

CSIR - CENTRAL ROAD RESEARCH INSTITUTE, NEW DELHI
DRAFT MINUTES OF 124th MEETING OF CSIR-CRRI RESEARCH COUNCIL

Date 2nd & 3rd December, 2019
Time 10. 00 hours
Venue CRRI Council Hall

The following attended the meeting:

Chairman

Prof. Tarun Kant, Professor Emeritus, IIT Bombay

Members

Lt. Gen. Suresh Sharma, AVSM, Former Engineer-in-Chief, MoD, (Army) (on 2nd Dec. only)
Dr. I.K. Pateriya, Director (Projects- II), NRIDA
Dr. R.K. Bhandari, Former Director, CSIR-CBRI
Dr. N. Gopalakrishnan, Director, CSIR-CBRI (on 2nd Dec. only)
Prof. Santosh Kapuria, Director, CSIR-SERC
Prof. Satish Chandra, Director, CSIR-CRRI

Secretary

Shree K. Sitaramanjaneyulu, Chief Scientist, CSIR-CRRI

Regret

Prof. Ranganathan Sundaravadivelu, Professor, IIT Madras
Shree A.K. Gupta, Former Member, UP-PSC
Shree R. K. Pandey, Member, NHAI

DG, CSIR attended part of the first session of RC Meeting on December 02, 2019.

Invitees (CSIR-CRRI)

All scientists attended the forenoon session of the first day of the Research Council meeting and the following scientists attended remaining proceedings also.

Name	Designation
Dr. Anuradha Shukla	Chief Scientist
Dr. P.Lakhmy	Chief Scientist
Shree U.K. Guruvittal	Chief Scientist
Shree P.V. Pradeep Kumar	Senior Principal Scientist
Shree M. N. Nagabushana	Senior Principal Scientist
Dr. Devesh Tiwari	Senior Principal Scientist
Dr. Pradeep Kumar	Senior Principal Scientist
Dr. Rajeev Goel	Senior Principal Scientist
Dr. Rakesh Kumer	Senior Principal Scientist
Dr. Ravindra Kumar	Senior Principal Scientist
Shree G.K. Sahu	Senior Principal Scientist
Shree Binod Kumar	Senior Principal Scientist

Shree R.K. Srivastava	Senior Principal Scientist
Shree S. S. Gaharwar	Senior Principal Scientist
Shree Subhash Chand	Senior Principal Scientist
Dr. Vasant G. Havangi	Senior Principal Scientist
Dr. Ch. Ravi Sekhar	Senior Principal Scientist
Dr. Nasim Akhtar	Senior Principal Scientist
Dr. P.S Prasad	Senior Principal Scientist
Dr. Neelam J Gupta	Principal Scientist
Shree Ajay Kumar Jain	Principal Scientist
Dr. Ambika Behl	Principal Scientist
Dr. A.K. Sinha	Principal Scientist
Shree Manoj Kumar Shukla	Principal Scientist
Dr. Mukti Advani	Principal Scientist
Shree Satish Pandey	Senior Scientist
Dr. G. Bharath	Scientist
Dr. Naveet Kaur	Scientist
Mrs. Parvathi G.S	Scientist
Shree Sampath Kumar	Scientist
Shree Vivek Dubey	Senior Technical Officer
Shree Pankaj Goel	Senior Technical Officer

Item 1 – Welcome Address by the Director CSIR-CRRI

Prof. Satish Chandra, Director CSIR-CRRI welcomed the Director General, CSIR, the Chairman and the other Members of RC and the scientists to the 124th Research Council Meeting. He expressed his gratitude to Director General, CSIR for accepting the request to attend CSIR - CRRI RC meeting and give his valuable suggestions. He mentioned that first session will be attended by all scientists where he is presenting the report of CSIR CRRI. He requested the chairman to start the proceedings and for opening remarks.

Item 2 – Opening Remarks by the Chairman

Prof. Tarun Kant, Chairman RC, welcomed DG CSIR, Director CRRI, RC members and all scientists to the 124th RC meeting. He mentioned that the role of the RC is to look into research activities of the lab and help in improving the performance of the laboratory.

He mentioned about the article he had sent to all RC Members regarding the quality of research within the country. He reiterated that research at CRRI must be of high quality and scientists should publish only in standard peer-reviewed journals. He suggested that all scientists must take a pledge that they will not publish their research work in any predatory journal.

Item 3 – Confirmation of the Minutes of the 123RD RC Meeting

Shree K. Sitaramanjanyulu, Secretary RC, informed that the minutes of 123rd RC Meeting held during 14-15 May 2019 were circulated to all RC members. When he proposed for the confirmation of the minutes, Dr. R.K. Bhandari, expressed that the recommendations/suggestions conveyed through a letter dated 7th May 2019 before 123rd RC are

not recorded and included in the Minutes of 123rd RC Meeting. After discussions, it was decided that the minutes of 123rd RC meeting could be inclusive of the observation " Geotechnical Engineering area needs strengthening and need to be focused considering the global requirements" in item no.6, 4th para.

Item 4 – Action Taken Report

Shree K. Sitaramanjaneyulu, Secretary RC, presented the 'Action Taken Report (ATR)' of general comments and on completed projects with regard to the suggestions/observations made by the Council in its 123rd Meeting. He mentioned that, as per the suggestion of the RC, all continuing projects would be presented in every RC meeting till completion and action taken on the suggestions given for those projects would also be presented by the respective presenters.

Item 5 – Director's Report

Prof. Satish Chandra, Director CSIR-CRRI presented the progress of the institute since last RC meeting. It included meetings with Minister of Urban Development and Housing, Government of Madhya Pradesh, Sh. A. K. Singh, Police Commissioner- Ahmedabad City, Cabinet Minister of MSME, Minister for Public Works Department, Government of Kerala and other activities. He also presented the details of agreements signed/technology transferred, major projects taken up, awards received by CRRI and Scientists of CRRI at various platforms, training programs organized, lectures delivered by CRRI Scientists, deputations of scientists, visit of foreign delegates, projects handled, details of publications, patents filed, external cash flow, etc.

He also informed about other developments in CRRI like Rajbhasha activities, Special day celebrations such as Anti-Terrorism day, World Environmental Day, International Yoga day, CRRI Foundation Day, Independence day, CSIR-Foundation day, CSIR in media, Jigyasa, a scientist- student connect program. The new recruitments made in the institute were also highlighted in the presentation. The Council expressed its satisfaction on the work done by CRRI since the last RC Meeting.

Item 6 – Remarks by DG, CSIR & Secretary, DSIR and Research Council (RC) Members

Dr. Shekhar C Mande, DG, CSIR and Secretary, DSIR thanked all members of the council and expressed his satisfaction on the achievements of institute in last six months. He said that many new cities and habitats are coming up around, but entire civic planning was never paid attention during the planning for the city and it has now resulted in traffic congestion in all cities. He mentioned that it is an opportunity for CRRI where it can make real contribution like framing some guidelines for the planning and architecture for new habitats/colonies with proper initial studies and simulation. As the number of accidents in the country is increasing day by day, CRRI should be persuasive with the government and implementation agencies to implement all the safety measures required to decrease the number of accidents happening every year.

He suggested that other areas like road safety audit, pavement management, traffic management, idea of testing out electric bus etc. should be pursued vigorously. He mentioned that instead of giving up the project on landslide management due to lack of expertise, CRRI should tie up with institute like NGRI and CBRI and develop a comprehensive research proposal. He was glad to know that there were no predatory and substandard publication from CRRI and told to continue the same by committing to the scientific ethics. He informed that CSIR was drafting the scientific ethical guidelines and will be notifying soon which all the CSIR scientists will be bound to follow. He wished more contributions from CRRI in its scientific field.

Dr. R.K Bhandari said he was impressed about the cash inflow and mentioned that CRRI should work on landslide management considering all hazards like earthquakes, floods, extreme weather conditions etc. He underscored that our greatest objective should be to look at the total safety in any given situation. He suggested that in areas like municipal solid waste and C&D waste, geotechnical group should look at the observational method of design and construction which was a well-established method. As enormous amount of construction and demolition waste is

created and scientists should work on utilization of this waste in multiple applications. He opined that institutes like CRRRI should take lead in training program in areas like Climate change, disaster risk reduction and infrastructure projects, as there is limited knowledge available in the country in these fields.

Dr. R. Gopalkrishnan also appreciated the progress of the institute since last RC. He mentioned that common characteristic of all civil engineering labs is to get lot of services & consultancies which improve the expertise in an area. He suggested for a model where scientists can train technical officers and make them capable of -carrying out the routine type of services/consultancy projects and scientists can concentrate more on science. All scientists must cross the boundaries by being interdisciplinary and transdisciplinary so that they will keep their knowledge up to date. He mentioned that it is always better to look for projects which are likely to come because of the developments happening around. Energy storage is one area he suggested where CRRRI can work. He desired to collaborate with CRRRI in areas of tunnel engineering and high speed rail corridors. He also said that CBRI and CRRRI share common areas like waste utilization and geo-technical areas and the two labs can work together.

Prof. Santosh Kapuria congratulated the Director for phenomenal progress made by CRRRI since last RC particularly in getting many projects and cash flow. He also congratulated Director CRRRI, Prof. Satish Chandra for being elected as a fellow of the NASI (National Academy of Sciences, India) and mentioned that this distinction to a civil engineer, is very tough to get. He mentioned that all scientists must give high priority to science. In spite of the fact that CRRRI is doing extraordinarily well, it must do much better in terms of research and publications. He said that scientists' papers are getting rejected as they are not updating themselves to the cutting edge technologies and this gap cannot be filled until and unless one brings the new ideas to research. He said that most difficult aspect of pavement engineering is designing of airport pavements and CRRRI should work in this area. Getting a CSIR project with good peer review on competitive basis is positive aspect where CRRRI got some projects. It should also think in collaborating with other laboratories as it was done in the mission mode project on "Mass Housing".

He called upon the scientists to come out of the comfort zone -and work on new areas phase by phase, so that over a period of time institute will develop expertise in state of art areas.

Lt. Gen. Suresh Sharma suggested four areas for R&D. He cited example of landslides in Kerala state after the recent floods and proposed that a project which is completely dedicated to hill road stabilization can be taken up as this area needed to be revisited. The second area is regarding the drainage problems, a project which is dedicated to sub soil drainage could be taken up to work as enough competence is not existing today in this area. Climate resilient infrastructure is the third area where CRRRI can work on roads and airfields infrastructure. He also mentioned the NITI AAYOG document on development of island territories like Andaman Islands and stated that the topography, local materials and sustainability in these areas is very different from conventional areas. He also proposed research work in the area of development of roads and airfields in island territories as it is very relevant to present day requirement. He further suggested that CRRRI should initiate the research work in the area of tunneling and offered to help the scientists in this endeavor. He complimented Director CRRRI for qualitative and quantitative improvement in performance of the institute. He appreciated the role of RC in improvement of institute.

Prof. Tarun Kant, Chairman RC desired that all comments from RC members should be noted and proper action be taken. He mentioned that level and number of publications have to be improved and CRRRI needs strengthening in analytics and computational analysis and requested the Director to make an expert group in this area.

Item 7 – Presentation of In-House Research Projects

S. No.	Project Details	Suggestions of the RC members
7.1	Development of Automatic Vehicle Counting and Classification Software Using Deep Learning Techniques Presented by Dr. Ch. Ravishekar	The training part of Deep Learning Technique for Indian vehicle images for better classification and counting is to be focused.

7.2	Development of Mass Spring System on Low Frequency i.e. 1Hz Frequency Presented by Dr. Nasim Akthar	<ul style="list-style-type: none"> • Achieving 1Hz frequency using the helical spring may be difficult. This point needs to be looked into • Stability with lateral loads may also be looked into.
7.3	Development of Guidelines for Using Construction & Demolition Waste (CDW) in Structural Applications Presented by Shree S.S. Gaharwar	<ul style="list-style-type: none"> • Findings of the project are satisfactory and need to be disseminated properly through quality publications in SCI Journals including Indian Concrete Journal. • The Guidelines should also discuss the role of Interfacial Transition Zone in influencing the properties of RCA. • The Guidelines should also briefly discuss the methods for removing the adhered layer of cement mortar on RCA. • Utilization of waste materials on account of landslides & seismic activities in hilly areas in road construction may be explored as a new project.
7.4	Water Harvesting Using Porous Flexible Pavements Presented by Shree Sampath Kumar	<ul style="list-style-type: none"> • RC appreciated the concept and hoped that findings of the project will be properly published • The test track construction can be taken up to study the performance of the porous pavements as phase II project.
7.5	A Comprehensive Performance Study on Hybrid Fibre Reinforced Concrete for Concrete Pavement Presented by Shree Pankaj Goel	<ul style="list-style-type: none"> • RC appreciated the work done under the research project and suggested to publish good research publications. • The PL should work on modeling of the data generated through lab studies to predict the behavior of material without actually going for testing.
7.6	Ground Improvement of Sub-Soil Below Existing Structures Using Fibre Reinforced Grouting Presented by Mrs. G. Parvathi	RC appreciated the work carried out under this project and suggested to initiate the process for patent and publications in SCI Journals

Item 8. Presentation on Focus Based Research Projects.

S. No.	Project Details	Suggestions of the RC members
8.1	Development of Rejuvenating Agent (RA) from Waste Material for Use in Recycling of Asphalt Pavements (RAP) Presented by Dr. Ambika Behl	RC appreciated the project and hoped that all efforts will be taken to complete the project in time.
8.2	Cold Mix Technology for High Volume Roads Presented by Shree Nagabushana	RC appreciated the project and hoped that all efforts will be taken to complete the project in time.

8.3	Development of Half Warm Mix Technology for Construction and Maintenance of Bituminous Surfacing Presented by Shree Satish Pandey	RC appreciated the project and hoped that all efforts will be taken to complete the project in time.
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Item 9. Presentation on Sponsored Research Projects

S. No.	Project Details	Suggestions of the RC members
9.1	Development of Methodology for Traffic Circulation Plans around Metro Stations and their Impact Quantification Using Microscopic Simulation Sponsored by PCRA, New Delhi Presented by Dr. Mukthi Advani	RC appreciated the importance of the issue considered and suggested to involve the implementing agencies for proper implementation of the recommendations.
9.2	Sustainable Road Pavements in High Altitude Regions Using Geosynthetics Sponsored by NMHS, G.B. Pant National Institute of Himalayan Environment and Sustainable Development, Uttarakhand. Presented by Dr. G. Bharat	<ul style="list-style-type: none"> • Monitoring of the performance should be based on all the indicators rather than on strength parameter alone done. • RC suggested to explore the possibility of instrumentation to measure the real time data on the test sections in the prevailing conditions.
9.3	Creation of Complete Range of Independent Testing Facilities for Expansion Joints Sponsored by MoRTH, Government of India, New Delhi. Presented by Dr. P. Lakshmy	RC enquired about the testing facilities of expansion joints in other countries and hoped that all efforts will be taken to complete the project in time.
9.4	Development of Road Maintenance Management System (RMMS) for Public Works Department Govt. of Kerala Sponsored by Public Works Department, Kerala Presented by Dr. Devesh Tiwari	Recent disaster in Kerala caused severe damage to roads, so team should look into this aspect also while suggesting the different maintenance treatments.
9.5	Safe Road Connectivity for Tripura State of North East Region of India Sponsored by NMHS, G.B. Pant National Institute of Himalayan Environment and Sustainable Development, Uttarakhand. Presented by Dr. Mukti Advani	<ul style="list-style-type: none"> • RC appreciated the huge database being prepared on GIS platform • Data from GSI, DST and Publications in respect of landslides may also be explored if possible

Item 10. Presentation of Sponsored Consultancy Projects

Sl. No.	Project details	Remarks of RC Members
10.1	<p>Development of Airfield Pavement Management System</p> <p>Sponsored by Airport Authority of India, New Delhi</p> <p>Presented by Dr. Pradeep Kumar.</p>	RC appreciated the project and wished to complete the project as per schedule.
10.2	<p>Comprehensive Mobility Plan (CMP) of Ahmedabad City</p> <p>Sponsored by Ahmedabad Municipal Corporation (AMC)</p> <p>Presented by Dr. Ch. Ravisekhar</p>	The project findings can be linked with NDMS/emergency management plans of smart city project to get extra mileage
10.3	<p>Noise & Vibration Study for Ahmedabad Metro</p> <p>Sponsored by Gujarat Metro Rail Corporation Ltd – Ahmadabad</p> <p>Presented by Dr. Nasim Akthar</p>	RC suggested not to entirely rely on borehole data to study the soil properties and see other data like anisotropy and minor geological details etc.

Item 11. Presentation on New Proposals (As per Suggestion of RC)

As per the discussion held in the last RC Meeting, the two proposals as given in the following Table were re-presented and discussed.

Sl. No.	Project Proposal	Remarks and Decision of the RC
11.1	<p>Design of Prefabricated Plastic Slab Panels for Road Construction</p> <p>Presented by Dr. Naveet Kaur</p>	<ul style="list-style-type: none"> • Cost Economics need to be examined • Any kind of reinforcement added to the plastic material to achieve the required strength is to be studied • Suitable modifications in the mould can be done to achieve required friction on the surface of the plastic panels • Ministry of Urban Development can be approached for funding/ collaboration for this project as they will be interested to utilize the outcome of the research work.
11.2	<p>Design of Light Weight Pedestrian FOB through composite technique</p> <p>By Shree G. K. Sahu</p>	RC enquired about analysis and design of this type of bridges as it is composite material and its behavior is different from conventional materials like steel, and approved the project for further processing either through DST/CSIR or Inhouse funding.

Meeting ended with thanks to Chair