April - June 2025 Vol. 9, No. 2

e-STRUCT

e-Newsletter of CSIR-Structural Engineering Research Centre

In this issue

The e-STRUCT newsletter showcases a journey of continued resilience in the quarter gone by, coupled with optimism for a better future through the scientific activities and myriad events that are part of day-to-day life on the CSIR-SERC campus. I am very happy to present Vol. 9, No. 2, 2025 issue of e-STRUCT. This edition of the newsletter showcases the varied skills of the CSIR-SERC community, highlighting our R&D pursuits, achievements, skill development initiatives, and other significant events & endeavors during April - June 2025.

CSIR-SERC celebrated its Diamond Jubilee on 10 June 2025 - our sixty glorious years of shaping infrastructure and service to the nation. As a part of the Diamond Jubilee celebrations, a conference on Monitoring, Assessment, and Predictive Maintenance of Critical Infrastructures (i-MAP 2025), was organized during 21-23 May 2025, that brought together experts, researchers, and industry leaders. I am happy that i-MAP 2025 successfully created a platform for interdisciplinary dialogue, technological exchange, and strategic planning toward the future of infrastructure monitoring and maintenance, aligning with national development goals and global best practices.

Memoranda of understanding were signed with IIT Madras, Chennai and BITS, Pilani, for academic and research collaboration. This issue's research highlight is about harnessing indigenous solutions for structural monitoring and rehabilitation of masonry arch bridges. This initiative focuses on harnessing indigenous solutions utilizing locally available materials, traditional construction techniques, and affordable diagnostic technologies to ensure the continued safety and functionality of masonry arch bridges. In this quarter, six major projects were undertaken, various capacity development programmes and events were held. This has indeed been a challenging but eventful quarter and as always, we look forward to more exciting opportunities in future.

With best wishes,
Dr. N. Anandavalli
29.9.2025

Research highlights

Harnessing indigenous solutions for structural health monitoring and rehabilitation of masonry arch bridges

Masonry arch bridges, many of which date back to the colonial era, are still in active service across India's vast railway and roadway networks. Despite their remarkable longevity, these structures are increasingly vulnerable to deterioration due to aging, environmental exposure, and the stresses imposed by modern traffic loads. Given the scale and heritage value of these bridges, there is an urgent need for sustainable and cost-effective strategies for their assessment and rehabilitation. This initiative focuses on harnessing indigenous solutions by utilizing locally available materials, traditional construction techniques, and affordable diagnostic technologies to ensure the continued safety and functionality of masonry arch bridges. By combining traditional knowledge with modern tools such as vibration-based monitoring, digital image correlation, and fiber optic sensing, the effort is aimed to establish practical frameworks for structural health monitoring (SHM) and targeted strengthening interventions. These efforts will not only extend the service life of critical infrastructure but also contribute to preserving India's engineering heritage through context-sensitive and scalable approaches.

The present study focuses on 160-year old stone masonry railway arch bridge under service, which was severely damaged due to heavy floods during the monsoon. Due to excessive scouring of the soil, there was uneven settlement in the arch piers, leading to cracks in the arch barrel, which caused the immediate stoppage of train traffic. Temporary measures by erecting supporting the full arch and grouting were carried out to restore the traffic by restricting the speed. In order to check the integrity of the arch system, displacement of the arch barrel are measured by removing the temporary supports and also during the passage of trains. As the load-carrying capacity of the arch is found to be inadequate without the temporary supports, studies are carried out to design a novel retrofitting scheme, to be adopted for proceeding with the permanent strengthening of the arch while removing the temporary supports. By adopting the proposed retrofitting scheme, the temporary supports are sequentially removed with less intervention to stop the traffic and river flow. Response measurements after the retrofitting are taken to check its effectiveness in maintaining the integrity of the arch system to carry the train traffic.

Details of the railway masonry arch bridge

The bridge considered for the present investigations is an age-old existing stone arch masonry bridge crossing over a river, constructed in the year 1865. The bridge is more than 160-year old having 56 spans of 9.14 m each. Figure 1 shows the general view of the stone masonry arch bridge. The bridge carries a single track of train traffic. During a cyclone followed by heavy rains and flooding in the river, there was severe scouring in the river, resulting in uneven settlement of the masonry pier foundation in one of the spans. Due to uneven settlement, few cracks were noticed in the arch barrel which are progressing in the transverse direction. With the observation of cracks being formed in the arch, the train traffic was immediately suspended on the bridge. Figure 2 shows the cracks in the lateral direction of the arch barrel. As the bridge is on a busy route carrying passenger and goods traffic, quick measures were taken by the railway authorities to restore the traffic on the bridge. As a temporary measure, steel cribs on which wooden rafts were placed below the arch to provide support to the full span of the masonry arch so as to restrict any further damage of the arch and stop further progress of the cracks. This also ensures a considerable reduction of stresses in the arch barrel during the movement of the trains. The supports were placed such as to match the exact shape of the arch bridge. It was ensured that there was load transfer between the arch and the steel cribs. The cracks were filled with a non-shrink flowable cementitious mix with pressurized grouting. The train traffic was temporarily restored on the bridge with considerable speed restrictions. Figure 3 shows the temporary supporting of arch bridge span.

Fig. 1 General view of the stone masonry arch bridge

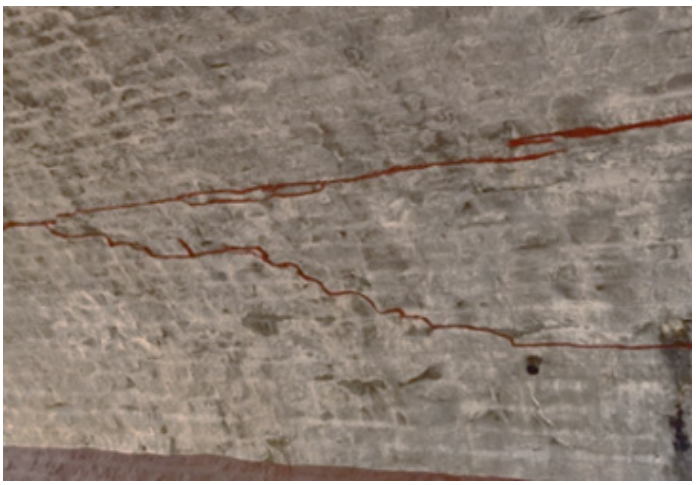


Fig. 2 Cracks in the lateral direction of the arch barrel

Fig. 3 Temporary supporting of arch bridge span

Responses of the arch during the removal of steel cribs supports

The responses are measured from the instrumented displacement transducers during the process of removal of steel cribs supporting the arch. The variation of displacement of arch spread during the removal process is shown in Fig. 4. From the plot, it can be seen that the spread of left outer side has increased to a maximum of 2.5 mm. The spread has occurred inwards during the process of removal of supports. The crown deflection is around 0.548 mm after the removal of supports on both sides except at crown location. During the removal process, several trains have crossed the bridge and the variation of displacement for typical train passage is measured. From the responses, it is observed that, arch spread of around 0.8 mm in the left side and 0.2 mm in the right side is measured during the removal of supports. The responses from the instrumented sensors are also measured during the passage of four trains after the removal of steel cribs supporting the arch. The maximum spread movement of 0.946 mm is observed on the left side whereas 0.270 mm is observed on the right side for Goods train. Measurements taken during the passage of trains and removal of temporary supports from the distressed arch span reveal a higher arch spread at the springing level on the left pier compared to the right pier suggesting signs of settlement in the bridge pier on both the sides. Also, the crown deflection has increased while removal of the supports indicating further settlement of arch span occuring when the trains are passing. As per the IRS-Arch Bridge Code,

it can be noted that under the designed load, the crown deflection and spread do not exceed 1.25 and 0.4 mm, respectively and there should be no residual deflection or spread after release of load as well as there is no crack appearing on the intrados of bridge. However, from the response measurements obtained, it is clearly observed that the arch spread as well as crown deflection are exceeding the permissible limits which may jeopardise the integrity of the arch if appropriate strengthening measures are not taken before allowing the passage of trains. For carrying out the permanent strengthning of the arch as already being carried out for the other arch spans using the concrete jacketing, it is necessary to remove the temporary steel cribs provided for supporting the distresssed arch. As the trains could not be stopped on the arch bridge, it is suggested to design a temporary retrofitting scheme for the arch using an innovative steel truss arrangement which can become integral part of the permanent strengthing by concrete jacketing. The design and details of the proposed novel retroffting system is detailed in the later section.

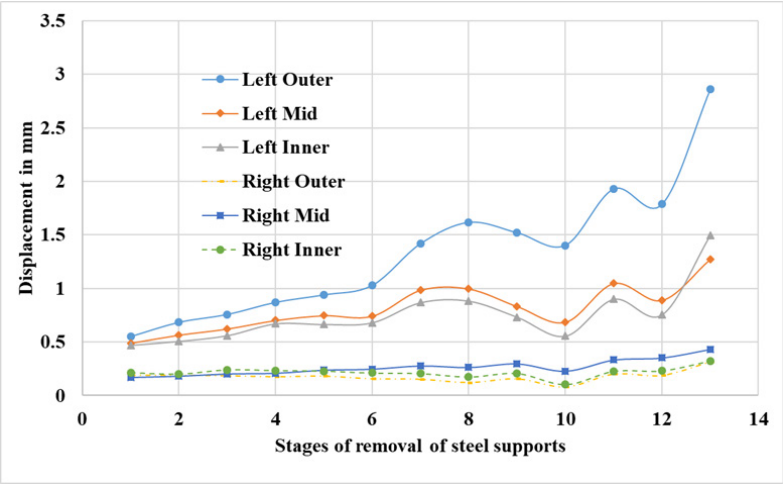


Fig. 4 Variation of displacement of arch spread during the removal of steel cribs

Novel retrofitting scheme for the damaged arch span

The spread and crown deflections are not within the acceptable limits during the passage of trains. It is essential to carry out retrofitting of the damaged arch bridge span to allow the train traffic safely while the permanent strengthening can be undertaken. Hence, a novel supporting system consisting of a steel arch truss type of system is designed by CSIR-SERC to transfer the loads from the arch barrel safely to the supporting piers so as to enable the removal of the temporary steel crib supports placed under the arch. Figure 5 shows the schematic of the proposed supporting arrangement for retrofitting. The system is designed in such a way that it can be erected in a very short period of time with very less intervention to the rail traffic. It is designed to be attached to the intrados region of the arch barrel so that a clear space is available under the arch for carrying out the necessary jacketing of the pier and foundation. Detailed finite element simulation studies were carried out. Figure 6 shows the finite element model of the arch bridge. The efficacy of the retrofitting system was checked by comparing the stress state of the proposed retrofitted arch with the actual existing stage and conventional jacketing type of retrofitting. By adopting the proposed scheme, the temporary supports can be removed with less intervention to the traffic and river flow.

For implementing the steel arch retrofitting system on the damaged arch span, a carefully planned construction sequence is adopted. Initially, the supporting bracket is fixed to the existing masonry piers by means of chemical anchors. Anchor rods conforming to Grade EN 19 steel are embedded into the masonry pier for a minimum length of 500 mm and tightened after sufficient curing time of the chemical grout. Sufficient care is undertaken so that the bracket plate arrangement is anchored only to stones. A weld of size 6 mm is used for welding stiffener plates to the bracket. A total of 2 columns are provided with 6 anchors (32 mm diameter) each with the pitch of 176 mm. The tensile, pull out and shear strength of the anchors are determined to be exceeding the tensile forces and moments at the interface of bracket plate and the pier. After installation of the brackets to the masonry wall, the erection of arch truss was commenced. The truss was fabricated outside the arch matching exactly with the profile of the intrados. A weld mesh of size 50 x 50 x 3 mm was fixed beneath the arch. The weld mesh was covering the entire area beneath the arch. A 6 mm thick plate was welded on top of the truss connecting both top chord members along the length of the truss to have more contact area between the truss and the arch. Further, transverse plates of thickness 6 mm and width 100 mm were provided along the entire width of the arch in between the truss to improve the load transfer. The truss was welded on to the top of the base plate of thickness 12 mm. The arch bridge after completion of erection of the truss is shown in Fig. 7.

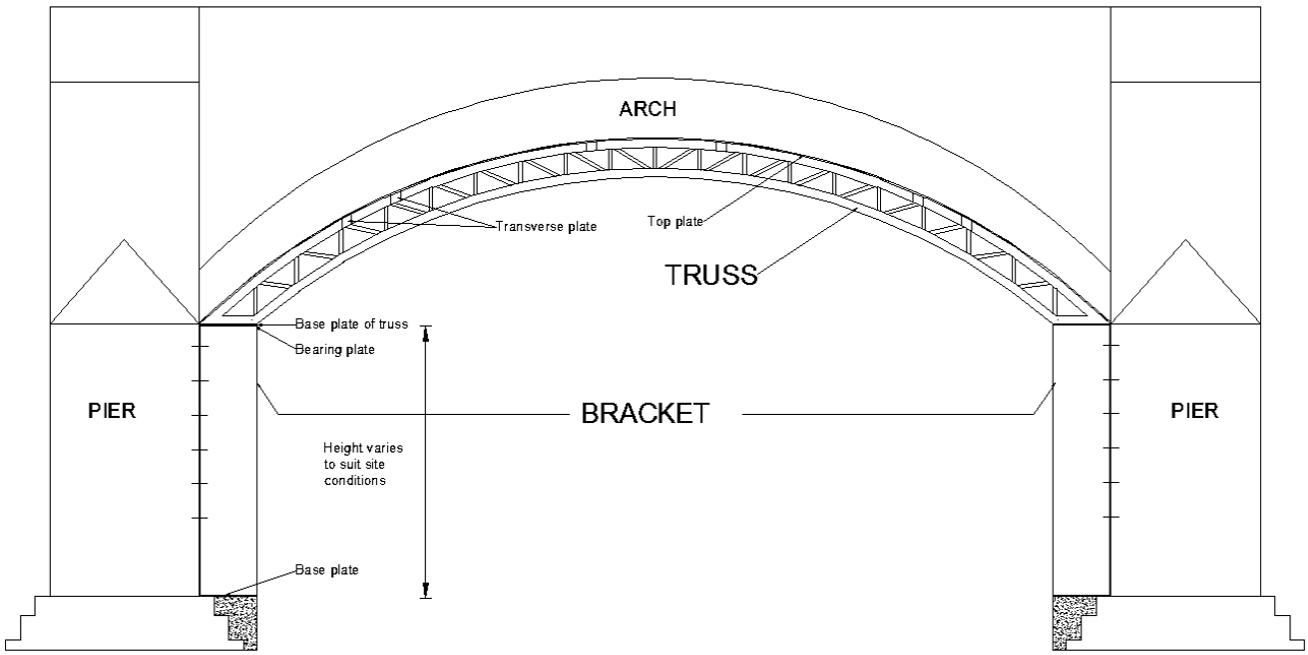


Fig. 5 Schematic of the proposed supporting arrangement for retrofitting

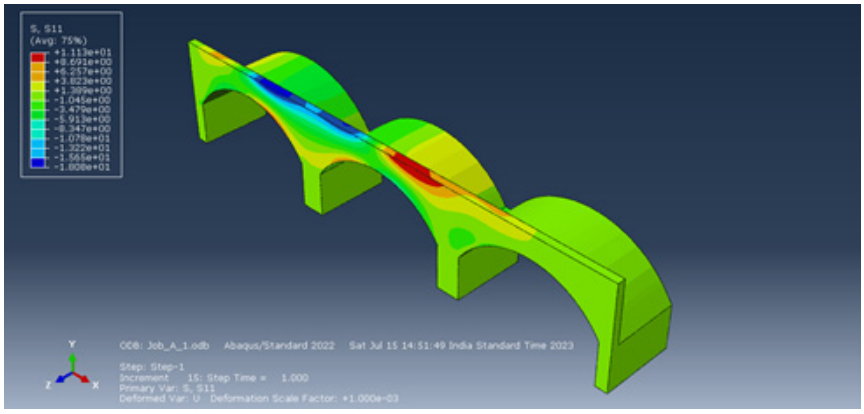


Fig. 6 Finite element model of the arch bridge

Fig. 7 Arch bridge strengthened with the steel truss system

In order to check the efficiency of the proposed strengthening system, instrumentation and response measurements were undertaken at critical locations on the arch and on the retrofitted steel arch truss system during the passage of trains. From the measurements, it was observed that the load from the masonry arch is transferred effectively to the proposed steel arch truss. The deflection measured in the arch and at the truss are found to be similar at both mid and outer regions. The strain responses measured in the steel truss indicate the efficient force transfer from the arch to the foundation through the truss. The compressive strains measured in the outer and middle truss are of equal magnitude indicating equal force distribution among the trusses. The crown deflection as well as the arch spread at springing level have considerably reduced to less than the permissible limits. From the response measurements, it was noted that the designed novel steel arch truss type retrofitting system is able to support the arch and to transfer the loads effectively from the masonry arch releasing the damaged arch from any additional stresses being developed during the passage of the trains. It was also found that there were no abnormalities in the responses after complete removal of the temporary supports on the damaged arch provided for safety. The novel retrofitting steel arch truss type retrofitting system can be adopted in the damaged masonry arches as an intermediate retrofitting measure so that the permanent strengthening can be undertaking prolonging the service life of the age-old historical masonry arch bridge structure.

Major Projects Undertaken

- Structural audit of the pipeline supporting structures crossing canal at Goa, Belgaum and Hubli
- Assessment of vibration severity at NTPC (Stage 2 and Stage 3)
- Static and fatigue studies on 16 mm and 25 mm diameter reinforcing bars of Fe 550 D grade
- Wind tunnel investigations on a 127.7 m tall RCC prilling tower for urea revamp project at Tuticorin for SPIC Limited
- Instrumentation and response measurement of shallow-type steel girder in bridge No. 19 during load testing
- Assessment of structural adequacy of RDSO's standard plate girder of 12.2 m construction bridge No. 248 and recommendation for retrofitting of superstructure of bridge ECR Mahendrughat

Technology transfers / MoUs

- A memorandum of understanding (MoU) between CSIR-SERC and Indian Institute of Technology Madras, Chennai, was signed for ***Academic and Research Collaboration*** on 1 April 2025.
- A memorandum of understanding (MoU) between CSIR-SERC and Birla Institute of Technology and Science, Pilani, was signed for ***Academic and Research Collaboration*** on 26 May 2025.

Capacity development

Conferences

CSIR-SERC Diamond Jubilee Conference on Monitoring, Assessment and Predictive Maintenance of Critical Infrastructure (i-MAP), was organized during 21-23 May 2025. It was a significant event that brought together experts, researchers, and industry leaders to focus on monitoring, assessment, and predictive maintenance of critical infrastructures.

The conference hosted an intensive and diverse technical programme over three days and the sessions were structured around key thematic areas including structural health monitoring, digital twins, AI and data analytics, sustainability, smart materials, seismic and multi-hazard assessment, and predictive maintenance. The programme included three keynote sessions featuring distinguished speakers such as Prof. Santosh Kapuria (Indian Institute of Technology Delhi), Prof. Arunachalam M. Rajendran (University of Mississippi), Dr. N. Gopalakrishnan (Former Director, CSIR-Central Building Research Institute, Roorkee), Dr. Jan Cervenka (CEO, Cervenka Consulting), Prof. Pradipta Banerji (Indian Institute of Technology Bombay), and Prof. Sriman Kumar Bhattacharyya (Vice Chancellor, Shiv Nadar University). About 70 paper presentations were made under various focused sessions. The i-MAP 2025 successfully created a platform for interdisciplinary dialogue, technological exchange, and strategic planning toward the future of infrastructure monitoring and maintenance, aligning with national development goals and global best practices.

Workshops - Jigyasa

CSIR JIGYASA Science Teachers Workshop - A three day workshop was organized exclusively for school teachers from the Greater Chennai Corporation as part of CSIR's outreach programme JIGYASA, which aims to enhance scientific temper and awareness among school educators. The workshop serves as a platform for scientific knowledge dissemination, social responsibility engagement, and exposure to cutting-edge research in science, engineering, and technology. Thirty-seven teachers from various schools in and around Chennai participated in this event. Throughout the day, scientists from CSIR-SERC & CSIR Madras Complex (CMC) laboratories delivered insightful lectures on a diverse array of topics, including, disaster mitigation, structural health monitoring, AI and machine learning, green energy and fuel cells, nanotechnology, intellectual property rights, etc.

As part of the interactive learning experience, the teachers visited various state-of-the-art laboratories of CSIR-SERC and CSIR-CMC. Scientists organized live demonstrations and hands-on experiments, providing participants with a practical understanding of ongoing research and applications. The sessions over the next two days continued to engage teachers through:

- Laboratory tours
- Experimental demonstrations
- Interactive discussions with research professionals

The entire event was successfully coordinated by Dr. S. Maheswaran, Senior Principal Scientist, and Dr. S. Sundar Kumar, Principal Scientist of CSIR-SERC.



Training Programme

CSIR-SERC in collaboration with RINA Classification and Certification India Pvt. Ltd., successfully organized a comprehensive two-part ***ISO 9001:2015 General Awareness Training Program,*** focussing on ISO standards, aimed at enhancing the quality management capabilities of its staff. The sessions were expertly conducted by Shri A Cyril, Head – Sustainability and Certification Compliance, India Hub, and GHG Reduction Programme Scheme Leader at RINA.

The program began with a general awareness training session on 25 June 2025, designed to provide participants with a foundational understanding of ISO standards and their significance in organizational processes. This was followed by a more intensive internal auditor training held over two days, during 26-27 June 2025. The primary objective of this training initiative was to deepen the participants' knowledge and understanding of ISO standard requirements, particularly focusing on internal quality audits. Throughout the sessions, attendees were equipped with comprehensive insights into quality management principles, the frameworks for ISO compliance, best practices for documentation, and effective audit methodologies. The training also emphasized on the practical, hands-on internal auditing techniques, enabling participants to confidently conduct audits within their respective departments. Staff members from various departments actively participated in the program. The training program was coordinated by Dr. Prabhat Ranjan Prem, Principal Scientist and Quality Management Representative (QMR) for ISO 9001:2015 for CSIR-SERC.


Participation in Exhibitions

CSIR-SERC participated in the ***Vision Karnataka 2025***, an event organized in Belagavi, Karnataka to enlighten the public about the current government policies. The event was a three-day exhibition held during 11-13 June at the KLE Centenary Convention Centre in Belagavi. Several central and state government organisations took part in the organization to showcase their contribution to the government and society. The event was inaugurated by Hon'ble Member of Parliament and Former Chief Minister of Karnataka, Shri Jagadish Shettar. Thousands of participants took part in the event which included school and college students, practicing engineers, stakeholders and common public.

During the event, CSIR-SERC scientists showcased technologies on panels for mass housing, paver block technologies, high-velocity multi-hit resistant booth for security, threaded end anchors, energy dissipating steel fuse elements, make-shift hospital module, precast toilet and water tanks, emergency retrieval system, TRC prototyping technology, and crash barrier. In addition to this, current developments being made in various areas under in-house/sponsored/collaborative research and development projects were also explained. The students learnt about the contribution of CSIR in science and engineering and about the contributions of CSIR-SERC to society, industry and strategic sector in the field of structural engineering. The practicing engineers showed interest in some of our technologies. The common public learnt about the contribution of our organisation in the field of structural engineering.

Visits

Dr. N. Kalaiselvi, Director General, CSIR and Secretary, DSIR inaugurated ***Climate Resilient Building and Sustainable Precast SECROBuilT House at CSIR-SERC***, on 12 April 2025. Dr. M. Ravichandran, Secretary, Ministry of Earth Sciences, Shri Mahendra Kumar Gupta, Joint Secretary, CSIR, Dr. N. Anandavalli, Director, CSIR-SERC, Dr. K.J. Sreeram, Director, CSIR-Central Leather Research Institute (CSIR-CLRI), Prof. Venu Gopal Achanta, Director, CSIR-National Physical Laboratory (CSIR-NPL) and Dr. Anirban Pal, Head, Central Planning Directorate, CSIR, were also present during the ceremony.

The climate resilient building constructed at CSIR-SERC campus is a structural masonry structure of about 500 sq. ft. The building is constructed with eco-friendly interlocking masonry blocks (EIMB) and with thermally efficient lightweight blocks (TELB). For roofing, precast lightweight roof (SECROBuilT), developed at CSIR-SERC was used. Both the structural masonry technologies address the requirements of climate resilience and seismic resilience. The structural walls constructed using EIMB improves seismic resilience due to mechanical interlocking of the novel geometric configurations and novel bond pattern. The TELB technology uses blocks with expanded polystyrene core leading to lightweight and reduced thermal conductivity. The structural walls constructed using TELB improves seismic resilience due to the significantly lower seismic mass. The entire building is fitted with thermal monitoring system (TMS). From the TMS data, for the rooms constructed using EIMB, the temperature difference is varied between +2.5 ^{0}C at about mid-day to –5 ^{0}C at about 6 am, and, for the rooms constructed using TELB, temperature difference is varied between +5 ^{0}C at about mid-day to -5 ^{0}C at about 6 am. Thus, two different technologies, one addressing the climate resilience by conservation of natural resources and reduction of carbon footprint, and the other addressing the climate resilience by improving the thermal comfort inside the building were demonstrated in the climate resilient building. The event concluded with the planting of trees by the dignitaries.

Events

134th Birth Anniversary of Babasaheb Dr. B.R. Ambedkar was jointly celebrated by CSIR-SERC and CSIR Madras Complex on 16 April 2025. Dr. J. Radhakrishnan, IAS, Additional Chief Secretary, Government of Tamil Nadu & Chairman, Tamil Nadu Electricity Board, was the Chief Guest of the function. Dr. N. Anandavalli, Director, CSIR-SERC and Coordinating Director, CMC, delivered the presidential address. In her address, she said that Babasaheb was a visionary leader, profound thinker, educationist and jurist, socio-political reformer and remembered his contributions as the chief architect of the constitution of India and a great advocate of women empowerment. Dr. J. Radhakrishnan, delivered the Dr. B.R. Ambedkar Birth Anniversary speech. In his address, he mentioned that Dr. Ambedkar is one of the most important leaders in Indian history who was committed to social justice and fought for all sections of the society. He mentioned that Babasaheb valued education as a tool for freedom and said that he was a rebellious thinker who challenged the system during most difficult times. He called upon the younger generation to know about leaders like Dr. Ambedkar and to have a full understanding of their contributions.

Intellectual Property Festival 2025 - As a part of the National Intellectual Property Festival (Rashtriya Boudhik Sampada Mahotsav) 2025, an awareness programme on Intellectual Property was organized for the school students, under the JIGYASA 2.0 programme on 17 April 2025, by CSIR-SERC and CSIR Madras Complex. Rashtriya Boudhik Sampada Mahotsav (RBSM) was initiated under the Azadi ka Amrit Mahotsav (AKAM) annually for enhancing IP prowess and also spreading awareness on the importance of intellectual property rights (IPR) in the country.

Shri S. Udhaya Shanker, Deputy Controller of Patents & Designs, Indian Patent Office, Chennai, was the chief guest of the function and delivered the IP Festival Lecture on Intellectual Property Rights. Around 100 students from Kendriya Vidyalaya, CSIR-CLRI, Chennai and Kendriya Vidyalaya, IIT Madras, participated in the programme. As a part of the programme, laboratory visits were arranged for the visiting students and teachers and hands on experiments were organized for the students.

Nation Technology Day was celebrated with great enthusiasm on 27 May 2025. Shri A.R. Santosh Kumar, DGM, IOCL, R&D Centre, Faridabad, and Dr. G. Raghava, Former Chief Scientist, CSIR-SERC and Professor, Department of Civil Engineering, Nittee Meenakshi Institute of Technology, Bengaluru, were the Chief Guests of the function. Shri A.R. Santosh Kumar delivered the CSIR-SERC Diamond Jubilee Celebration Lecture on ***Integrity management of pipeline corrosion***. In his lecture, he outlined the significance of pipeline infrastructure, pipeline design basics and design safety approaches, corrosion, cracking characteristics, internal corrosion, effect of dissolved gases on corrosion behaviour, integrity and defect assessment methods, corrosion growth analysis and predictions, assessment of cracks, defect repairs, etc.

Dr. Raghava delivered the National Technology Day lecture on Antarctica – a glimpse of the icy continent, Indian scientific expeditions and research stations. In his lecture, Dr. Raghava spoke on the brief history of Indian Antarctic programme and expeditions and his involvement with Antarctic research, his experience as a researcher in India's Maitri station in Antarctica, why research in Antarctica is significant and how CSIR-SERC can contribute to research in Antarctica. He also spoke on brief about India's research stations in Antarctica, viz, Dakshin Gangotri, Maitri and Bharati, the Indian Antarctic Bill 2022 and the Indian Antarctic Act 2022, etc.

CSIR-SERC Diamond Jubilee Celebration

CSIR-SERC, Chennai, celebrated its Diamond Jubilee (1965 - 2025) - 60 glorious years of shaping infrastructure and service to the nation. As a part of the Diamond Jubilee celebrations, a meet with stakeholders - Stakeholder Connect was organized on 10 June 2025.

Dr. V. Govindaraj, Head (R&D), ECC Division, L&T Ltd., Chennai was the chief guest of the Stakeholder Connect event. Around 50 stakeholders from across the industry participated in the event. Dr. N. Anandavalli, Director, CSIR-SERC and Coordinating Director, CMC, welcomed the stakeholders from the industry and made a detailed presentation - ***60 years | One Spirit*** – in which she briefed on the genesis of CSIR-SERC from Roorkee to Chennai, unique and significant contributions of CSIR-SERC to the nation, society and to the field of civil and structural engineering since 1965, 60 years of legacy of CSIR-SERC, demonstrative structures at the campus, current research focus, thrust areas and laboratories of CSIR-SERC, recent scientific contributions and future focus areas.

Events

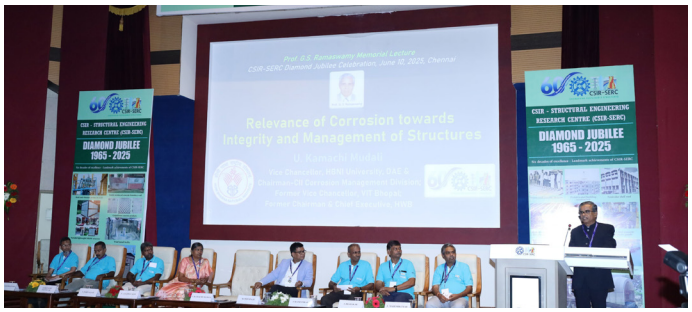
Dr. Govindaraj in his address, remembered the visionary leaders of CSIR and CSIR-SERC, who built the CSIR laboratories across the nation. He credited CSIR-SERC for its various technological achievements and praised its ground-breaking and cutting-edge technologies such as ferrocement, precast concrete sleepers, high strength deformed bars, etc., that contributed to the national development in a huge way. He said that the research activities at CSIR-SERC is on par with the reputed research institutes across the world and shared the long association of L&T with CSIR-SERC. He said that various element level and micro level problems exist in the construction industry which needs to be addressed and requested CSIR-SERC to take up such issues.

The chief guest's lecture was followed by the inauguration of exhibition on the occasion of Diamond Jubilee celebration. It was then followed by the presentation by scientists on the expertise and service rendered on six different thrust areas of CSIR-SERC, viz, Structural Health Monitoring & Life Extension, Energy Infrastructure, Disaster Mitigation, Advanced Materials for Sustainable Structures, Special & Multifunctional Structures, and Offshore Structures.

CSIR-SERC Diamond Jubilee Celebration function was organized on the same day. Prof. U. Kamachi Mudali, Vice Chancellor, Homi Bhabha National Institute, Mumbai, was the Chief Guest and Dr. Ramji Singh, Member, Dam Safety Review Panel, Govt. of Gujarat, was the Guest of Honour. Prof. Kamachi Mudali delivered the ***Prof. G.S. Ramaswamy Memorial Lecture on Relevance of Corrosion towards Integrity and Management of Structures.*** In his lecture, he spoke on economy and growth of Indian industry, sustainable development goals and Agenda 2030, sustainable development – relevance to materials & corrosion, impact of corrosion on industry and public, holistic corrosion management for integrity of structures, potential areas of R&D towards corrosion control, degradation monitoring and evaluation technologies for structures, solutions for mitigating corrosion of concrete structures, national policy on corrosion control and management (NPCC&M), and national gains expected from adopting NPCC&M. He highlighted that colossal corrosion damage is a big concern with respect to assets and structures for India, and it needs immediate care through a national policy and an institution.

Dr. Ramji Singh, in his address, spoke on the significance of dam rehabilitation and maintenance, problems faced by them during the process and said that CSIR-SERC has the ability to provide a comprehensive solution to the various problems in the area of dam rehabilitation and maintenance. He said, they are already collaborating with CSIR-SERC and desired to work together in more areas.

Prof. Kamachi Mudali, released the Coffee Table Book compiled on the occasion of Diamond Jubilee celebration. Dr. Ramji Singh, released the 60 technologies book that highlights the 60 significant technologies of CSIR-SERC. The former directors and around 80 retired staff members of CSIR-SERC were felicitated during the event, in gratitude for their service. A presentation on the former directors was made for the audience, which was followed by the honouring of former directors and retirees by Director, CSIR-SERC.



As a part of the function, AcSIR Science Club was inaugurated and a video on the same was played. As a part of CSIR-SERC Diamond Jubilee celebrations, a quiz competition was organised amongst students of engineering colleges - exclusively for civil engineering students on 14 May 2025. The prizes were distributed to prize winners during the function by the dignitaries. As a part of Diamond Jubilee celebrations, a poster preparation competition was organized for the staff members of CSIR-SERC on the theme CSIR-SERC@2040. Prizes were also distributed for the winners during the function. The 3D printed building was inaugurated after the function.

Other Notable Events

- Chintan Shivir - Viksit Bharat 2047 event for scientific ministries and departments was organized during 12-13 April 2025, at the National Institute of Ocean Technology (NIOT), Chennai. The meeting was chaired by Dr. Jitendra Singh, Hon'ble Minister of Science and Technology, Govt. of India, Dr. N. Kalaiselvi, Secretary, DSIR & Director General, CSIR, and Shri Mahendra Kumar Gupta, JS (Admin.), CSIR. Thirty nine staff members from CSIR-SERC, participated in the event.
- CSIR-SERC and CMC jointly conducted Hands on Training in ACCESS Software for all the staff members on 15 May 2025.
- Swachhata Pakhwada 2025 was observed in CSIR-SERC and CMC during 19-26 May 2025. As a part of the programme, a cleanliness drive, essay and slogan writing competition related to swachhata awareness, lectures titled ***Curbing Single use Plastic*** and ***Discouraging the use of Plastic*** and ***Waste to Wealth*** were organized.

- The 150th Official Language Implementation Committee Meeting was held on 18 June 2025.
- International Yoga Day was organized in the campus on 24 June 2025. The yoga and meditation session was handled by heartfulness trainers, Mr. S. Ananthasubramanian, Mr. Ramakrishnan, Mr. Manivannan and Mr. Rajendran from Sri Ram Chandra Mission & Heartfulness Institute.

Invited talk/lectures

- Dr. P.S. Ambily, Senior Principal Scientist, delivered an invited lecture titled ***Use of crushed sand in concrete 3D printing: fresh and hardened properties***, at MSME M-SAND Accelerator for Sustainable Development Session on Sustainable Production & Waste Management Strategies, on 26 April 2025, at PSG College of Technology, Coimbatore, organised by PSG-STEP in association with Terwilliger Center for Innovation in Shelter, Department of Civil Engineering, PSG College of Technology and Tamil Nadu Stone Quarry, Crusher & Lorry Owners Association.
- Dr. N. Anandavalli, Director, CSIR-SERC, delivered the online ***IRF-IC Lecture on Capacity augmentation & service life enhancement of bridges – managing assets for maximizing service life and serviceability demands innovative and modern technologies***, on 13 June 2025.
- R. Lakshmi Poorna, Senior Technical Officer, delivered an invited talk on ***Transforming Libraries into Intelligent Libraries*** at the National Conference on Reimagining and transforming libraries into active learning hubs to accelerate global education, during 27-28 June 2025, at BS Abdur Rahman Crescent Institute of Science & Technology, Chennai.

Honours/awards/recognitions/nominations/ PhDs

- CSIR-SERC received six awards in the 16th CIDC Vishwakarma Awards "National Building-Vision 2047", under the following categories, on 11 April 2025 at Dr. Ambedkar International Centre, New Delhi:
    1. Achievement Award for Scientist/Academician and Technologist/Innovator – Dr. M.B. Anoop, Chief Scientist, CSIR-SERC
    2. Achievement Award for Sustainable Materials/Practices/Process (for Textile Reinforced Concrete for Non-corrosive Construction Applications) - Dr. Smitha Gopinath, Senior Principal Scientist, CSIR-SERC
    3. Chairman Commendation Trophy (for Textile Reinforced Concrete for Non-corrosive Construction Applications) - Dr. Smitha Gopinath, Senior Principal Scientist, CSIR-SERC
    4. Achievement Award for Research & Development in Construction Domain (for Structural Health Monitoring and Life Extension) - Dr. S. Parivallal, Dr. V. Srinivas, Dr. (Ing.) Saptarshi Sasmal, Chief Scientists of CSIR-SERC and Dr. B. Arun Sundaram, Principal Scientist, CSIR-SERC
    5. Achievement Award for Best Maintained Structures/Retrofitting & Rehabilitation (Novel Retrofitting Strategy against Scouring Action of Railway Masonry Arch Bridge) - by Dr. V. Srinivas, Dr. S. Parivallal, Chief Scientists, CSIR-SERC, and Dr. B. Arun Sundaram, Dr. A. Kanchana Devi, Principal Scientists, CSIR-SERC
    6. CIDC Partners in Progress Trophy - CSIR-SERC
- Dr. Mohit Verma, Principal Scientist, CSIR-SERC, was selected as an ***Indian National Science Academy (INSA) Young Associate (2025)***, on 10 May 2025.
- Dr. A. Ramachandra Murthy, Chief Scientist, CSIR-SERC, was selected for ***TANSA 2022 award in Engineering and Technology Discipline*** by the Tamil Nadu State Council for Science and Technology, Department of Higher Education, Government of Tamil Nadu, Chennai.
- Dr. N. Anandavalli, Director, CSIR-SERC, was nominated as ***One of the Founding Member for INSA Women Associates in the area of Academia and R&D.***

Paper publications

- **SCI Journals - 6**
- **Reputed Indian Journals - 2**