engineering (GTE) Division

S. No.	Details of Project, Project Leader and Funding / Sponsoring Agency	Comments / Suggestions of the RC Members
10.1	“Cyclic Interfacial Response of Geosynthetic Reinforcement with Marginal / Industrial Waste Materials for Highway Applications (IHP-240004)” , CSIR RDSF Project, Presented by Dr. Ravi Shankar, Senior Scientist, Geo Technical Engineering (GTE) Division	• Include cyclic performance evaluation using different geogrid types, and specify the geogrid reinforcement type used in the study. • Highlight how the results can contribute to provisions or improvements in IRC:SP:59. • Provide the expected design outcome, whether a new model or correction factors suitable for IRC:37-based pavement design will be developed. • Justify the need for static triaxial tests on reinforced unconventional materials within the study scope.
10.2	“Development of Biodegradable Prefabricated Vertical Drain by Molding Technique-A Sustainable Solution for Road Construction over Soft Soil (FBR040302)” CSIR FBR Project, Presented by Dr. Parvathi G. S., Senior Scientist, Geo Technical Engineering (GTE) Division	• Whether the permeability and clogging performance of NPVD has been evaluated. • Include assessment of commercial feasibility, including economic viability for roll-based supply. • Provide durability criteria for NPVD. • Present the tear strength evaluation and results for NPVD. Provide the performance of NPVD in laboratory scale • Develop and provide the state of the art guidelines for NPVD testing and installation, after the field trials. • Field installation scope and methodology • Clarify how SPT-N values are being utilized to determine the requirement of NPVD for ground improvement in the soft clay deposits
10.3	“Comprehensive Condition Assessment and Remediation Strategies for Six Lane Partial Access Controlled Eastern Peripheral Expressway (NE 2) Packages I to VI, starting from Kundli (1.00 KM) to Palwal (136.00 KM) (SSP-4813)” , Sponsored Research Project NHAI, Presented by Dr. Kanwar Singh, Chief Scientist, Geo Technical Engineering (GTE) Division	• What are the major distress observed in pavements and embankments. What are the identified reasons for the distress. • With respect to mechanically stabilized earth walls, what are the key distresses observed and what are the major reasons behind them? • How remedial measures or techniques are going to be suggested, and what methodology is going to be followed. • If nailing is going to be suggested for distressed MSE walls, what type of nailing should be used? And if a grouted nail is suggested, what type of grouting is recommended?
10.4	“Utilization of red mud in the construction of embankment along Gola-Varanasi Highway,	• Red mud used in the construction of embankments is hazardous or non-hazardous.

	Muri, Jharkhand (SSP-4802)", Sponsored Research Project Hindalco Industries Ltd. Presented by Dr. Anil Kumar Sinha, Chief Scientist, Geo Technical Engineering (GTE) Division	• How hazardous nature of red mud is controlled in the field. • Moisture sensitivity of red mud as it is proposed for use in embankment construction. • How the foundation/ base adopted for the red-mud embankment construction, including whether red soil or virgin soil is used. • What is drainage arrangement for the proposed red-mud embankment construction? • Why fly ash mixed with red mud, explain its role and necessity in the embankment construction. • Summarize any environmental impact assessment carried out for the use of red mud in embankment applications. • Application in the approaches of Reinforced Earth wall. • Any construction difficulties for the application of red mud.
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Item 11: Special Presentation

S. No.	Details of Presentation	Comments / Suggestions of the RC Members
11.1	"Air pollution: Delhi Perspective", Presented by Sh. Amim Altaf Nabi, Scientist Transport Planning and Environment (TPE) Division	• The suggestion in terms of having discussion at division and prepare a proposal to submit to appropriate funding agency

Item 12: RC Meeting with Scientists

Prof. Manoranjan Parida, Director, CSIR-CRRI welcomed RC Chairman, RC Members and all the scientists, administrative, finance and purchase section staff for this RC Meeting with Scientists. Prof. Parida asked the staff to interact with RC. Then, **Dr. S. Velmurugan** highlighted the issue of accommodation for new scientists and requested to explore the options at CSIR Scientist Apartments. **Sh. J. K. Goyal** said that implementation of E-office to be done strictly and deadlines need to be given. And also other other alternatives need to be identified [Action: Sr. COA].

Dr. Ravindra Kumar said that retired Chief Scientists need to be engaged as per the procedure in order to carry out the projects to meet deadlines. **Dr. Mukti Advani** said that the expenditure for AcSIR activities need to be managed from the AcSIR fund without any issues.

At the end, the RC Chairman and Director informed that they were largely impressed with the level of interaction and the accomplishments of CSIR – CRRI and thanked all the RC members for their valuable inputs.

The meeting ended with a Vote of Thanks to the RC Chair, Prof. Mahesh Tandon as well as to the members Dr Pradeep Kumar, Sh. D. Sarangi, Prof. Lelitha Devi Vanajakshi, Prof. K. Sudhakar Reddy, Dr. (Ms.) Minimol Korula and Sh. Mayank Mathur extended by the Director, CSIR - CRRRI and Secretary, RC.