CSIR - CENTRAL ELECTRONICS ENGINEERING RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

Pilani - 333 031 (Rajasthan), India

No. CoA/Committees/2026 **Date: 16.11.2026**

OFFICE MEMORANDUM

Sub: Constitution of a Committee for Formation of Interdisciplinary Clusters at CSIR-CEERI

In order to promote greater interdisciplinary interaction and collaboration among the various R&D Divisions/Centres (including extension centres) of CSIR-Central Electronics Engineering Research Institute (CSIR-CEERI), Pilani, and to facilitate the formulation and execution of large-scale, high-impact and mission-mode R&D projects, it has been decided to develop an appropriate framework for the formation of interdisciplinary clusters at the Institute (**Enclosure 1: Concept Note**).

Accordingly, a Committee is hereby constituted to examine the existing R&D capabilities, organizational structure, areas of scientific and technological expertise, and future strategic priorities of CSIR-CEERI and to recommend an appropriate framework for the formation of interdisciplinary clusters.

Composition of the Committee

S. No.	Name/Designation	Position
1.	Dr. Suchandan Pal, Sct. G	Chairperson
2.	Dr. Anriban Bera, Sct G	Member
3.	Dr. Ranjan Barik, Sct. G	Member
4.	Dr. Nidhi Chaturvedi, Sct. G	Member
5.	Dr. Sumitra Singh, Sct F	Member
6.	Dr. Manish Mathew, Sct F	Member
7.	Dr. Satyam Srivastava, Sct F	Member
8.	Dr. A.H. Kiranmayee, Sct F	Member
9.	Dr. Pramod Tanwar, Sct F	Convener

Terms of Reference (ToR)

The Committee shall have the following Terms of Reference:

1. **To examine the existing R&D structure and capabilities of CSIR-CEERI**, including the scientific and technological strengths, expertise, infrastructure and major activities of the various R&D Divisions/Centres.
2. **To identify the need and opportunities for interdisciplinary collaboration** among different R&D Divisions/Centres of the Institute for addressing complex scientific, technological, industrial, societal and strategic challenges.

3. **To recommend the appropriate number of interdisciplinary clusters** to be established at CSIR-CEERI.
4. **To recommend suitable names and broad thematic areas for the proposed clusters**, taking into consideration:
    - The existing strengths and capabilities of CSIR-CEERI;
    - Emerging and disruptive technology areas;
    - National and strategic priorities;
    - Relevant CSIR themes and programmes;
    - Opportunities for undertaking large-scale and mission-mode projects.
5. **To define the broad scope and objectives of each proposed cluster**, including the major scientific and technological areas that may be addressed under each cluster.
6. **To identify potential areas for mega projects and mission-mode programmes** that may be undertaken through interdisciplinary collaboration among scientists and R&D Divisions/Centres.
7. **To recommend a broad framework for the functioning of the clusters**, including mechanisms for promoting interdisciplinary interaction, project formulation, collaboration and periodic review.
8. **To recommend mechanisms for ensuring alignment of cluster activities with relevant CSIR themes, national missions and institutional priorities.**
9. **To submit a comprehensive report to the Competent Authority**, containing its recommendations regarding:
    - The number of clusters (not more than 4 or 5);
    - The names of the proposed clusters;
    - The broad scope and objectives of each cluster;
    - The proposed framework for their functioning; and
    - Any other recommendations considered necessary for the effective implementation of the cluster-based interdisciplinary R&D framework.

Further Course of Action

Based on the recommendations of the Committee and approval of the Competent Authority:

1. The **number and names of the interdisciplinary clusters** shall be finalized by the Competent Authority.
2. The **Cluster Heads/Nodals** for the approved clusters shall be decided and nominated by the Competent Authority.
3. Subsequently, the Cluster Heads/Nodals shall jointly deliberate and recommend the **mapping of the existing R&D Divisions/Centres and other relevant institutional units to the respective clusters**, based on their core scientific and technological expertise, capabilities and major areas of R&D activity.

4. The mapping of R&D Divisions/Centres shall be undertaken with the objective of ensuring effective interdisciplinary collaboration and optimum utilization of institutional expertise and infrastructure.

5. While an R&D Division/Centre may be primarily associated with a particular cluster, scientists and groups may contribute to activities and projects under other clusters wherever their expertise is relevant, thereby ensuring flexibility and promoting cross-cluster collaboration.

6. The recommendations regarding the mapping of R&D Divisions/Centres to the respective clusters shall be placed before the Competent Authority for approval.

The Committee may co-opt any scientist, technical expert or other officer of CSIR-CEERI, as considered necessary, for obtaining domain-specific inputs relevant to its deliberations.

The Committee shall submit its recommendations/report within One week from the date of issuance of this Office Order.

This issues with the approval of the Competent Authority.

16.11.2026

(Madhuranjan Pandey)
Controller of Administration

Enclosure 1: Concept note for formation of clusters at CSIR-CEERI Pilani

Copy to:

1. O/o Director, CSIR-CEERI, Pilani – for kind information of the Director.
2. Chairperson & Members of the concerned Committees.
3. Office Copy.

CONCEPT NOTE

Formation of Interdisciplinary Clusters at CSIR-CEERI, Pilani

Background

CSIR-Central Electronics Engineering Research Institute (CSIR-CEERI), Pilani, is a constituent laboratory of the Council of Scientific and Industrial Research (CSIR) engaged in advanced research, development and innovation in electronics and allied technologies. The Institute has developed significant capabilities across diverse areas of electronics engineering, including microelectronics, sensors, photonics, intelligent systems, embedded systems, electronic instrumentation and other emerging technology domains.

The technological challenges being addressed today are increasingly complex and multidisciplinary. The development of advanced systems and technologies requires the convergence of expertise from multiple scientific and engineering disciplines. Areas such as intelligent electronic systems, strategic technologies, healthcare technologies, sustainability, advanced manufacturing and emerging electronic devices cannot be effectively addressed in isolation by individual R&D groups or divisions alone.

CSIR-CEERI possesses diverse scientific expertise, specialized infrastructure, technology platforms and human resources distributed across its various R&D divisions and centres. While the existing organizational structure enables focused research within individual domains, there is considerable opportunity to further strengthen interaction among different R&D divisions and create mechanisms for undertaking large, interdisciplinary and high-impact projects.

Accordingly, it is proposed to establish an institutional framework based on **interdisciplinary thematic clusters** to facilitate closer interaction, convergence of expertise and collaborative development of mega and mission-mode projects at CSIR-CEERI.

Need for Interdisciplinary Clusters

In the contemporary R&D ecosystem, major scientific and technological challenges require integrated solutions involving expertise from multiple domains. Large-scale projects increasingly demand the combined capabilities of scientists and engineers working in areas such as devices, systems, materials, electronics, software, artificial intelligence, sensing, photonics, manufacturing and application-specific technologies.

At present, a significant portion of R&D activities may originate and be pursued within individual divisions or specialized groups. While domain specialization remains essential, an institutional mechanism is required to facilitate systematic interaction across organizational boundaries and enable scientists to jointly conceive, formulate and execute large interdisciplinary projects.

The proposed interdisciplinary cluster framework is intended to:

- Promote closer interaction and collaboration among different R&D divisions and centres.
- Break organizational and disciplinary silos and encourage a culture of collaborative research.

- Facilitate the formulation and execution of large-scale, high-value and mission-mode projects.
- Bring together complementary scientific and technological expertise available across the Institute.
- Encourage scientists to jointly identify and address national and strategic technological challenges.
- Enable more effective utilization of specialized infrastructure, facilities and human resources.
- Avoid duplication of R&D efforts and promote synergy among ongoing and proposed activities.
- Strengthen the Institute's capability to compete for large national and international research programmes.
- Facilitate alignment of institutional R&D activities with CSIR themes, national missions and emerging technology priorities.
- Accelerate technology development, validation, translation, deployment and commercialization.
- Enhance collaboration with industry, academia, government agencies and other national and international organizations.

The proposed framework will supplement and strengthen the existing R&D structure by providing an additional mechanism for interdisciplinary coordination and collaborative project development.

Proposed Approach for Formation of Interdisciplinary Clusters

It is proposed that a suitable institutional mechanism be established for identifying and constituting interdisciplinary clusters at CSIR-CEERI.

A **suitable Committee/Working Group** may be constituted by the competent authority to undertake a detailed assessment of the Institute's existing R&D strengths, capabilities, infrastructure, strategic priorities and future opportunities.

The Committee may examine:

- The existing R&D divisions, centres and major research groups of CSIR-CEERI.
- Core scientific and technological competencies available within the Institute.
- Major ongoing and proposed R&D programmes.
- Emerging technology areas and future research opportunities.
- National priorities and strategic requirements.
- CSIR thematic areas and institutional responsibilities.
- Opportunities for convergence of expertise across multiple R&D divisions.

- Potential areas suitable for large-scale, interdisciplinary and mission-mode projects.

Based on this assessment, the Committee may recommend an appropriate number of interdisciplinary clusters.

The Committee may also define the broad scope, objectives and thematic focus of each cluster.

Mapping of R&D Divisions to Clusters

Following the identification and approval of the interdisciplinary clusters, the existing R&D divisions, centres and other relevant institutional units may be mapped to the appropriate clusters based on their:

- Core scientific and technological expertise.
- Major R&D activities.
- Specialized infrastructure and facilities.
- Technology platforms.
- Application areas.
- Potential contribution to interdisciplinary projects.

Each R&D division may have a primary association with a particular cluster based on its principal domain of activity. However, considering the inherently interdisciplinary nature of modern research, appropriate flexibility should be provided for divisions, groups and scientists to contribute to projects and activities under other clusters wherever their expertise is relevant.

Thus, the cluster framework should encourage **cross-cluster collaboration** rather than create rigid boundaries.

The detailed mapping of R&D divisions and other associated units to the respective clusters may be finalized on the recommendations of the Committee and approved by the competent authority.

Cluster Leadership Structure

Each approved interdisciplinary cluster may be led by a **Cluster Head/Nodal**, nominated by the competent authority.

The Cluster Head/Nodal will provide scientific and strategic leadership for the activities of the respective cluster and act as a coordinating mechanism for bringing together the relevant R&D divisions, groups and scientists.

The Cluster Governance Structure may include:

- A **Cluster Head/Nodal** for each cluster.
- R&D Division Heads/Heads of Centres or other relevant units associated with the respective cluster.
- Participating scientists and technical personnel from the mapped R&D divisions.
- Project-specific interdisciplinary teams, constituted as required.

- Representatives or coordinators for relevant institutional, CSIR and national programmes, wherever appropriate.

The precise governance structure, authority and reporting mechanism may be finalized based on the recommendations of the Committee and approved by the competent authority.

Role of the Cluster Head/Nodal

The Cluster Head/Nodal will play a key role in facilitating interdisciplinary research and ensuring effective coordination among the R&D divisions associated with the cluster.

The responsibilities may include:

- Providing strategic direction for the research and innovation activities of the cluster.
- Identifying opportunities for interdisciplinary and collaborative research.
- Facilitating interaction among the associated R&D divisions, centres and scientists.
- Encouraging the development of mega projects and mission-mode projects of significant scientific, technological and financial value.
- Identifying national and strategic challenges that can be addressed through the combined capabilities of the Institute.
- Facilitating the formation of interdisciplinary project teams.
- Organizing periodic cluster meetings and technical interactions.
- Reviewing the progress of cluster-based projects and activities.
- Maintaining appropriate records of major activities, developments and outcomes within the cluster.
- Identifying opportunities for external funding and strategic collaborations.
- Facilitating interaction with government agencies, industry, academia and other stakeholders.
- Ensuring appropriate coordination with relevant CSIR themes and programmes.
- Submitting periodic or annual reports on the activities and achievements of the cluster to the competent authority.
- Providing recommendations for strengthening the research capabilities and collaborative ecosystem of the cluster.

Role of R&D Division Heads and Participating Scientists

The Heads of R&D Divisions and Centres associated with a cluster will play an important role in supporting and enabling cluster-based activities.

Their responsibilities may include:

- Facilitating the participation of scientists and technical personnel in interdisciplinary projects.

- Identifying expertise and capabilities within their respective divisions that can contribute to cluster activities.
- Supporting collaborative project formulation and execution.
- Encouraging sharing and optimum utilization of relevant infrastructure and facilities.
- Facilitating coordination between divisional activities and cluster-based initiatives.
- Ensuring timely contribution towards project deliverables for jointly undertaken projects.
- Promoting a culture of interdisciplinary research and institutional collaboration.

Scientists may participate in cluster-based projects according to their expertise and interests, irrespective of their primary divisional affiliation, subject to institutional requirements and project needs.

Working Mechanism

The proposed interdisciplinary cluster framework may operate through a structured and collaborative mechanism.

Key activities may include:

- Identification of major national, societal, industrial and strategic challenges.
- Periodic calls for interdisciplinary project concepts and proposals.
- Joint brainstorming and ideation sessions involving scientists from multiple divisions.
- Formation of interdisciplinary teams for specific research problems.
- Identification and development of mega and mission-mode project proposals.
- Internal technical review and refinement of project concepts.
- Submission of proposals to CSIR and external funding agencies.
- Development of collaborative projects with industry, academia and other institutions.
- Periodic monitoring and review of cluster-based activities and projects.
- Documentation of significant scientific, technological and societal outcomes.

The clusters should function as dynamic platforms for scientific interaction and project development rather than merely as administrative structures.

Alignment with CSIR Themes and National Priorities

The cluster framework should provide an effective mechanism for aligning the diverse capabilities of CSIR-CEERI with:

- Relevant CSIR thematic areas.
- National Science, Technology and Innovation priorities.
- Strategic and national security requirements.

- Emerging and disruptive technologies.
- National missions and government programmes.
- Industrial and societal needs.

Relevant CSIR Theme Nodals and institutional coordinators may coordinate with the appropriate Cluster Heads/Nodals for activities and projects related to their respective themes.

This mechanism will help ensure effective convergence between thematic priorities and the scientific and technological capabilities available across different R&D divisions.

Expected Outcomes

The proposed framework is expected to result in:

- Enhanced interdisciplinary interaction among R&D divisions.
- Development and execution of high-value mega and mission-mode projects.
- Improved utilization of institutional scientific expertise and infrastructure.
- Stronger alignment with CSIR themes and national priorities.
- Increased participation in large national and international research programmes.
- Enhanced external funding opportunities.
- Development of integrated indigenous technologies and systems.
- Accelerated technology translation and commercialization.
- Increased industry and stakeholder engagement.
- Improved scientific and technological visibility of CSIR-CEERI.
- Development of a stronger institutional culture of collaborative and mission-oriented research.

Benefits to CSIR-CEERI

The proposed interdisciplinary cluster framework will provide several strategic benefits to CSIR-CEERI, including:

- Reduction of silo-based approaches to R&D.
- Greater convergence of complementary scientific expertise.
- Improved institutional coordination.
- Better utilization of high-value infrastructure and facilities.
- Enhanced capability for addressing complex and multidisciplinary challenges.
- Stronger institutional capacity for undertaking large and strategic projects.
- Improved competitiveness for external research funding.
- Greater collaboration with industry, academia and government organizations.

- Enhanced technology development and societal impact.
- Development of a more integrated, collaborative and outcome-oriented R&D ecosystem.

The increasing complexity of scientific and technological challenges requires a coordinated and interdisciplinary approach to research and innovation. CSIR-CEERI possesses diverse scientific expertise, technological capabilities and specialized infrastructure that can be further leveraged through a structured mechanism for cross-divisional collaboration.

The proposed framework for establishing interdisciplinary clusters will provide an institutional platform for bringing together scientists, R&D divisions and technological capabilities to address major national, strategic, industrial and societal challenges.

A suitable Committee may be constituted to identify the most appropriate clusters for CSIR-CEERI, define their scope and objectives, and map the relevant R&D divisions and institutional units to each cluster.

The resulting cluster framework will facilitate the formulation and execution of mega and mission-mode projects, promote a culture of interdisciplinary collaboration and strengthen CSIR-CEERI's capacity to deliver high-impact scientific and technological outcomes.

The initiative will enable CSIR-CEERI to move towards a more integrated and mission-oriented R&D ecosystem, ensuring effective utilization of its multidisciplinary capabilities and strengthening its role in addressing emerging technological challenges and national priorities.

16/11/2026