

CSIR - CENTRAL ROAD RESEARCH INSTITUTE, NEW DELHI
MINUTES OF 130th MEETING OF CSIR-CRRI RESEARCH COUNCIL

Date : 9th & 10th August, 2023

Time : 10 AM - 5.30 PM

Venue: Council Hall

The 130th Research Council Meeting was held on 9th and 10th of August 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 (Mrs) G. Madhavi Latha*, Department of Civil Engineering, IISc Bangalore.

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

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

***Attended online**

Member Secretary

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

Regret

Dr.(Mrs) Esther Malini, GM, L&T infrastructure Development Projects Ltd., Chennai.

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

Invitees

All Scientists of CSIR-CRRI

Item 1 – Welcome Address by the Director CSIR-CRRI

Prof. Manoranjan Parida, Director CSIR-CRRI welcomed Prof. P.K. Sikdar, Chairman RC, Members of RC and Scientists to the 130th Research Council meeting of the Institute. He complimented the RC members for their continuous support and for giving valuable R&D inputs for the scientific activities of CSIR CRRI. He felicitated the RC members with bouquet of flowers and a Memento.

Item 2 – Opening Remarks by the Chairman

Prof. P. K. Sikdar, Chairman RC, welcomed all RC members including those present online to 130th RC meeting. He informed that, because of the pandemic, all the RC meetings could not be held physically; however he expressed his satisfaction, as the last 3 meetings could be held in hybrid mode. He was of the view that, as the Institute is involved and developing different technologies, its effect is expected to be felt everywhere in the country. So he asked the Scientists to focus on development of cutting edge technologies in the areas; like digital mission; waste to wealth mission etc. He reiterated that, the outcome /recommendations from the R&D should finally benefit the society. Each Scientist shall own the vision document finalized by the Institute and work accordingly and shall strive for his own personnel research ambition, which in turn also benefits the Institute. He suggested that the domain of research activities carried out by Scientists shall benefit both urban and rural population. As MoRTH has a target to make India, the largest road network in the world, the role of CRRI has become extremely important. He was of the view that, with the growth of population pressure on every system, research needs would also change. With the economic progress of the country, population of both 2 and 4 wheeler vehicles would increase, which adds to congestion, safety, and pollution levels in the urban and rural areas of the country. To solve these problems, efficient design of road infrastructure becomes very important. Artificial Intelligence (AI)/Machine Learning (ML) techniques would be very useful to solve these problems. He asked the Scientists to develop smart technologies for the benefit of the society by using cloud computing, 5G/6G technologies etc. He also asked the Scientists to carry out research, which would eliminate fossil fuels and research on E-rickshaw etc. Prof. Sikdar also cited the moon mission on 14th July, by ISRO, and talked about the importance of information gathered so far by the scientists.

Since there is lot of expectation from CRRI, the scientists shall re-orient their research activities to address these challenges. Project outputs/outcomes shall be in the form of new technologies, better than current technologies/products. He reiterated that R&D projects shall focus on societal needs and shall align with the missions of Government of India. As the Prime minister is propagating the vision of a developed country by the year 2047, the responsibility of CRRI has increased and all scientists should contribute through research for the same .

Item 3 – Confirmation of the Minutes of the 129th RC Meeting

Dr. Vasant G. Havanagi, Member Secretary RC, informed that the minutes of the 129th

RC meeting held during 12th and 13th April 2023 was circulated to all RC members and there were no comments. The minutes were taken as approved.

Item 4 – Presentation of Action Taken Report

Dr. Vasant G. Havanagi, Member Secretary RC, presented the “Action Taken Report” prepared based on the comments and suggestions on different R&D projects by RC members during 129th 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 129th RC meeting. It was assured that, all efforts would be made by the Institute, to comply with the comments and suggestions of RC members.

Item 5 – Director’s Report

Director cited the One Week one Lab Program (OWOL) organized by the Institute and informed the RC members, about the opportunity/learning experience from that, wherein the Scientists interacted with Secretaries of State PWDs/BRO and had a fruitful discussion with different Industries. He briefly informed about the 7 days’ activities as; 16th July was celebrated as curtain raiser event (Waste to Wealth and sustainable materials). Student-Scientist connect on 17th July; Industry meet on 18th July, Young Researcher conclave on 19th, and he informed that all these activities were organized at CRRRI. Programmes outside CRRRI were also organized, such as at Bhubaneswar, Odisha (Engaging with state government on 20th July); Hyderabad, Telangana (Next generation Transport, on 21st July); and at Shillong, Meghalaya (Mobility @North east, on 22nd July 2023). He also mentioned about National Property Rights Festival 2023 celebrated by the Institute under Azadi ka Amrit Mahotsav during OWOL program.

He informed RC members that the CRRRI vision document is aligning well with CSIR vision document. In the current session Ph.D. students have been admitted from different Engineering & Science disciplines. He briefly presented different R&D activities of the Institute which included about EV studies; Noise barriers; Glare cutting; Bio bitumen etc. He also updated the RC members, about the preparation of steel slag manual, which needs to be endorsed by IRC. He cited different MoUs signed with Academic Institutes/Industry since last RC, viz. Russian Road Research Institute (ROSDORNII); Norwegian Geotechnical Institute (NGI); IIT Guwahati; and Madhya Pradesh Rural Road Academy (MPRDA). He also mentioned about technology transfer agreements signed with Somani Ecobuild Products and M/s Verma Industries. 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 RC about the recent assignment taken by the scientists, viz. preparation of quality control manual for MP PWD; Web-GIS based mapping of steel slag aggregates; Cold application of muck material; Projects taken up on application of FDR technology; IRaste –Telangana; Road safety audit of Odisha road network; Impact on traffic for vehicular breakdown etc.

He also reported other achievements of the Institute, viz. 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; Visitors during the period; Jigyasa programs organized for school children; Media coverage of R&D activities of the Institute. About the recruitment of scientists, he informed RC about the completion of screening of 11 scientists positions and action has been taken to take approval from RAB regarding recruitment of additional 25 Scientists. .

Item 6 – Remarks by Research Council members

Prof. P. K. Sikdar appreciated the exhaustive work carried out by the Institute. He informed that, he was also part of the OWOL program and he could see extensive industry interactions. He appreciated Hon. Minister of Science and Technology for floating this idea of organizing such a mega event. This event gave an opportunity to connect to the technology users. He wished that, all the projects presented will lead to translational research with distinct societal benefits. All scientists shall maintain the tempo of research activities and this should grow exponentially. He asked the scientists, to focus on completing the projects in time and also wanted that both consultancy and research should go hand in hand. Client's satisfaction should be given an utmost importance together with publications in reputed journals. Though significant progress is made by the Institute since last RC, he wished for further progress.

Prof. Sanjay Gupta complimented the impressive coverage of the progress made by the Institute since last RC. He suggested to Scientists about the importance/need of R&D dissemination to all relevant stakeholders. Whenever a new project is taken up, scientists should be clear about the need of the project; outcomes/deliverables and contribution to the existing state of art. The benefit accrued to the society and industry is also important. All these should become part of presentations of research projects by the scientists. He also suggested that the Institute may exhibit their technologies in different parts of the country. **Prof. Sikdar** suggested that, whatever R&D is carried out by the scientists, shall be implementable and shall lead to large scale field applications.

Sh. Sanjay Nirmal appreciated the progress made by the Institute. He expressed his happiness about the initiative taken by CSIR/CRRRI in organizing OWOL program, which has given real connect with all stakeholders. He thanked all the CRRRI scientists for their continual support in the preparation of IRC publications and this support shall continue in future. He underlined the importance of Road Safety programs conducted by the Institute. He again asked the scientists for timely completion of projects. He also suggested for one day brain storming session to identify the R&D areas for research. **Prof. Sikdar** supported Sh. Sanjay Nirmal and asked the scientists to stick to the timelines and complete the project with utmost satisfaction of the client.

Dr. D.T. Thube expressed his happiness about the progress made by the Institute. He appreciated the OWOL program of the Institute and it was badly needed for greater stakeholder connect.. He suggested that, training programs related to rural roads needs to be arranged at different places in the country and efforts shall be made to bring in senior officers especially, secretary level officers in these programs.

Sh. Mayank Mathur welcomed the RC chairman and all RC members. He suggested that consultancy and research projects in the Institute shall be in 1:1 ratio, which will increase the R&D output of the Institute. He appreciated the multidisciplinary Ph.D. studies carried out in the Institute. He also suggested that each scientist shall supervise one Ph.D. student. He asked the scientists to apply for the CSIR funded projects and all proposals shall align with CSIR Vision-2030 and other National missions of Government of India. He asked the scientists to develop a mission mode project on Artificial Intelligence (AI). He appreciated the OWOL program of the Institute. Interaction with industries and other stakeholders would definitely benefit the Institute. He also suggested to set up a committee to look into the progress made in the number of MoUs signed by the Institute. **Prof. Manoranjan Parida** assured that efforts will be made for intake of more Ph.D. students, however cited the constraints of hostel accommodation. **Prof. Sikdar** also reiterated the need of development of multidisciplinary cutting edge R&D technologies. He was of the view that consultancy and research projects in the ratio 1:1 is difficult, as the Institute is also extensively carrying out field research along with basic research. He appreciated the idea of co-ordination committee to be formed for the review of MoUs which can meet every 2 months.

Prof. K.Sudhakar Reddy appreciated the significant progress made by CRRRI since last RC. He was also of the view that, there shall be more intake of Ph.D. students. The R&D studies shall use FEM analysis, Linear elastic programs, and computer programs for quality output. He again reiterated that; scientists shall come out with quality research publications even from consultancy projects. **Prof. Manoranjan Parida** agreed with the view and he assured that more M.Tech/Ph.D. students will be recruited, and also he will encourage the scientists to publish research papers from consultancy projects.

Prof. Madhavi Latha complimented the research carried out by the Institute on Geofoam material. She was of the view that determination of interfacial characteristics with concrete and soil are very well documented in research literature, and similar characterization is required for geofoam. She also expressed her satisfaction about the continuous progress in R&D by the Institute. She suggested scientists to adopt numerical modeling techniques for validating the experimental results. **Prof. Sikdar** and **Prof. Parida** agreed about the importance of adopting numerical modeling techniques.

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 by Dr. G. Bharath | <ul style="list-style-type: none"> ➤ Optimize the Bio-oil dosages based on the performance tests. ➤ Performance parameters need not be matched with conventional binder/mix parameters. ➤ Is the Bio binder content can be increased with the use of Polymer modified bitumen? ➤ Environment and energy efficiency studies needs to be carried out. |
| 7.2 | Condition Assessment Using Modern Data Collection Techniques and preparation of Annual Maintenance Plan Using HDM-4 for Odisha PWD Roads by Dr. Pradeep Kumar | <ul style="list-style-type: none"> ➤ Need to include material properties data also on sample basis. ➤ Explore pavement deterioration pattern with the past Odisha PWD data and from different states with similar conditions. ➤ Explore pavement deterioration studies with control sections in India. ➤ Explore the possibility of new R&D research through a Ph.D student. |
| 7.3 | Development of cement-Asphalt mortar for application as a damping material by Dr Sarfaraj Ahmed | <ul style="list-style-type: none"> ➤ Relevance of test parameters /specifications to high speed corridors ➤ Need to determine workability parameters. ➤ Is there any dynamic loading/analysis in the project. ➤ Need of specific brief deliverables and outcomes. ➤ Suitability of cement-asphalt mortar as a cushion for a rail corridor? |
| 7.4 | Development of instrumented Benkelman Beam for structural evaluation of flexible pavements. Dr Ashis Walia | <ul style="list-style-type: none"> ➤ What is the loading position? Whether the measured values are rebound deflections? ➤ What is the final objective of the study? ➤ How many LVDTs are used and their positions? What is the frequency adopted for data acquisition? How much time is required for data collection at a single location? |

| | | |
|-----|--|---|
| | | <ul style="list-style-type: none"> ➤ Is it possible to develop a truck-based system (like NSV) to make it more automated? ➤ Can a different back-calculation software be developed for IBB, just like the case of FWD? ➤ Need to develop a SOP for field implementation of the IBB equipment. ➤ What about the Leg correction factors to be applied? |
| 7.5 | Development of Performance Grade (PG) bituminous binder classification system for India. By Dr. Siksha Swaroopa Kar | <ul style="list-style-type: none"> ➤ Need to adopt parameter based on field condition to develop correlations. ➤ Is the performance property of PG grade binder can be correlated with PMB binder? ➤ High end equipment may be used for collection of performance data, instead of development of correlation. ➤ The scope of work needs to be expanded for quality research. |
| 7.6 | Implementation of porous Asphalt technology to construct asphalt roads in heavy rainfall/hilly regions By Dr Rajiv Kumar | <ul style="list-style-type: none"> ➤ Will this technique be adopted for hilly regions?. ➤ What is the design parameter? Do you need rutting and fatigue parameters to be checked? ➤ How the optimum bitumen content is estimated? How permeability will be evaluated in the field? ➤ The referred ASTM code is old, look into latest updates. |

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

| Sl. No. | Project details | Remarks of RC Members |
|---------|--|---|
| 8.1 | Creation of independent testing facility for Bridge Expansion Joints at CRRRI by Sh.S.S.Gaharwar | <ul style="list-style-type: none"> ➤ What is the maximum capacity of the expansion joint which can be tested ? ➤ How to test the expansion joint, post its installation? Will it be possible to test in the new facility, which you are trying to establish? ➤ How many cycles will be used in fatigue test? ➤ Will you be able to finish the Project by 31st December, 2023 as committed to MoRTH, even if the Bidding Response of Package-3 remains improper? |
| 8.2 | Development of Implementation Methodology, Design criteria and Testing requirements for Bridge Deck Water Proofing Materials By Sh.J.K.Goyal | <ul style="list-style-type: none"> ➤ Is there any test performed in the project yet? ➤ Is there any plan to perform heating-cooling test? ➤ Is there any plan to perform humidity control tests? ➤ The products have been accredited in the IRC code and 10 more are in the waiting list. IRC is looking forward for the outcome of this project. A workshop may be planned jointly with IRC. ➤ It was suggested to generate all the test results for the experimentation and disseminate the same during a workshop with all the suppliers. |
| 8.3 | Structural Investigations and Recommendations for Distressed ROB between Udaipur and Chittorgarh on NH-76 By Dr Naveet Kaur | <ul style="list-style-type: none"> ➤ Was there any support settlement observed anywhere? ➤ Whether it was a normal or heavy traffic on the ROB? What type of bearings is suggested? ➤ Is any suggestion given for prevention of further corrosion? ➤ Did you analyse lateral stability for the cross beams suggested? |

Item 9. Discussion with Administration; Finance & Accounts and Purchase

Prof. P.K. Sikdar, Chairman RC welcomed the Scientists, Technical officers, Controller of Administration, Finance & Account officer and Sr. Controller of Stores and Purchase to the meeting. He was of the view that, support of Admin/accounts and purchase to the Scientists is very important for successful completion of R&D Projects. He then invited each of the HOD/Chief scientists about their view point.

Dr S. Velmurugan informed that in recent times, it is observed that there is faster clearance of TA/DA bills. He was of the opinion that, with the implementation of AMS; E-office, faster clearance of files is expected.

Sh. J.K. Goyal was of the view that, for the timely completion of research projects, there is a need of streamlining of file movement. There is a need to improve the present system of processing of files. The success/performance of the project largely depends on speedy clearance of TA/DA; Equipment purchase, and various other approvals.

Dr Ravi Sekhar appraised the need of good co-operation between Scientists and Administration/Finance & Accounts and Purchase. He suggested for speedy clearance of long pending telephone bills. Positive attitude from them would definitely increase the efficiency of Scientists.

Dr A.K. Sinha suggested for Pro-active approach and action from Admin./ Finance/ Purchase. This would definitely contribute for timely completion of Research projects.

Dr Rajeev Goel suggested that, there shall be time limit for clearance of files. He also requested for recruitment of additional staff for ESD.

Dr. Pradeep Kumar was of the view that, with the fast pace of road infrastructure development, it is extremely important for on-time delivery of projects to the client. Speed of progress of R&D projects depend on speed of support from Admin / Finance /Purchase.

Dr Abhishek Mittal suggested that, for procurement of big R&D equipments and for pending bills, there shall be time line. This would definitely help the scientists in carrying out their R&D.

Sh. G.K. Sahu suggested that for the success of a project, there shall be team work of Scientists and Admin/Finance/Purchase. It is very important, to speed up the process of file clearance and needs honest commitment. He suggested that, if small correction is needed from scientist in a particular file, this shall not be returned back. This would unnecessarily increase the time of processing.

Dr. Mohan Rao raised the issue of need of advance payment to be made for internet. He asked the Admin./Finance to come out with a solution.

Sh. Dinesh Ganvir raised the problems faced by Scientists, regarding payment to be made for calibration of equipments. Calibration of equipment is a must as per ISO:9001 procedures within the prescribed time limit.

Dr Ravindra Kumar informed that ILT is organizing number of events together. So it is very essential to clear the bills faster. He suggested for monthly review of pending bills.

Dr Niraj Sharma was of the view that in spite of very less manpower, OB bills were cleared very fast by Finance section, with the co-operation of Administrative staff/Purchase. He suggested for alternate arrangement should be in place if Admin/Finance staff goes on leave.

Dr K. Ravinder suggested for speedy clearance of bills of OWOL events.

Prof. Manoranjan Parida informed the RC about the team work of Scientists and Administrative staff in OWOL events. He was of the view that, with continuous dialogue, problems can be solved. He informed RC about the implementation of e-office from 15th August 2023. Monthly review meeting with Admin/Finance/Purchase would definitely speed up the process.

Prof. P.K. Sikdar agreed that digitization would definitely speed up the process of clearance of Telephone bills/Medical bills etc. However, he suggested there shall be time line for clearance of bills.

Ms Beena A. Sequeira, COA agreed with the views of Scientists that sometimes administration lag behind. This is mainly due to acute shortage of manpower and informed RC that they are working with 1/3rd the staff strength. So she suggested that increase in the manpower recruitment is the way forward.

Sh. Rejimon M.J., Controller of Finance & Accounts assured to speed up the performance in his section. He said the introduction of AMS will definitely help in the fast movement of files. As the software is new, he assured RC, that in a month noticeable improvements would be there in his section.

Sh. Yatinder Chauhan Sr Controller (Stores & Purchase) cited various reasons for delay in processing of procurement, viz. Shortage of manpower; frequent change of procurement procedures; Zero tolerance for purchase through GeM portal. He assured that within the existing constraints, he would try to speed up the process. He also suggested that, even before the project is finalized, procurement process can start, which would cut down the delay. Any issues of the procurement can be sorted out on a case to case basis.

Sh. Mayank Mathur agreed about the manpower shortage, and everybody shall follow GFR, GeM process for procurement. He also indicated that, procurement through GTE has become cumbersome. However he said, there is a need to built faith among scientific staff/Administration to speed up the process. **Prof. Manoranjan Parida** advised the Scientists to adopt pleasant approach in dealing with Admin/Finance & Accounts and Purchase. This would definitely speed up the process and he also informed the RC that he would conduct monthly review meetings for fast clearance of files.

Item 10. Presentation on Research Projects – Geotechnical Engineering Area

| Sl. No. | Project details | Remarks of RC Members |
|---------|---|---|
| 10.1 | Sustainable geocomposite drainage barrier by Ms. Mariya Dayana P.J. | <ul style="list-style-type: none"> ➤ How is the durability of the product tested/ascertained? ➤ Exact place of application of proposed product, during road construction? ➤ Apart from its utilization in road, what are additional R&D studies, which may be carried out, during installation period? ➤ What is the commercial viability of the developed product? |
| 10.2 | Landslide investigation and design of remedial measures for Sinking zones for the road from Nyu Sobla to Sela Tedang, Uttarkhand by Dr Kanwar Singh | <ul style="list-style-type: none"> ➤ No comments. |

Item 11. Presentation of Research Projects - Traffic Engineering Area

| Sl. No. | Project details | Remarks of RC Members |
|---------|--|--|
| 11.1 | Road safety audit of Odisha Road network and Capacity building programs for OWD Engineers. By Dr. K. Ravinder | <ul style="list-style-type: none"> ➤ What are the areas considered for carrying out research leading to M.Tech. and Ph.D. thesis?. Local Institutes at Bhubaneshwar may be contacted for the same. |
| 11.2 | Intelligent Solutions for Road Safety through Technology & Engineering (iRASTE),Telangana : An Overview by Dr. Ravi Sekhar | <ul style="list-style-type: none"> ➤ Create models based on ADAS Data and perform the Grey Spot Analysis for inter-urban roadways. ➤ Highlight the advantages of iRASATE Telangana over iRASATE Nagpur. ➤ Assess the transferability potential of Grey Spot models developed in iRASATE Telangana to other National Highways. |
| 11.3 | Human drowsiness detection systems applicable to drivers By Dr A. Mohan Rao | <ul style="list-style-type: none"> ➤ Driver Fatigue experiments should cover the different topology of roads |
| 11.4 | Consulting services for Road Safety Audit and design for the | <ul style="list-style-type: none"> ➤ The correlation between Road Safety Audit (RSA) and iRAP star rating is |

| | | |
|------|---|---|
| | PWD North and North East roads in the State of Karnataka By Dr A. Mohan Rao | needed for the industry, which needs to be studied as a research component. |
| 11.5 | Identification of the most critical locations having the highest impact on traffic in case of vehicular breakdown. By Dr Mukti Advani | ➤ Try to collect primary/secondary data related to 'Vehicle Breakdown scenario at real ground situation' by connecting to Delhi Traffic Police office. |
| 11.6 | Software development for optimum location of charging infrastructure of electric vehicles in Indian cities (Charge EV) by Dr. Ravi Sekhar | <ul style="list-style-type: none"> ➤ Investigate the influx rate of EV models at Charging Stations. ➤ Analyze the service duration of EV vehicles in the National Capital Territory (NCT) of Delhi. ➤ Examine the spatial restrictions influencing the establishment of Charging Stations. ➤ Enhance the optimization of Charging Station locations using Demand Satisfaction as a key parameter. |

Item 12 RC meeting Scientists

Prof. P.K. Sikdar , Chairman RC welcomed all Scientists and invited them to give their views about improving R&D activities in the Institute.

Dr A.K. Sinha suggested for more in-take of Ph.D. students and need to increase the publications. He raised his apprehension of taking Ph.D. students without scholarship. He suggested that the Institute shall try for getting funds from the Ministry. **Prof. Manoranjan Parida**, responded that, funds shall be arranged from Institute's Externally Funded projects. He said LRF cannot be used for the same. **Prof. P.K. Sikdar** cited the example of HDM-4 asset management project at Odisha, and suggested that a Ph.D. student may be taken under the project with joint supervision of CRRI Scientist and IIT Bhubaneshwar faculty.

Sh. J.K. Goyal suggested the need of structural changes in the policies to speed up the process of R&D in the Institute. He suggested for quick hiring of manpower/experts through empanelment. He also suggested to recruit experienced staff in the Institute through deputation, just like other organizations. He also suggested to train the existing Scientists/Technical officers, by encouraging them to work with private consultants. **Prof. P.K. Sikdar** agreed with the view of Sh. J.K. Goyal regarding his suggestions for inducting staff through deputation and quick hiring through empanelment. However, these possibilities shall be looked through the ambit of rules. **Prof. Manoranjan Parida** suggested that consultants can be hired as per CSIR procedures.

Dr Neelima Chakraborty requested the Chairman RC about his thoughts for upliftment of Research activities at CRRI. **Prof. P.K. Sikdar** suggested that, utmost importance

shall be given to research, and technology developed shall be translational and finally should benefit the society. Vision of the Institute shall match with the vision of CSIR. He suggested that the Scientists, to individually flourish with research, which in turn results in the rise of the Institute. He suggested exploring IPs/Publications in every project undertaken. Again reiterated that, research shall also be part of all consultancy projects.

Dr Ravi Sekhar suggested that a budget of 0.5% of project cost may be allotted to CCN division, who shall undertake repairs/upgrade of the existing computational facilities. **Prof. P.K. Sikdar** agreed with the view and indicated the importance of faster computational facilities required for quality research.

Sh. G.K. Sahu raised the issue of high cost of the project charged to the client as per CSIR procedures. **Prof. Sanjay Gupta** informed the Scientists about the methodology adopted by SPA for funds distribution, when consultancy project is taken up.

Dr K. Ravinder suggested empanelment of vendors for collection of data for Traffic Engineering R&D activities. This would speed up the process of Research in the Institute. He also suggested that based on his experience of organizing OWOL activities, there shall be policies to speed up the urgent processing of procurements (equipments/services/catering, etc) for successful organization of events.

Dr Niraj Sharma suggested that Research: Consultancy projects in the Institute shall be 1:1 and Scientists shall carry out more Grant in Aid Projects. **Dr S. Velmurugan** was of the view that, this ratio is possible only for Science oriented laboratories like IGIB/CCMB etc., who by their basic research, publish number of research papers. He indicated that, applied research is also important for CRRRI considering the need of the country. **Prof. Manoranjan Parida** cited the earlier RC discussion, 70% of R&D shall be applied/translational research, and remaining 30% shall be basic research. He suggested scientists to publish in SCI and other high impact Research Journals.

Item 13 : RC Meeting with Director

Director/Secretary RC/Dr S. Velmurugan along with Controller of Administration discussed with RC members, regarding recruitment of new Scientists at CRRRI either at Scientist-B (L-10) or Scientist C (L-11) level. The discussion was held, in light of letter received from CSIR HQ (No. 5-1 (814)/2022-PD dated 08-08-2023) regarding revised Scientist recruitment process in CSIR. After detailed deliberations, mandate of the Institute, R&D areas, objectives and strategic goals of the Institute, it was decided that the new Scientists at CRRRI shall be recruited at Scientist C (L-11) entry level. The recruitment process for lateral level entry posts shall remain the same.

