CSIR - CENTRAL ROAD RESEARCH INSTITUTE, NEW DELHI

MINUTES OF 129th MEETING OF CSIR-CRRI RESEARCH COUNCIL

Date : 12th & 13th April, 2023
Time : 10 AM - 5.30 PM
Venue: Council Hall

The 129th Research Council Meeting was held on 12th and 13th of April 2023 in the Council Hall of the Institute.

The following attended the meeting:

Chairman
Prof. P. K. Sikdar, Former Professor IIT Bombay and Director, CSIR-CRRI, Advisor -IRF and President, M/s. ICT, Pvt. Ltd.

Members
Prof. K. Sudhakar Reddy, Department of Civil Engineering, IIT Kharagpur*.

Prof. Sanjay Gupta, Department of Transport Planning, School of Planning and Architecture, New Delhi.

Prof. Swagata Basu, Department of Civil Engineering, IIT Mumbai.

Sh. S. K. Nirmal, Former Director General & Special Secretary MoRTH, Secretary General IRC, New Delhi.

Dr. D. T. Thube, Former Secretary, Public Works Department, Government of Maharashtra.

Prof. R. Pradeep Kumar, Director, CSIR-Central Building Research Institute, Roorkee.

Sh. Mayank Mathur, Sr. Principal Scientist, CSIR-Central Planning Directorate (CPD).

Prof. Manoranjan Parida, Director, CSIR-Central Road Research Institute, New Delhi.

*Attended online

Secretary
Dr. Vasant G. Havanagi, Chief Scientist, CSIR-Central Road Research Institute, New Delhi.

Regret
Prof (Mrs) G. Madhavi Latha, Department of Civil Engineering, IISc Bangalore.
Dr.(Mrs) Esther Malini, GM, L&T infrastructure Development Projects Ltd., Chennai.

Invitees
All Scientists of CSIR-CRRI

Item 1 – Welcome Address by the Director CSIR-CRRI

Prof. Manoranjan Parida, Director CSIR-CRRI welcomed the Chairman RC, Members of RC and all the scientists to the 129th Research Council meeting of the Institute. He felicitated the RC members with a bouquet of flowers. He complimented the RC members for their continual support and for giving proper direction to all the scientists, which really helped them in taking up new R&D projects for the benefit of the society. He also indicated that based on RC suggestion, number of MoUs have been signed with different Academic Institutes and Industries.

Item 2 – Opening Remarks by the Chairman

Prof. P. K. Sikdar, Chairman RC, welcomed all RC members to 129th RC meeting. He asked all the scientists to take up new innovative cutting edge R&D research projects with social relevance. He reiterated that, all RC members had given lot of inputs in the 128th RC meeting, for accelerating the research output of the Institute. He asked the scientists that even in the consultancy projects, there shall be R&D output. Scientists shall focus on journal publications and at least 2 papers for each scientist shall be the target. He also advised that scientists shall do special efforts for timely completion of projects. Scientists shall continue their R&D on important areas, viz. Waste utilization, AI/ML technologies, development/innovation for smart and intelligent systems etc., which would lead to development of economic/sustainable and durable infrastructure for the benefit of the society.

Item 3 – Confirmation of the Minutes of the 128th RC Meeting

Dr. Vasant G. Havanagi, Secretary RC, informed that the minutes of the 128th RC meeting held during 4th and 5th November 2023 were revised in light of the comments received from Prof. Sanjay Gupta and the same was included in the 129th Agenda & Memoranda. The minutes were taken as approved.

Item 4 – Presentation of Action Taken Report

Dr. Vasant G. Havanagi, Secretary RC, presented the **"**Action Taken Report'' prepared based on the comments and suggestions by RC members during 128th RC Meeting. The presentation included compliance of the general suggestions from RC members and also specific comments on some of the R&D projects presented in 128th RC meeting. It was assured that all efforts shall be made by the Institute, to comply with the comments and suggestions of RC members.

Item 5 – Director's Report

Prof. M. Parida presented the progress report of the Institute for the period since last RC meeting. He informed the RC members that the Institute is continuing carrying out R&D in niche areas, viz. Waste to wealth mission, Application of AI/ML technologies,

and Development of new materials. RC members were informed about some of ongoing and new R&D projects, viz. the construction and monitoring of steel slag roads in different States; Preparation of Annual Maintenance plan for PWD Roads in the State of Orissa. In addition to these, he briefly highlighted the significant projects completed/taken up in different R&D areas of the Institute during the intervening period. He informed the RC members, that all these projects anyway contribute to sustainability and would also benefit the society. He also reported some of the major achievements of the Institute, viz. Technology transferred; MoU signed with Industry/Academia; Agreements; Trade mark; Patents granted/filed; Research publications of the scientists and ECF generated during the period. RC members were also informed about the appreciation/awards received by scientists during the period; Training programs/workshops organized by the Institute; Key note addresses by the scientists; Visitors during the period; Jigyasa programs organized for school children; Media coverage of R&D activities of the Institute; Hindi (Rajbhasha) activities etc. RC members were also informed about the renewal of the Quality Management Systems Certification License of the Institute by Bureau of Indian Standards (BIS) for IS/ISO 9001:2015 for a period of three years up to 18.12.2025.

Item 6 – Remarks by Research Council members

Prof. P. K. Sikdar appreciated the exhaustive presentation of the Director and progress made by the Institute since last RC. He expressed his satisfaction about the full scale construction of steel slag roads in different states. He was also happy about the asset management study taken up by the Institute at Orissa. However, he advised the scientists to be more technically advanced in their R&D output, by using AI/ML technologies or other latest available digital technologies. He mentioned about the need of R&D on testing of air bags for passenger and driver's safety. He once again reiterated the need for high quality publications in reputed journals.

Prof. R. Pradeep Kumar congratulated Prof. Parida for the progress made by the Institute since last RC. He expressed his happiness about the drone based R&D for assessment of bridges. However he suggested that large data needs to be collected for proper validation. He also mentioned about slope failures at Joshimath, Uttarakhand, due to subsidence. He asked the scientists to collect the necessary data, to evaluate the reasons for failures and can also evaluate through R&D regarding subsidence over time.

Prof. Sanjay Gupta appreciated the progress made by the Institute with variety of R&D activities. He suggested that turnover of the Institute may be prepared; and suggested that each scientist shall develop expertise in computational areas of Transportation engineering. He asked the scientists to develop expertise (by needed training) in data analytics for proper and highly convincing R&D output. **Prof. P.K.Sikdar** agreed with the view of Prof. Gupta, and emphasized the need of training of scientists as per their such requirements.

Dr. D.T. Thube expressed his happiness about the progress made, especially for the efforts in signing number of MoUs in a short period of time. He also mentioned about Odisha Road Asset Management project taken by the Institute and indicated that the outcome of this project would be very useful.

Sh. Mayank Mathur appreciated the good progress made by the Institute. He suggested that the Institute shall target 50 Cr ECF by the year 2025. He suggested that, in the Agenda & Memoranda circulated, only significant projects ongoing/completed shall be reported. He also suggested that Scientists shall focus on R&D related to different modes of transport and shall also take up supervision of Ph.D students for quality output.

Prof. Swagata Basu was satisfied with the continuous progress made by the Institute. She suggested that technology transfer of the developed patents is a necessity. Economics and societal benefits should be considered while carrying out different R&D projects.

Senior Scientists appreciated and made their suggestions about Taking up socially relevant projects, Filing of patents; and Research .

Dr. Ch. Ravi Sekhar raised the issue of delay in release of funds from CSIR for the CSIR-funded projects. He also informed the RC members that the publication in high impact journals takes 1 to 3 years. He also requested RC for taking a decision on paying charges for publication of technical papers in reputed / SCI indexed Journals. RC was of the view that decision for payment may be taken at the laboratory level itself.

Sh. S. S. Gaharwar also indicated about fund allocation problems in CSIR-funded projects and also the problems faced by scientists in procurements**. Dr. Rajeev Garg** raised the issue of retirements of staff, both at scientific and administrative levels. **Sh. Mayank Mathur** asked the scientists to approach CSIR for any help in solving the fund problems. He also indicated that re-phasing or time extension of the project may not be allowed.

Sh. Satish Pandey informed the members that after development of technology with the sponsorship of Industries, there is a need to take permission from the Industry before publication. **Dr. Ambika Behl** also indicated that in some of the NHAI funded projects, NDA has been signed which makes it difficult for publications. **Prof. P. K. Sikdar** and all other members asked the scientists to go for publications in other projects. Also asked the scientists, the clause of not to publish in the NDA, shall be carefully thought of before signing NDA. He also asked the scientists apart from filing of patents, efforts shall be done for publications. **Prof. Swagata Basu** also asked the

scientists to go for publications in reputed journals, which would increase the visibility of the Institute.

Prof. Manoranjan Parida indicated that, there cannot be any compromise on publications. He also assured the RC members that all efforts would be made to comply with the RC suggestions, viz. critical analyses of data including economic analyses in all R&D projects. He also promised to encourage all scientists (who are not doctorate) to take up their Ph.D. related research and also to arrange training programs for scientists and other staff as required.

Item 7 – Presentation of Research Projects- Pavement Engineering Area (FP/RP/PED)

S. No.	Project Details	Comments/Suggestions of the RC members
7.1	Development of Bio-binder for construction of flexible pavement Presentation by Dr. G. Bharath	➢ Aging resistance needs to be checked at various blending proportions. ➢ What was the blending process, viz. blending time and the temperature.
7.2	Performance evaluation of high volume traffic pavement constructed with Ferrochrome slag as an alternative to natural aggregates Presentation By Dr. Siksha S. Kar	➢ Aggregate angularity and its impact on performance needs to be studied. ➢ Data for the availability of Ferrochrome slag in India to be provided.
7.3	Condition Assessment Using Modern Data Collection Techniques and preparation of Annual Maintenance Plan Using HDM-4 for Odisha PWD Roads. Presentation by Dr. Pradeep Kumar	➢ Pavement category covered flexible and rigid ➢ Frequency of data collection ➢ HDM 4 Calibration models ➢ Estimation of maintenance budget All these are to be considered for the work.
7.4	Development of high strength fast curing Cementitious stabilized base layer. Presentation by Sh. Manoj Kumar Shukla	➢ Fatigue models to be developed for stabilized base layer. ➢ Performance observation of laid sections should be monitored regularly. ➢ Permeability of stabilized base layer to be assessed.
7.5	Determination and demonstration of Paving Mat interlayer Efficacy for Reduction	➢ Comparison of TOT values with/without MAT ➢ Specification of MAT to be clearly

	of Asphalt Pavement Overlay Thickness Presentation By Sh. Gagandeep Singh	stated. ➢ Any other test other than TOT ? ➢ Cost effectiveness of MAT ? ➢ How this MAT is going to help in overlays.
7.6	Study of self-healing performance of bituminous mixes using Microcapsule encapsulated Rejuvenators. Presentation by Sh. Sachin Gowda	➢ Effect of temperature on self-healing behavior of asphalt mixes needs to be studied. ➢ ITS test should also be included in the scope of work.
7.7	Development of Web-GIS/Web Portal for mapping of processed steel slag aggregates in India Presentation By Sh. Satish Pandey	➢ What will be benefit of developed portal to stakeholders. ➢ Possibility of sponsorship from Industries. ➢ To whom the portal access would be given. ➢ Different stakeholders who would feed the real time data in the portal. ➢ Portal should include the mapping of steel slags produced in India.
7.8	Development of deterioration models for high altitude low volume roads Presentation By Dr. Siksha S. Kar	➢ Clearly mention the number of stretches to be identified for the study. ➢ Clearly define the homogeneous sections for the R&D study with specific pavement compositions.
7.9	Field study and suggestion for Economical Design of pavement for strengthening of the existing truck parking area at ICD Dadri, U.P. Presentation by Sh. Dinesh Ganvir	➢ What was the CBR of soil? ➢ Which type of pavement was provided in other parking area of the ICD Dadri ➢ Why concrete pavement was not suggested. ➢ What was the size and grade of block pavement recommended.
7.10	Assessing the suitability of RAP (Reclaimed Asphalt Pavement) as coarse aggregate with Nano material as a construction material in concrete road construction	➢ Characterization and standardization of RAP ➢ Origin of carbon nano tubes. ➢ Time frame for the project

	Presentation by Sh. Romeil Sagwal	
7.11	Estimation and Development of Correlation among Compressive Strengths by Cube, Core, Ultra Sonic Pulse Velocity, LOK & CAPO and Schmidt Hammer Tests Presentation by Mrs. Lalita Jangpangi	➢ Apart from laboratory/semi field data, Field data also needs to be added for correlation ➢ Data may be collected from other divisions for development of proper correlations.

Item 8. Presentation on Research Projects – Bridge Engineering and Structures

Sl. No.	Project details	Remarks of RC Members
8.1	Investigation on existing portion of the bridge and proof checking of new spans (between P6 and P8) of the bridge near Kolaghat over river Ramganga and river Baigul, tehsil Jalalabad, district Shahjahanpur, Uttar Pradesh. Presentation by Dr. Rajeev Goel	➢ Whether the two fallen spans of the bridge have been constructed or not? ➢ What is the reason for the failure of foundation of P7?
8.2	Study of Nature of Ground Waves and protection of important structures against Vibration by active and passive isolation. Presentation by Sh. Kumar Shashi Bhushan	➢ Water Table effect in the R&D study. ➢ What is the effect of Bio-degradable nature of in-filled materials? ➢ What will be the depth and other dimensions of the trench considering the stability of soil ➢ How the density of in-filled materials be ensured as compared to in-situ soils. ➢ Whether the laboratory characterization of in situ soil has been completed?
8.3	Distress assessment and repairs of balanced cantilever bridge over river Ganga at Varanasi. Presentation by Sh Gaharwar/ Sh.G K Sahu.	➢ What type of instrumentation was provided in the bridge ➢ Why there was no alarming signal given by the bridge due to occurrence of severe distresses despite having instrumentation. ➢ Overloading of bridges is not reported by MoRTH/NHAI, then how this bridge reportedly got severely distressed due to overloading.

Item 9. Presentation on Research Projects – Geotechnical Engineering Area

Sl. No.	Project details	Remarks of RC Members
9.1	Design, Construction, Supervision and Pavement performance evaluation of road constructed by using Red Mud. Presentation by Dr. A. K. Sinha	➢ Possibility of settlement in Red Mud embankment due to fine grained nature of Red Mud ➢ Any instrumentation has been planned in the field. ➢ Is the distance between the leachate

		collection system provided at the base of embankment, needs to be reduced from 20m (as per drawing) due to poor permeability of red mud.
9.2	Hill Road widening using Light weight Geofoam Block - An alternative to earth cutting and filling. Presentation by Ms. Parvathi G. S.	➢ What is the relevance of considering geofoam interface with PCC and geomembrane. ➢ What is the maximum height feasible for geofoam wall ➢ Are the facial panels anchored to the fill

Item 10. Presentation of Research Projects - Traffic Engineering and Safety & Transport Planning and Environment Area

Sl. No.	Project details	Remarks of RC Members
10.1	Artificial Intelligence (AI) for Road Safety in Nagpur City Presentation by Dr. S. Velmurugan	➢ How does drivers' skill is being mapped to quantify the impact of CAS device? ➢ How does iRASTE Telangana is different from iRASTE Nagpur in terms of research approach. ➢ AI data analysis approach to be documented may be through IRC guidelines. ➢ Collection and assessment of the road quality parameters using Advanced Driver Assessment System (ADAS) data obtained in iRASTE, Nagpur project.
10.2	Consulting services for Road Safety Audit in design stage for the PWD North and North East roads in the State of Karnataka under KSHIP-3 Project. Presentation By Dr. A. Mohan Rao	➢ Does the scope of the project cover the role of the driver in road safety. ➢ Procurement of additional network survey vehicle. ➢ Need to take up iRAP training.
10.3	Development of Trip generation manual for Indian cities (TripGen)	➢ Sample check for Per capita Trip Rates (PCTR) ➢ Clarity regarding PCTR units

	Presentation by Dr. Ravi Sekhar	➢ Freight to be supported with Cordon surveys ➢ Scope of web-based software/tool shall be made clear. ➢ Need to have open house meeting to discuss Trip Tables.
10.4	Impact of Traffic on health amongst school children in Delhi Presentation By Dr. S. Padma and Dr. Rina Singh.	➢ Variation of traffic with PM 2.5. ➢ Location of air pollution monitors
10.5	Software development for optimum location of charging infrastructure of electric vehicles in Indian cities (Charge EV) Presentation by Dr. Ravi Sekhar	➢ Overall methodology should be discussed. ➢ Better to validate for a subset area of Delhi than the entire NCT Delhi. ➢ Practical site conditions should be considered for EV penetration rate
10.6	Study of the effect of motor Headlight Beam on traffic safety Presentation by Dr. Vinod Karar	➢ How the antiglare device would be validated in terms of its efficiency. ➢ Project outcomes including data generation ➢ Why experimentation is carried out with 2 wheelers ➢ How glare would be estimated objectively and how the efficacy of antiglare device would be measured

Item 11 RC meeting Scientists

Prof. K. S. Reddy suggested that all scientists shall have broad vision for carrying out their R&D in the particular chosen area, and they shall continuously build upon the same and shall identify new R&D areas.

Prof. Sanjay Gupta suggested that scientists shall explore new potential research areas. They shall continuously update their analytic skills/software application for quality output from the research projects. It is very important that, senior scientists shall encourage and motivate younger scientists. He also suggested to have round table conference regularly for quality research output.

Prof. P. K. Sikdar invited comments/suggestions from scientists regarding the two day RC deliberations or any other point they wish to share with RC.

Dr. Rakesh Kumar pointed out that expectation of ECF of 50 cr. by 2025 is very high, considering the staff crunch. **Prof. P.K.Sikdar** informed that the process to recruit 11 scientists has already started and in the later part of the year some more scientists would be recruited in different divisions. With the improved number of scientists and after modernization of existing laboratory facilities, you may aim for 50 cr. However, he said that at the moment a 30cr ECF is good.

Dr. S. Velmurugan also indicated that 50 cr ECF is a dream. He said, to achieve the same a lot of motivation to scientists is required, viz. time bound promotion of scientists and Gr.III staff; consultancy distribution in projects, and CSIR should take fast decision regarding the same.

Sh. S. S. Gaharwar was of the view that, to reach the 50 Cr ECF, there shall be high end R&D and everybody shall make efforts. He raised the issue of required support from administration and purchase departments. He also suggested that the procurement process shall be carried out in time bound manner, and there is need for early clearance of TA/DA bills.

Prof. P. K. Sikdar agreed that, to do research/consultancy works, it is very much important to have support from the administration and purchase departments. He indicated that in the next RC, we can plan for separate meeting with Administration and Purchase. In the mean time, Director can have a meeting with them and take necessary action to speed up the process. **Prof. Sikdar** also suggested that each R&D/Consultancy project taken shall be presented in the division. This exercise would be very beneficial for the success of the project.

Prof. Manoranjan Parida indicated that inputs from RC members are very useful. He assured that the Institute will carry out high end research activities for the benefit of the society. Apart from translational research, the Institute would take up M.Tech./Ph.D. students and strive for quality publications. He also informed that divisional reviews would be carried out in coming days, to monitor the progress of research works and to address the constraints faced by scientists.

Item 12 : RC Meeting with Director

Director/Secretary RC along with Controller of Administration discussed with RC members regarding large number of retirements of scientific staff in the Institute and urgent need of recruitment of Gr (IV) scientists in different divisions. After detailed discussions, it was decided that apart from 11 post of scientists (Gr. IV(2))(recruitment for which under process), 25 post of scientists (as indicated in the following Table), may be recruited in different divisions by following the CSIR Guidelines.

Sl.No.	Area & Field of Specialization	Number of Posts and Level to be filled up
01	Traffic Engineering & Safety	04 Entry Level, i.e. Gr. IV(2) and 01 Lateral

		Level, i.e. Gr.IV(3)
02	Transport Planning & Environment	01 Entry Level, i.e. Gr.IV(2)
03	Geotechnical Engineering	04 Entry Level, i.e. Gr.IV(2) and 01 Lateral Level, i.e. Gr.IV(4)
04	Rigid Pavements	04 Entry Level, i.e. Gr.IV(2) and 01 Lateral Level, i.e. Gr.IV(3)
05	Flexible Pavements	03 Entry Level, i.e. Gr.IV(2) and 01 Lateral Level, i.e. Gr.IV(3)
06	Bridge Engineering and Structures	01 Lateral Level, i.e. Gr.IV(4)
07	Pavement Evaluation	04 Entry Level, i.e. Gr.IV(2)

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