

**COMMON RESEARCH  
AND  
TECHNOLOGY DEVELOPMENT HUB (CRTDH)  
CRTDHs Empowering MSMEs**



**चिंतनशिविर**

**Report**

**DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH  
MINISTRY OF SCIENCE AND TECHNOLOGY  
GOVERNMENT OF INDIA**

**July – October 2023**





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## ACKNOWLEDGEMENT

We extend our heartfelt gratitude and appreciation to all the stakeholders particularly IIT Kharagpur, CSIR-IITR, Lucknow, CSIR-CMERI, Durgapur, CSIR-IMMT, Bhubaneswar and DPSRU, New Delhi who played an integral role in successful organization of the five ‘*Chintan Shivirs-CRTDH* empowering MSMEs’ The dedication, support, and collaborative efforts were instrumental in making the *Chintan Shivirs* a resounding success.

We would like to take a moment to express our sincere appreciation and admiration for Dr. N. Kalaiselvi, Secretary, DSIR, for her steadfast dedication and remarkable leadership. Her profound insights and visionary approach in organizing the *Chintan Shivir* have garnered significant praise for the Department, and it is under her guidance that we have successfully conducted five Shivirs. We extend our heartfelt thanks and deep appreciation for her exceptional cooperation throughout the *Chintan Shivirs*. Her unwavering commitment serves as a wellspring of inspiration, driving us to organize more successful *Chintan Shivirs* in future.

We extend our heartfelt gratitude to Directors of the Institutes for graciously hosting the *Chintan Shivirs*. Your support and hospitality have been instrumental in making these events successful and memorable. The conducive environment and facilities provided have greatly contributed to the overall positive experience the delegates

We wish to convey our deepest gratitude to our CRTDH coordinators for their exceptional dedication, hard work, commitment and contributions to the CRTDH project. Your efforts in facilitating the sharing of CRTDH output and outcomes have not only ensured the success of the project but have also allowed us to achieve our objectives more effectively. Your expertise, leadership, and guidance have played a pivotal role in steering this project in the right direction.

We would like to extend our heartfelt gratitude to all the MSMEs for their active participation in the *Chintan Shivirs*. Your presence and willingness to engage in meaningful discussions have been instrumental in shaping our collective vision and charting a way forward. Your valuable insights, experiences and perspectives have enriched our deliberations and have paved the way for innovative solutions and strategies. It is your commitment to our shared goals that has made these Shivirs a resounding success.

We want to express our heartfelt appreciation to all the stakeholders who were involved in setting up the logistics, technology & resources. Your dedication & invaluable efforts for setting up logistics, technology and providing the necessary resources have been instrumental in ensuring the smooth and efficient execution of these *Chintan Shivirs*.

We extend our sincere gratitude to the Press Information Bureau (PIB) and media. Your role in spreading awareness about the *Chintan Shivirs*, attracting participants and ensuring comprehensive event coverage have been commendable. Your efforts have played a crucial role in amplifying the impact of these Shivirs and reaching a wider audience.

We would like to extend our heartfelt gratitude to each and every one of you for your commitment, dedication and support in making the *Chintan Shivirs* a grand success. Your active participation in the *Chintan Shivirs*, engagement with the subject matter and your willingness to share knowledge and insights have been invaluable.

I would like to extend my heartfelt appreciation and gratitude to Ms. Ruchi Singh Neekhara from Delhi Pharmaceutical Sciences and Research University (DPSRU), New Delhi for her exceptional talent and creativity in crafting the captivating cover page. Her artistic vision and attention to detail have not only made a striking first impression but also perfectly encapsulated the essence of the content within.

With deep appreciation,  
CRTDH Division,  
Department of Scientific and Industrial Research (DSIR).



## 1.0 ABOUT ‘CHINTAN SHIVIR’

Micro, Small and Medium Enterprises (MSMEs) play an important role in the overall economy and contributes significantly to the nation’s GDP. To remain competitive in the market it is very important that they pursue Research and Development (R&D) to bring out new products in the market. Public Funded Research Institutes are a gold mine of innovative research, which often remains untapped and thus not commercialized. Therefore, MSMEs need to be sensitized towards translation of public funded R&D into products and processes. Their higher involvement, especially in application-oriented R&D is expected to enhance the private sector’s share in national R&D expenditure.

It is often seen that MSMEs are unable to perform meaningful R&D for want of state-of-the-art equipment and infrastructure. This requirement of the MSMEs prompted Department of Scientific and Industrial Research, Ministry of Science and Technology, New Delhi (DSIR) to launch the Common Research and Technology Development Hub (CRTDH) scheme, which was launched in the FY2014-2015. The CRTDH programme is aimed at creation of common research facilities equipped with analytical equipment and pilot plant facilities to facilitate and encourage innovators, startups and micro, small and medium enterprises for R&D and technology development and to facilitate collaboration between industry and research institutions. The scheme aims to enhance translational research and foster industry institution interaction targeted towards innovative product development. DSIR extends grants to institutions for setting up of these hubs/centres, which include R&D facilities/infrastructure, analytical test facilities, design centres, pilot plant production facility, design engineering and prototype development, demonstration units, product display centre etc. The facilities at CRTDHs are used by the Micro, Small and Medium Enterprises (MSMEs), innovators and start-ups.

The primary focus of these hubs is to support the development of innovative products and services by providing state-of-the-art facilities and infrastructure to Micro, Small Enterprises and Medium Enterprises (MSMEs), start-ups and innovators. The hubs facilitate the translation of research outcomes into commercially viable solutions. By providing these comprehensive facilities, the CRTDHs enable MSMEs, start-ups, innovators and researchers to access the state-of-the-art equipment and infrastructure for their projects. They also get the opportunity to collaborate with the scientists and faculty members of the CRTDHs for any intellectual support required for their R&D endeavors.

The CRTDH scheme is completing ten years and therefore, it is a great time to take stock of the accomplishments of the CRTDHs and celebrate all that have been achieved. Taking time now to think back on what went right during the last ten years gives us an opportunity to appreciate all that the CRTDHs have accomplished. When we reflect on our successes, it gives us an opportunity to recognize how far we have come since inception. It lets us see areas in which we have grown and improved. At the same time, it shows us the path still not traversed. It was therefore thought, that “*Chintan Shivirs*” may be organized to bring all the three vertices of the golden triangle, viz, Industry (MSMEs, Start-ups and Innovators), Academia (CRTDHs) and Government (DSIR) on one platform to discuss the expectations and aspirations of the industry and the possible support that the CRTDHs can offer them. It will also be an opportune time to understand how the CRTDH scheme can be improved. Such an exercise can be extremely beneficial in the long run, as it will allow us to better plan and find the best and most effective ways to complete them. DSIR therefore, planned to organize “*Chintan Shivir*” in all the 18 CRTDHs established, so far. In the Phase I, it was decided that “*Chintan Shivir*” will be organized in five CRTDHs.

## 2.0 OBJECTIVES OF THE ‘CHINTAN SHIVIR’

As the CRTDH scheme is completing ten years, the Department of Scientific and Industrial Research (DSIR) intends to reimagine its role in providing right support and an enabling environment for MSMEs and setting exemplary standards of offering access to state-of-the-art facilities and resources. Objective of the ‘*Chintan Shivir*’ was to explore the ideas for better implementation of the CRTDH scheme, identifying the challenges ahead and coming out with ideas for making the scheme more relevant and vibrant, thus ensuring ease of doing research for MSMEs and ease of implementation by the project coordinators.

‘*Chintan Shivirs*’ explored the possibility for enhanced use of Artificial Intelligence for the betterment of MSMEs and the possible role that the CRTDHs can play. Experts were invited for sharing their valuable inputs to align the discussion with the latest developments across the world for the progress of MSMEs. The discussions held at the ‘*Chintan Shivir*’ would help in better planning and coordination of CRTDH scheme for greater reach & impact.

During the ‘*Chintan Shivirs*’, participants explored and discussed the challenges confronted by the MSMEs, with a strong emphasis on fostering research and development as tools for problem-solving. The purpose is to generate new ideas, insights, and perspectives that can contribute to the development and implementation of policies, programs and initiatives aligned with the goals of the government. The ideas and outcomes generated during the ‘*Chintan Shivirs*’ would be translated into concrete action plan. These action plans intend to outline the steps, strategies and timelines for the time-bound implementation of the proposed initiatives.

By facilitating these ‘*Chintan Shivirs*’ the Department harnessed the collective wisdom, knowledge, and expertise of the officials and stakeholders. It enabled comprehensive discussions, critical thinking, and strategic planning to drive effective policy formulation and execution. This inclusive approach ensured that various perspectives and inputs are considered, leading to well-informed decisions and efficient implementation of programs and policies for the benefit of the nation.

### 2.1 FOCUS AREAS OF DISCUSSION / TOPICS DISCUSSED

1. Identifying ways to have a synergy between MSMEs and CRTDHs
2. Showcasing the strengths of the CRTDHs
3. Identifying technology needs of MSMEs
4. Showcasing R&D opportunities available for the MSMEs at the CRTDHs
5. Possibilities of licensing of technologies developed by the CRTDHs
6. Ways to enhance commercialization of technology
7. Way forward for greater reach of CRTDHs among stakeholders.
8. Sustainability models of the CRTDHs post closure of the support.

### 2.2 TARGET AUDIENCES FOR ‘CHINTAN SHIVIRS’

1. MSMEs
2. Start-ups
3. Industry Associations
4. Individual innovators/ inventors
5. Research scholars
6. Academia
7. R&D institutes

### 3.0 PHASE I of ‘CHINTAN SHIVIR’

“*Chintan Shivir*” functioned as a forum for thoughtful discussions, creative idea generation, and the development of strategic plans, thereby nurturing cooperation and the introduction of new ideas within their specific areas. The DSIR dedication in promotion of Research and Development is unmistakably showcased by having successfully conducted five ‘*Chintan Shivirs*’ in Phase I at CRTDH located at IIT Kharagpur, CSIR-IITR, Lucknow, CSIR-CMERI, Durgapur, CSIR-IMMT, Bhubaneswar and at DPSRU, New Delhi. The upcoming ‘*Chintan Shivir*’ events are scheduled to be held in the remaining CRTDHs established DSIR.

#### 3.1 ‘CHINTAN SHIVIR’ AT CRTDH\_IIT KHARAGPUR

##### 3.1.1 TOUR OF CRTDH FACILITY

Prof. Suman Chakraborty welcomed the DSIR officials for a tour of the various facilities / infrastructure established within the CRTDH, showcasing the instrumentation, technologies and products developed. He mentioned that this CRTDH is playing a crucial role in bridging the gap between academia, industry, and the public. Prof. Chakraborty provided DSIR officials with a firsthand look at the innovative work taking place at CRTDH and provided a deeper understanding of the potential impact of these technologies.

During the tour Professor Chakraborty showcased paper based diagnostic device for detecting multiple blood parameters, nucleic acid based rapid diagnostic device platforms, lateral flow device technology and others. Prof. Chakraborty further emphasized that training on these developed technologies from CRTDH are strengthening the rural entrepreneurs. The CRTDH helps to foster further collaboration, raise awareness, and demonstrate the tangible outcomes of research and development efforts.

Prof. Suman Chakraborty’s commitment to knowledge sharing and the promotion of innovation is playing a vital role in driving progress, enhancing partnerships, and advancing the goals of research and development organizations like CRTDH.



*Tour of the CRTDH facility by CRTDH coordinator at IIT Kharagpur*

##### 3.1.2 INAUGURAL SESSION

The Inaugural Session was graced by the presence of Dr. Sujata Chaklanobis, Scientist “G” & Head CRTDH, Department & Scientific Industrial Research, Ministry of Science & Technology, Govt. of India, Prof. Amit Patra, Deputy Director, IIT, Kharagpur, Prof. Suman Chakraborty, IIT, Kharagpur, Dr. Vipin C Shukla, Scientist “F”, Dr. Ranjeet Bairwa, Scientist “E”, Dr. Suman Mazumdar, Scientist “E” and Dr. Kailash C Petkar, Scientist “D”.

The Deputy Director of IIT Kharagpur, Dr. Sujata Chaklanobis, and other DSIR officials inaugurated the *Chintan Shivir* with a ceremonial lamp lighting. Prof. Suman Chakraborty thanked DSIR and IIT Kharagpur for organizing the Shivir and started the day’s proceedings with welcome address.

Inaugural session of the *Chintan Shivir* was addressed by Dr. N. Kalaiselvi, Secretary, DSIR and DG-CSIR. In her recorded video address, Dr. N. Kalaiselvi emphasized on the role of DSIR and CRTDHs in empowering MSMEs/Start-ups/innovators to fulfill the

mission of Hon'ble Prime Minister Shri Narendra Modi Ji of making 'Atma-nirbhar Bharat'. She also emphasized the importance of academia-industry collaboration and creating a conducive ecosystem to address the technical problems faced by the Industry.

Prof. Amit Patra appreciated the efforts of CRTDH-IIT Kharagpur in supporting various stakeholders to fulfil their R&D endeavors. He also briefed about several other initiatives which are being taken by IIT Kharagpur to ensure stronger industry-academia ties.

Dr. Sujata Chaklanobis presented an overview of CRTDH *Chintan Shivir*, highlighted the need of innovation, and stated that MSMEs being the pillar of the innovation ecosystem can do wonders in making India the global R & D and manufacturing hub. She also congratulated the CRTDH at IIT Kharagpur for outstanding effort for the lab to market translation of the technologies and for facilitating several MSMEs.



*Dr. Sujata Chaklanobis Head CRTDH, DSIR addressing the Chintan Shivir at IIT Kharagpur*

### 3.1.3 THEMATIC SESSION

Prof. Suman Chakraborty's thematic session highlighted the valuable initiatives of CRTDH@IIT Kharagpur, in fostering connections and opportunities for MSMEs. His overview of CRTDH and its MSME-focused initiatives provided a clear roadmap for collaboration and growth. His insightful presentation on CRTDH and MSME Connect

& opportunities was instrumental in shedding light on the vital role played by CRTDH in bridging the gap between academia and industry. Prof. Chakraborty's detailed presentation on CRTDH's infrastructure and facilities, the innovative technologies developed, and the extensive range of services offered to MSMEs provided invaluable insights.

Prof. Chakraborty's introduced various membership plans, specially tailored for MSMEs, demonstrates a proactive approach to facilitating MSME's engagement with CRTDH. These plans promise to be a valuable resource for MSMEs seeking to leverage CRTDH's expertise and infrastructure for their growth and development.



*Prof. Suman Chakraborty, Coordinator CRTDH, addressing the Chintan Shivir at IIT Kharagpur*

### 3.1.4 SAMVAD

The coordination of the "Samvad" session by Dr. Vipin C Shukla and the active participation of MSMEs representatives at CRTDH@IIT Kharagpur, reflected a significant step in addressing the challenges faced by the industry and fostering collaboration. This session focused on the challenges encountered by MSMEs, startups, and innovators, and explored potential solutions with the CRTDH coordinator.



Dr. Vipin Shukla coordinating the ‘Samvad’ session at Chintan Shivir at IIT Kharagpur

Prof. Suman Chakraborty, played a crucial role in promoting dialogue and cooperation within the industry. The active engagement of MSMEs representatives who shared and displayed their work developed at CRTDH, IIT Kharagpur, is truly commendable. Their recognition of CRTDH and DSIR for their extensive support emphasizes the importance of collaborative partnerships in addressing industry challenges and fostering innovation. The identification of five key challenges faced by MSMEs and Prof. Suman Chakraborty’s detailed responses on how CRTDH can assist stakeholders in overcoming these challenges, demonstrate the commitment of CRTDH in providing tangible solutions. The introduction of Platinum, Gold, and Silver membership plans for the industry to access the facilities and services offered by CRTDH@IIT Kharagpur, is a proactive step towards strengthening the relationship between academia and industry.



Representatives from MSMEs in dialogue at Chintan Shivir at IIT Kharagpur



Representatives from MSMEs in dialogue at Chintan Shivir at IIT Kharagpur

### 3.1.5 PROBLEM STATEMENT AND POSSIBLE SOLUTION

“Chintan Shivir” discussed key challenges faced by the MSME and possible solutions were identified during the samvad session. Tabulating these challenges and solutions would be an effective way to provide a clear and organized overview of the outcomes. The key challenges identified during the “Chintan Shivir” and the possible solutions are tabulated below:

Problems Statement	Possible Solution
1: Reduction in Form Factor, better UI-UX	As POC devices are designed for users having minimal or no training the device needs to be easy to use and has better User Interface. The ethnographic design may be developed with users and regular iterations need to be done for ease of use.

2: More Clinical Validation and Field Trial	The diagnostic devices need to go through several clinical trials, field validations etc to ensure seamless operation and high sensitivity and specificity at the extreme point of care. The data generated from the trails will help to make the hardware and the software more accurate and accessible at the point of care and be calibrated to accommodate harsh climatic conditions.
3: How to apply AI for more accuracy in detection?	AI thrives on large datasets; more data often leads to better model performance. With more and more data set the accuracy of the model can be improved and this reduces the subjectivity and brings more uniformity in the detection protocol. This can be achieved by Collaborating with the domain experts at CRTDH to curate high-quality datasets, and employ techniques like transfer learning or semi-supervised learning to make the most of available data.

4: How to increase accuracy of minimally invasive or non-invasive technology?	To enhance the accuracy of minimally invasive or non-invasive technologies, it's crucial to integrate advanced signal acquisition technology and regularly calibrate them for precision. Deep learning and AI can refine data interpretation, with continuous learning systems adapting to new data. Not only the sensor data, the integration of other biological and medical metadata can help to increase accuracy of such devices.
5: Sample collection issue and minimal user steps	Efficient sample collection is crucial for accurate diagnostics especially in POC domain where no specialist is available for data collection. This gap can be filled by developing standardized protocols for sample collection (sample to answer) and leverage technology to assist in or automate the sample collection process where feasible.

### 3.1.6 RECOMMENDATIONS & KEY TAKEAWAYS

During the *Chintan Shivir*, suggestions and feedback were received from the participants / stakeholders. The key takeaways from the “*Chintan Shivir*” held at CRTDH@IIT Kharagpur are as follows:

i. **Membership announcement:** Prof. Suman Chakraborty announced several membership opportunities for the MSMEs, Startups, and Entrepreneurs at CRTDH@ IIT Kharagpur

ii. **Problems identified:** Five challenges faced by MSMEs were identified and the possible solutions were discussed.

iii. **Strengthening Collaboration:** Enhanced integration between academia, industry, and governmental bodies for joint research and innovation is necessary for strengthening the competitiveness of the MSMEs.

iv. **Empowering MSMEs:** MSMEs have an important role to play in the innovation ecosystem. The various ways in which the CRTDHs could facilitate the R&D endeavors of the MSMEs and help them to bring their product to the market, was discussed in detail.

v. **Focus on Affordable Healthcare:** The “*Chintan Shivir*” focused on the need of collaboration between MSMEs and CRTDHs and emphasized on the ways which could lead to the development of affordable point-of-care solutions, that could solve the challenges of accessible and affordable healthcare, especially in rural settings.

vi. **Focus on import substitution and Make in India:** A special focus was given to develop in house products and indigenous technologies in healthcare to replace the imported devices in point-of-care.

### 3.1.7 CONCLUSION

The first “*Chintan Shivir*” on “CRTDHs Empowering MSMEs” was a very fruitful event for the industry-academia collaboration, with a specific focus on empowering MSMEs through facilities and training and driving innovation in the sector affordable healthcare at CRTDH\_IIT Kharagpur. The event brought together diverse stakeholders, reflecting the multifaceted nature of the challenges and opportunities in today’s fast-evolving industrial landscape in affordable point-of-care diagnostics.

The “*Chintan Shivir* on CRTDHs Empowering MSMEs” has emerged as a beacon, illuminating the path towards a more collaborative, innovative, and empowered industrial-academia ecosystem. The lessons learned, the partnerships forged, and the goals set forth are more than mere outcomes; they are the foundation pillars for the future

and would lead to successes in providing affordable and accessible care for the last mile population. The collective wisdom, commitment, and passion demonstrated during the event, are indeed harbingers of a bright and promising future innovations, disruptions and collaboration. The organizers, participants, and all involved can reflect on this landmark event with pride and anticipation for the transformative impact it is poised to unleash and foster an ecosystem approach in the realm of affordable healthcare.



*Participation of stakeholder at Chintan Shivir at IIT Kharagpur*



## A day long Chintan Shivir on ‘CRTDH Empowering MSMEs’ concluded with fruitful deliberations on challenges and opportunities for MSMEs at CRTDH-IIT Kharagpur

**DG-CSIR, Dr. N. Kalaiselvi calls for DSIR and CRTDHs to play a role in empowering MSMEs/Start-ups/innovators to fulfill the mission of Prime Minister Shri Narendra Modi ji of making ‘Atmanirbha Bharat’**

Posted On: 27 JUL 2023 4:40PM by PIB Delhi

The first “Chintan Shivir on CRTDHs Empowering MSMEs” in a series of Chintan Shivirs under CRTDH program of Department of Scientific and Industrial Research, Ministry of Science and Technology was inaugurated at CRTDH-IIT, Kharagpur on 27/07/2023. This Chintan Shivir was organised to strengthen academia-industry ties, highlighting the crucial role of this collaboration in spurring industrial R&D and creating an environment that encourages knowledge exchange, collaborative research, and technological innovation. The CRTDH encourages R & D activities in the country and provides comprehensive support and guidance, playing a critical role in strengthening the MSME sector, fostering an environment of growth, and driving technological advancements.

Inaugural session of the Chintan Shivir was addressed by the address of Dr. N. Kalaiselvi, Secretary, DSIR and DG-CSIR, Prof. Amit Patra, Deputy Director, IIT Kharagpur and Dr. Sujata Chaklanobis, Scientist-G & Head-CRTDH, DSIR. During her inaugural address, Dr. N. Kalaiselvi emphasized on the role of DSIR and CRTDH in empowering MSMEs/Start-ups/innovators to fulfill the mission of Prime Minister Shri Narendra Modi ji of making ‘Atmanirbha Bharat’. Prof. Amit Patra appreciated the efforts of CRTDH-IIT, Kharagpur in supporting various stakeholders to fulfil their R&D endeavors. Dr. Sujata Chaklanobis presented an overview of Chintan Shivir and highlighted the need of innovation and stated that MSMEs being the pillar of the innovation ecosystem can do wonders in making India global R & D and manufacturing hub.

Prof. Suman Chakraborty, PI-CRTDH at IIT Kharagpur started the thematic session by delivering an overview of CRTDH at IIT Kharagpur – the MSME Connect Opportunities (focusing infrastructure, technologies developed, futuristic technologies aimed for and opportunities for MSMEs). This was followed by “Samvaad” coordinated by Dr Vipin C Shukla, Scientist-F, DSIR to further discuss on grand challenges of MSMEs/Start-ups/innovators and addressed possible solutions with CRTDH at IIT Kharagpur. This concluded with identification of 5 grand challenges which may be addressed by CRTDH at IIT Kharagpur in future.

The event was attended by the Prof Amit Patra, Deputy Director, IIT Kharagpur; Prof Chandan Chakraborty, Dean (R&D); Prof Jayanta Mukhopadhyay, Co-PI, CRTDH IIT Kharagpur; Dr. Sujata Chaklanobis, Head, CRTDH; Dr Vipin C Shukla, Member Secretary, CRTDH and senior officers Dr Ranjeet Bairwa, Dr Suman Mazumdar, Kailash Petkar from DSIR along with Prof Suman Chakraborty, PI-CRTDH and his team and delegates from the Chambers of Commerce, industry associations. A number of stakeholders such as representatives from Micro, Small and Medium Enterprises (MSMEs), start-ups, individual innovators, Self-help groups also attended event to get the benefits of CRTDH in their R&D endeavors. This Chintan Shivir has discussed possible opportunities for MSMEs/Start-ups/innovators at CRTDH-IIT Kharagpur to fulfill their R & D endeavors and contribute towards building India as a global industrial R&D and manufacturing hub.

The event was concluded with the vote of thanks to Dignitaries, organizers, all stakeholders, press and media persons by Dr. Kailash C. Petkar, Scientist, DSIR.



SNC/PK

(Release ID: 1943264) Visitor Counter : 548

Read this release in: Urdu , Hindi

*Press release by PIB on ‘Chintan Shivir’ organized at IIT Kharagpur*



## 3.2 ‘CHINTAN SHIVIR’ AT CRTDH\_CSIR-INDIAN INSTITUTE OF TOXICOLOGY RESEARCH (IITR), LUCKNOW

### 3.2.1 TOUR OF CRTDH FACILITY

The tour of the CRTDH facility at CSIR-IITR, Lucknow, was led by Dr. Bhaskar Narayan, Director, CSIR-IITR, Lucknow and Dr. Parthasarathi, Coordinator, CRTDH\_CSIR-IITR, Lucknow. The various facilities and infrastructure established at the CRTDH were showcased. Dr. Parthasarathi briefed about the various technologies and products developed, emphasizing how the CRTDH\_CSIR-IITR, Lucknow plays a crucial role in addressing the expectations and aspirations of MSMEs.

The DSIR officials got a firsthand glimpse of the innovative initiatives happening at the CRTDH, enabling them to gain a more profound insight into the potential impact of these technologies. The achievements made under water treatment sector, effluent treatment sector, prototypes of natural polymer based packaging materials and air pollution abatements were also demonstrated. This tour effectively showcased the concrete results of Research and Development endeavors of the CRTDH.



Dr. Sujata Chaklanobis Head CRTDH, DSIR  
inaugurating the CRTDH facility at CSIR- IITR,  
Lucknow

The coordinator’s dedication to sharing knowledge and promoting innovation is a crucial driver of progress, strengthening partnerships, and furthering the objectives of research and development organizations such as CRTDH.

### 3.2.2 INAUGURAL SESSION

The Inaugural Session was graced by the presence of Dr. Sujata Chaklanobis, Scientist “G”& Head CRTDH, Department of Scientific and Industrial Research (DSIR), Ministry of Science & Technology, Govt. of India, Dr. Bhaskar Narayan, Director, Indian Institute of Toxicology Research (IITR), Lucknow, Dr. Vipin C Shukla, Scientist “F”, DSIR, Dr. Parthasarathi, Senior Principal Scientist, CSIR-IITR, Lucknow, Dr. B Sreekanth, Senior Principal Scientist, CSIR-IITR, Lucknow, Dr. Ranjeet Bairwa, Scientist “E” and Dr. Kailash C. Petkar, Scientist “D”.

Dr. Bhaskar Narayan, Director, CSIR-IITR, Lucknow and Dr. Sujata Chaklanobis inaugurated the *Chintan Shivir* with a ceremonial lamp lighting. Dr. Parthasarathi thanked DSIR for organizing and CSIR-IITR, Lucknow for hosting the “*Chintan Shivir*”. He then initiated the day’s proceedings with a welcome address.

The opening session of the *Chintan Shivir* featured a speech by Dr. N. Kalaiselvi, Secretary of DSIR and Director-General of CSIR. Dr. N. Kalaiselvi, Secretary of DSIR and Director-General of CSIR attended the “*Chintan Shivir*” virtually. In her speech Dr. N. Kalaiselvi highlighted the significant role played by DSIR and CRTDHs in empowering MSMEs, startups, and innovators to support the vision of Hon’ble Prime Minister Shri Narendra Modi Ji in achieving an ‘Atmanirbhar Bharat’. She also underscored the importance of fostering collaboration between academia and industry and adopting an ecosystem-based approach to address the challenges faced by the industry.



*Dr. N. Kalaiselvi, Secretary, DSIR and DG, CSIR, addressing the Chintan Shivir at CSIR- IITR, Lucknow*

Dr. Bhaskar Narayan, Director, CSIR-IITR, Lucknow expressed his appreciation for the contributions of CRTDH\_CSIR-IITR, Lucknow in assisting a diverse range of stakeholders in accomplishing their Research and Development goals. He also emphasized the role that the research community can play in supporting the growth of the MSME sector by providing them with access to new technologies, state-of-art facilities and promising innovations. Additionally, he provided an overview of futuristic technology interventions at DSIR-CRTDH\_CSIR-IITR, Lucknow and highlighted various other initiatives undertaken by CSIR-IITR, Lucknow to foster and strengthen synergy between academia and MSMEs.



*Dr. Bhaskar Narayan, Director, CSIR-IITR, Lucknow, addressing the Chintan Shivir at CSIR- IITR, Lucknow*

Dr. Sujata Chaklanobis provided an overview of the “*Chintan Shivir*”, emphasizing the importance of innovation. She underscored that MSMEs, as integral components of the innovation ecosystem, have the potential to significantly contribute to India’s global standing in Research and Development as well as manufacturing. Dr. Chaklanobis shared insights on the significant involvement of MSMEs in the “*Chintan Shivir*”. She emphasized that the participation of MSMEs was essential to the event’s success since they are at the receiving end of the challenges and can benefit the most from the Research and Development being done in the sector. Dr. Chaklanobis also extended her congratulations to CRTDH\_CSIR-IITR, Lucknow for their exceptional efforts in bridging the gap between laboratory innovations and the market, thereby facilitating numerous MSMEs.

Dr. Sujata Chaklanobis and Dr. Bhaskar Narayan officially launched the DSIR-CRTDH\_CSIR-IITR, Lucknow website. The website showcases scientific capability, available technological solutions and service offered and the ways to engage with the public to disseminate information about its research and activities. The website provides a comprehensive overview of the work being done at DSIR-CRTDH\_CSIR-IITR, Lucknow, including its research areas, facilities, and achievements. It also features news and events, publications, and contact information. The website is designed to be user-friendly and accessible to a broad audience. The website’s launch is part of the institute’s digital engagement and would help the hub to connect with the stakeholders in a more meaningful way and disseminate information about research and capacity-building activities to a wider audience.



*Dr. Sujata Chaklanobis Head CRTDH, DSIR and Dr. Bhaskar Narayan, Director, CSIR-IITR, Lucknow officially launching the DSIR CRTDH\_CSIR-IITR, Lucknow website*

### 3.2.3 THEMATIC SESSION

In his presentation on the achievements and activities of DSIR-CRTDH\_CSIR-IITR, Lucknow, Dr. Parthasarathi emphasized the initiatives aimed at nurturing connections and opportunities for MSMEs. His comprehensive overview of the CRTDH\_CSIR-IITR, Lucknow, focused on initiatives which paves out a clear path for collaboration and expansion for the MSMEs. His presentation on CRTDH and its role in facilitating “MSME Connect & Opportunities” was instrumental in illuminating the critical function played by CRTDH in bridging the gap between academia and industry. Dr. Parthasarathi’s meticulous examination of CRTDH’s infrastructure, cutting-edge technologies, and the extensive array of services provided to MSMEs yielded invaluable insights.

### 3.2.4 SAMVAD

Thematic session was followed by “Samvad” session coordinated by Dr. Vipin C Shukla. The samvad session saw the active participation from a diverse array of stakeholders, including MSMEs and startups, representatives from various industry associations, individual innovators and inventors, research scholars, esteemed members of academia, research scholars, and esteemed professionals from renowned R&D institutes. The “Samvad” session dealt with major difficulties faced by MSMEs, startups, and innovators and potential solutions were addressed appropriately. “Samvad” provided

a clear framework in identifying five grand challenges and were addressed appropriately by the project coordinator at CSIR-IITR, Lucknow.



*Dr. Vipin C. Shukla hosting the Samvad session CSIR-IITR, Lucknow.*

### 3.2.5 PROBLEM STATEMENT AND POSSIBLE SOLUTION

“Chintan Shivir” discussed key challenges faced by the MSMEs and possible solutions were identified during the “Samvad” session. The outcome was a rich tapestry of dialogues, shared challenges, and innovative solutions. Among the challenges discussed, the need for a consolidated platform for MSMEs stood out. Other significant concerns included the demand for specialized training programs, avenues for financial support, systems to enhance product quality, and the essentiality of technologies targeting rural sectors. Tabulating these challenges and solutions would be an effective way to provide a clear and organized overview of the outcomes. The key challenges discussed and the possible solutions are as follows:

<b>Problem Statement</b>	<b>Possible Solution</b>
1. Lack of the technical skills necessary to boost productivity	MSMEs often lack the technical skills necessary to boost productivity. This deficit may involve a lack of knowledge about advanced manufacturing techniques, software tools, or industry-specific skills. Training to acquire these skills can be expensive and time-consuming, putting a strain on their limited resources.
2. Inconsistence and sporadic marketing efforts.	Maintaining a consistent and effective presence in the market can be a challenge for MSMEs. Inconsistent marketing efforts can lead to a lack of brand recognition and customer trust. Limited marketing budgets and expertise can further hinder their ability to run sustained marketing campaigns.
3. Inability to imbibe the process of required innovation, discovery, and inventiveness.	MSMEs may struggle to embrace innovation due to limited resources for research and development. This limitation can hinder their capacity to develop new products, processes, or services needed to stay competitive. A risk-averse approach and fear of failure may also impede innovation efforts.

4. Stiff competition from large-scale business counterparts.	MSMEs face fierce competition from larger companies with more resources, economies of scale, and established market positions. This competition can make it challenging for MSMEs to compete, particularly on price, as larger enterprises may engage in price wars.
5. Onsite deployment issues in implementing solutions – testing and validation.	Implementing solutions, especially technological ones, can disrupt daily operations for MSMEs. Onsite deployment often involves testing, validation, and fine-tuning, which can be resource-intensive and time-consuming. Additionally, MSMEs may lack in-house technical expertise, leading to deployment challenges.

### **3.2.6 RECOMMENDATIONS& KEY TAKEAWAYS**

Few takeaways from the “*Chintan Shivir*” organized at CSIR-IITR, Lucknow are as follows:

- i. MSMEs play a vital role in the Indian economy, and their growth and development are essential for the country’s overall economic growth, thus CRTDH can play a significant role in supporting the growth and development of MSMEs by providing them with access to the latest technologies and innovations and training and mentoring.
- ii. The “*Chintan Shivir*” brought together MSMEs, startups, innovators, and representatives from the Chamber of Commerce/Industry Association to share their ideas & insights and networking. The event discussed the challenges faced by MSMEs and the role that CRTDH can play in addressing these challenges.

iii. To remain competitive, MSMEs need to be more proactive in adopting new technologies & innovations and also network with each other and with experts from organizations like CRTDH, to share knowledge and best practices.

iv. The panel discussion on the 5 grand challenges faced by MSMEs was particularly insightful, and the participants learned about how CRTDHs can help MSMEs overcome these challenges.

v. The event was a valuable opportunity for MSMEs to learn about the latest technologies and innovations that can help them improve their businesses and positively impact the region's growth and development of MSMEs.

### 3.2.7 CONCLUSION

The “*Chintan Shivir*” has been a significant and inspiring step toward aligning the objectives and visions of the MSME sector with research and innovation efforts, with the aim of building a brighter and more prosperous future. This event provided a platform for MSMEs to engage with experts from the CRTDH and other organizations / associations in fostering collaboration and knowledge exchange.

During the “*Chintan Shivir*”, MSMEs had the opportunity to interact with experts and learn about the latest technologies and innovations that can potentially benefit their businesses. Additionally, it allowed them to network with other MSMEs, creating opportunities for potential partnerships and collaborations.

The positive impact of this event on the region's growth and development of MSMEs is expected. Such events not only disseminate knowledge but also encourage the adoption of advanced technologies and best practices, ultimately contributing to the enhancement of the MSME sector's capabilities and its role in the region's economic development.



*Participation of stakeholder at 'Chintan Shivir' at CSIR IITR, Lucknow.*

## One day Chintan Shivir on “CRTDH Empowering MSMEs” concluded at IITR, Lucknow

Posted On: 25 AUG 2023 1:19PM by PIB Delhi

On August 24, 2023, DSIR-CRTDH-IITR, Lucknow organised a day long second "Chintan Shivir on CRTDHs Empowering MSMEs" under Common Research & Technology Development Hub (CRTDH) programme of the Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology. The goal of the Chintan Shivir was to fortify relationships between academics and industry by stressing that this cooperation plays an important role in promoting industrial R&D and fostering a culture that strengthens information sharing, collaborative research, and technical innovation. The CRTDH promotes R&D operations in the nation and offers extensive support and guidance and hence plays a crucial role in bolstering the MSME sector, encouraging a growth-friendly climate, and advancing technological breakthroughs to achieve the long-cherished goal of 'Atmanirbhar Bharat'.

Dr. N. Kalaiselvi, Secretary, DSIR and Director General, Council of Scientific & Industrial Research (CSIR), Dr. Bhaskar Narayan, Director, Indian Institute of Toxicological Research (IITR), Lucknow and Dr. Sujata Chaklanobis, Head-CRTDH, DSIR spoke during the Chintan Shivir's inaugural session. Dr. N. Kalaiselvi stressed the importance of DSIR and CRTDHs in enabling MSMEs, startups, and innovators to carry out the Prime Minister Shri Narendra Modi's vision of creating "Atmanirbhar Bharat" in his remarks at the opening ceremony. Dr. Bhaskar Narayan praised DSIR-CRTDH-IITR, Lucknow's efforts to assist diverse stakeholders in completing their R&D projects. Sujata Chaklanobis gave an overview of Chintan Shivir, she emphasized the need for innovation and asserted that MSMEs, as a key component of the innovation ecosystem, can significantly contribute in building India as a hub for R&D and manufacturing on a global scale. On this occasion, Dr. Sujata Chaklanobis and Dr. Bhaskar Narayan inaugurated the DSIR-CRTDH-IITR facility at the Technology Development and Innovation Centre and launched the updated version of the DSIR-IITR-CRTDH website. Two MoUs with DSIR-CRTDH-IITR and MSMEs were signed.

The Director of the CSIR-IITR, Lucknow provided an overview of futuristic technology interventions at DSIR-CRTDH-IITR and highlighted the importance of synergy between academia and MSMEs during the thematic sessions. Dr. Parthasarathi and Dr. B Sreekanth provided a briefing on the activities carried out under DSIR-IITR-CRTDH and its efforts to explore opportunities for MSMEs. Participants from the MSMEs/Start-ups/innovators were divided into five groups to brainstorm on challenges faced by them in pursuing their R&D goals followed by a brief presentation on it. Thematic session was continued to "Samvad" which was coordinated by Dr. Vipin Shukla, Scientist-F, DSIR. During 'Samvad', major difficulties faced by MSMEs, startups, and innovators were discussed and potential solutions were addressed by the DSIR-CRTDH-IITR, Lucknow.

The event was attended by senior officers Dr Ranjeet Bairwa and Dr Kailash Petkar from DSIR along with the entire team of DSIR-CRTDH-IITR. Large number of representatives from Micro, Small and Medium Enterprises (MSMEs), start-ups, UP state district resource persons, individual innovators, and delegates from the Chambers of Commerce and industry associations, Assocham also participated in this important event to get the benefits of CRTDH in their R&D endeavors.

Finally, Dr. Kailash C. Petkar, Scientist, DSIR presented a vote of gratitude to dignitaries, organizers, all stakeholders, press and media personnel to conclude the event.

*Press release by PIB on 'Chintan Shivir' organized at CSIR – IITR, Lucknow*



25/08/2023 04:49pm

### DSIR Under Science & Tech Ministry Inks Two MoUs With MSMEs In Lucknow



DSIR Under Science & Tech Ministry Inks Two MoUs With MSMEs In Lucknow

Lucknow, Aug 25 (KNN) The Department of Scientific and Industrial Research - Common Research and Technology Development Hub - Indian Institute of Toxicology Research (DSIR-CRTDH-IITR) facility at the Technology Development and Innovation Centre in Lucknow was inaugurated on Thursday.

Two MoUs with DSIR-CRTDH-IITR and MSMEs were signed during a day-long second "Chintan Shivir on CRTDHs Empowering MSMEs".

The goal of this Chintan Shivir was to fortify relationships between academics and industry by stressing that this cooperation plays an important in promoting industrial R&D and fostering a culture that strengthens information sharing, collaborative research, and technical innovation.

The CRTDH promotes R&D operations in the nation and offers extensive support and guidance and hence plays a crucial role in bolstering the MSME sector, encouraging a growth-friendly climate, and advancing technological breakthroughs to achieve long cherished goal of 'Atmanirbhar Bharat'.

Dr. N. Kalaiselvi, Secretary, DSIR and Director General, CSIR, Dr. Bhaskar Narayan, Director, IITR, Lucknow and Dr. Sujata Chaklanobis, Head-CRTDH, DSIR spoke during the Chintan Shivir's inaugural session.

She stressed the importance of DSIR and CRTDHs in enabling MSMEs, startups, and innovators to carry out the Prime Minister Narendra Modi's vision of creating "Atmanirbhar Bharat" in her remarks at the opening ceremony.

Dr. Bhaskar Narayan praised DSIR-CRTDH-IITR, Lucknow's efforts to assist diverse stakeholders in completing their R&D projects.

Dr. Sujata Chaklanobis gave an overview of Chintan Shivir, she emphasized the need for innovation and asserted that MSMEs, as a key component of the innovation ecosystem, can significantly contribute in building India as a hub for R&D and manufacturing on a global scale.

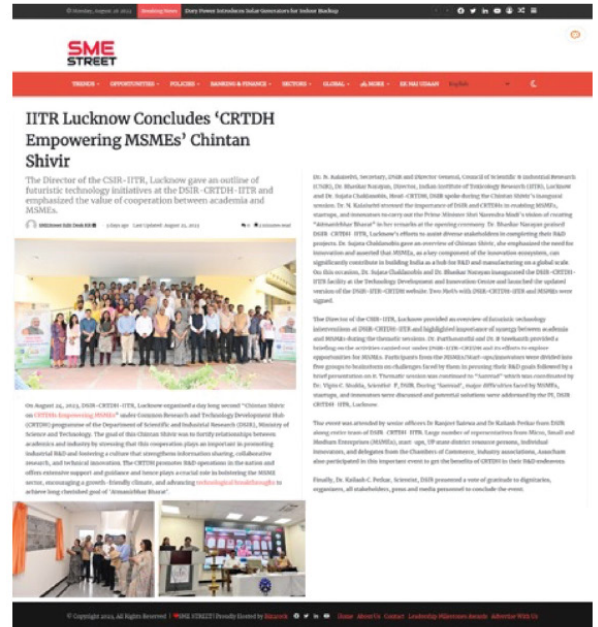
The Director of the CSIR-IITR, Lucknow provided an overview of futuristic technology interventions at DSIR-CRTDH-IITR and highlighted importance of synergy between academia and MSMEs during the thematic sessions.

Thematic session was continued to "Samvad" which was coordinated by Dr. Vipin C. Shukla, Scientist-F, DSIR. During 'Samvad', major difficulties faced by MSMEs, startups, and innovators were discussed and potential solutions were addressed by the PI, DSIR-CRTDH-IITR, Lucknow.

The event was attended by senior officers Dr Ranjeet Bairwa and Dr Kailash Petkar from DSIR along entire team of DSIR-CRTDH-IITR. Large number of representatives from Micro, Small and Medium Enterprises (MSMEs), start-ups, UP state district resource persons, individual innovators, and delegates from the Chambers of Commerce, industry associations, Assocham also participated in this important event to get the benefits of CRTDH in their R&D endeavours.

Finally, Dr. Kailash C. Petkar, Scientist, DSIR presented a vote of gratitude to dignitaries, organizers, all stakeholders, press and media personnel to conclude the event. (KNN Bureau)

### Media coverage on 'Chintan Shivir' organized at CSIR – IITR, Lucknow



### Media coverage on 'Chintan Shivir' organized at CSIR – IITR, Lucknow

### 3.3 ‘CHINTAN SHIVIR’ AT CRTDH\_CSIR-CENTRAL MECHANICAL ENGINEERING RESEARCH INSTITUTE (CMERI), DURGAPUR

#### 3.3.1 TOUR OF CRTDH FACILITY

CRTDH project Co-coordinator at CSIR-CMERI, Durgapur, Shri S. Y. Pujar gave tour of the CRTDH facility and highlighted the various established facilities and infrastructures. Shri.S.Y. Pujargave a comprehensive overview of the different technologies and products that have been developed. He highlighted the significance of CRTDH and how it plays a vital role in enabling/supporting the aspirations, goals and objectives through technological solutions and product development for MSMEs. He offered a glimpse of the innovative technological initiatives taken for the development of anchor bolt, copper nozzle, surgical tools, semi-automated slotting of makhana seeds, mold for ornaments and casting designs. The tour gave profound insight into the potential impact of these technologies and served as a means to facilitate increased collaboration, increased awareness of CRTDH’s valuable contributions for research and development endeavors.

Dr. Sudip Kumar Samanta, Principal Investigator CRTDH and Shri.S.Y. Pujar project coordinator for CRTDH at CSIR-CMERI played an active role in promoting innovative ideas and initiatives which contributed to the growth and success of CRTDH. The efforts have helped build strong partnerships with various stakeholders. This dedication to knowledge sharing and innovation was instrumental in achieving the objectives and goals, as it fostered an environment of continuous learning and progress.

#### 3.3.2 INAUGURAL SESSION

The Inaugural Session was graced by the presence of Dr. Sujata Chaklanobis, Scientist -G & Head CRTDH, Department & Scientific Industrial Research, Ministry of Science & Technology, Govt. of India, Dr. Naresh

Chandra Murmu, Director, CSIR-CMERI, Durgapur, Dr. Sudip Kumar Samanta, Chief Scientist, CSIR-CMERI, Durgapur, Shri S. Y. Pujar, Senior Technical Officer, CSIR-CMERI, Durgapur, Dr. Ranjeet Bairwa, Scientist -E, DSIR and Dr. Suman Mazumdar, Scientist – E, DSIR.

Dr. Naresh Chandra Murmu, Director, CSIR-CMERI, Durgapur and Dr. Sujata Chaklanobis inaugurated the “Chintan Shivir” with ceremonial lamp lighting. Dr. Sudip Kumar Samanta thanked DSIR for organizing the “Chintan Shivir” and CSIR-CMERI, Durgapur, for hosting the “Chintan Shivir” on MSME empowerment. Shri.S.Y.Pujar then initiated the day’s proceedings with a welcome address.



*Inauguration of Chintan Shivir by Dr. Sujata Chaklanobis, Head CRTDH, DSIR at CSIR-CMERI, Durgapur.*

Dr. Naresh Chandra Murmu, Director, CSIR-CMERI, Durgapur extended his appreciation for the commendable efforts of CRTDH-CMERI, Durgapur, in facilitating advancements in low cost machining and futuristic technologies to assist various stakeholders in low-cost machining R&D endeavors. He stressed the importance of collaborative efforts between academia and industry to achieve R & D goals. Dr. Murmu’s speech emphasized the practical implications of research in transforming industries.





*Dr. Naresh Chandra Murmu, Director, CSIR-CMERI, Durgapur, addressing the 'Chintan Shivir' at CSIR-CMERI, Durgapur*

While providing an overview of *Chintan Shivir*, Dr. Sujata Chaklanobis emphasized the critical significance of innovation in the context of low-cost machining and futuristic technologies. She highlighted the need for developing cost-effective manufacturing processes and adopting forward-looking technologies to stay competitive and relevant in today's rapidly evolving industrial landscape. Furthermore, Dr. Chaklanobis underscored the essential role played by MSMEs in the Indian economy as they are the backbone of any economy due to their significant contribution to employment and economic growth. In this context, Dr. Chaklanobis highlighted that MSMEs have the potential to make substantial contributions in positioning India as a global hub for both research & development and manufacturing as it would align with the broader goals of promoting India's capabilities in innovation, production, and technology on a global scale.

### **3.3.3 THEMATIC SESSION**

During the technical sessions, Dr. Sudip Kumar Samanta, Principal Investigator at DSIR-CRTDH\_CSIR-CMERI, Durgapur, presented an overview, outlining futuristic technological advancements in the realm of low-cost machining. In his talk, Dr. Samanta discussed how CRTDH-CMERI is actively engaged in developing and implementing innovative technologies in this field. He also emphasized the integration of smart

manufacturing and additive manufacturing techniques as a means to enhance efficiency and productivity.



*Dr. Sudip Kumar Samanta, Coordinator CRTDH, addressing the 'Chintan Shivir' at CSIR-CMERI, Durgapur*

Shri. S. Y. Pujar discussed and elaborated on the various initiatives that DSIR-CRTDH\_CSIR-CMERI, Durgapur, has undertaken to support MSMEs in their R&D endeavors. These initiatives include programs, services, or collaborations aimed at assisting MSMEs in improving their technological capabilities, fostering innovation, and enhancing their competitiveness in the market. He outlined that, the ultimate goal of such initiatives is typically to empower MSMEs, to innovate and develop new products, processes, or technologies, thus contributing to their growth and the overall development of the industrial sector.

### **3.3.4 SAMVAD**

The "Samvad" session was coordinated by a team consisting of Dr. Sujata Chaklanobis, Dr. Ranjeet Bairwa, and Dr. Suman Mazumdar from DSIR and Dr. Sudip Kumar Samanta and Shri S. Y. Pujar from DSIR-CRTDH\_CSIR-CMERI, Durgapur. "Samvad" facilitated the dialogue and exchange of ideas between different stakeholders, including MSME representatives, startups, and innovators. During the Samvad session, participants were given the opportunity to share their insights and experiences, particularly highlighting the major challenges they encountered in their respective endeavors. The discussions

focused on finding solutions and ways to address these challenges effectively.

The success of the Samvad session was evident in the identification of five key challenges faced by MSMEs. Shri S. Y. Pujar then provided detailed responses on how the CRTDH can assist stakeholders in overcoming these challenges. This demonstrates CRTDH’s commitment in not only identifying problems being faced by the stakeholders, but also actively working towards providing practical solutions and support to MSMEs, startups, and innovators in their pursuit of growth and innovation. Such collaborative sessions are essential for fostering innovation and addressing real-world challenges in the industrial sector.



*Samvad session in progress at CSIR-CMERI, Durgapur.*



*Participation of stakeholder at Chintan Shivir at CSIR-CMERI, Durgapur*



*Representatives from MSMEs in dialogue at ‘Chintan Shivir’ at CSIR-CMERI, Durgapur*

### 3.3.5 PROBLEM STATEMENT AND POSSIBLE SOLUTION

During “Samvad” session, various challenges encountered by MSMEs, entrepreneurs, and innovators were discussed in detail through dialogue between DSIR officers, CSIR-CMERI scientists, and MSME representatives. This interactive session facilitated open discussions in understanding challenges and also focused on viable solutions through technological intervention. The following key challenges discussed and the possible solutions are tabulated below:

Problems Statement	Possible Solution
1: The endeavor to establish a Common Facility Centre for the Bargachia Metal Cluster presents a significant challenge.	CRTDH CSIR-CMERI is tasked with providing comprehensive support for the successful establishment of the Common Facility Center at Bargachia for Machinery and Equipment Identification, Technical Specifications Preparation, Participating in Pre-Delivery Inspections, Supervision of Installation and Commissioning, Operator and Maintenance Team Training, Periodic Training Programs, Local Service and Spare Parts Identification and Technical Consultancy & Additional Services.

2: The challenge of innovating a machining process or system for the production of micro-sized surgical forceps.	CRTDH CSIR-CMERI, in collaboration with the Baruipur Surgical Cluster (BASIMAA), is undertaking a project on System/Machine/Process Development, Innovative Fixture tailored to securely hold components during the machining process, Cutting Tool Innovation for machining the target surgical forceps.
3: The challenge of pioneering an inventive process or system to diversify products within the Bell Metal Cluster.	CRTDH_CSIR-CMERI, Durgapur, in partnership with the Bankura Bell Metal Cluster, is tasked with Market Demand Assessment, System/Machine/Process Development, Innovative Fixture System, Advanced Cutting Tool Development and Workforce Training.
4: The challenge of creating a pioneering process or system for processing banana stems to generate valuable products.	The project involves the creation of a system, machine, or process to execute the operation efficiently. Additionally, it entails the development of an innovative fixture system designed to securely hold and handle banana stems during the processing phase. Subsequently, trial runs will be conducted with the system to achieve the desired and targeted results.
5: The challenge of extending outreach to distant clusters.	CRTDH_CSIR-CMERI, Durgapur in collaboration with the Mangal Sutra Cluster “Sandeshkhal”, aims to identify the most suitable approach for arranging in-person meetings that are mutually convenient for both parties.

### 3.3.6 RECOMMENDATIONS & KEY TAKEAWAY

During the *Chintan Shivir*, participants and stakeholders provided valuable suggestions and feedback. The key highlights from the *Chintan Shivir* at CSIR-CMERI Durgapur included:

- i. **Information Dissemination:** Shri. S. Y. Pujar announced the intention to publish all government-related information concerning schemes and opportunities beneficial to MSMEs, Startups, and Entrepreneurs on the DSIR-CRTDH\_CSIR-CMERI, Durgapur website.
- ii. **Problem Identification:** The event successfully identified five major challenges faced by MSMEs, fostering discussions around potential solutions.
- iii. **Strengthening Collaboration:** The importance of enhancing collaboration between academia, industry, and governmental bodies for joint research and innovation was emphasised. The role of CRTDH in supporting R&D efforts and facilitating the market entry of MSME products was highlighted.
- iv. **Focus on Manufacturing Solutions:** The event emphasized how collaborative efforts could lead to the development of cost-effective manufacturing solutions. These solutions have the potential to address the challenge of accessible and affordable manufacturability, especially in remote clusters.
- v. **Emphasis on Import Substitution and Make in India:** A special emphasis was placed on the development of domestic products and indigenous technologies for manufacturing. The goal is to replace imported equipment and machinery, contributing to the “Make in India” initiative.

### **3.3.7 CONCLUSION**

The “*Chintan Shivir*” served as a platform for fruitful discussions and deliberations among participants, aiming to address key challenges and opportunities in various domains. Through collective brainstorming and collaboration, valuable insights and action points were identified. The event emphasized the importance of innovation, collaboration, and adaptation to meet the evolving needs of the industry and society.

Participants recognized the significance of leveraging technological advancements, enhancing partnerships between academia, industry and government bodies, and empowering MSMEs and startups to foster growth and innovation. Additionally, the event highlighted the role of indigenous manufacturing and import substitution in contributing to the “Make in India” initiative. The event served as a catalyst for continued collaboration and innovation, setting the stage for a brighter and more prosperous future.

## Third Chintan Shivir on “CRTDH Empowering MSMEs” in the area of Low-Cost Machining concluded after prolific discussions on challenges and opportunities for MSMEs at CRTDH-CMERI, Durgapur with support of DSIR

Posted On: 12 SEP 2023 3:48PM by PIB Delhi

Third Chintan Shivir in a series of "Chintan Shivirs on CRTDHs Empowering MSMEs" was held today at CRTDH-CMERI, Durgapur, as part of the CRTDH project of the Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology. The purpose of this Chintan Shivir was to strengthen ties between academia and business by emphasizing how crucial this collaboration is to push R&D and creating an environment that encourages knowledge sharing, collaborative research, and technological innovation. In order to accomplish the long-cherished aim of "Atmanirbhar Bharat," the CRTDH promotes R&D operations in the country and provides broad support and advice to MSMEs. As a result, it plays a significant role in supporting the MSME sector, promoting a growth-friendly environment, and furthering technological advancements.

The Chintan Shivir was initiated with the speeches from Dr. Sujata Chaklanobis, Scientist-G & Head-CRTDH, DSIR and Dr. Naresh Chandra Murmu, Director, CSIR-CMERI, Durgapur. Dr. Naresh Chandra Murmu complimented the efforts made by CRTDH-CMERI, Durgapur in helping various stakeholders in the area of low cost machining to complete their R&D initiatives. While providing an overview of Chintan Shivir, Dr. Sujata Chaklanobis stressed on the importance of innovation in low-cost machining and futuristic technologies. She further said that MSMEs are the backbone of Indian economy and can considerably contribute in establishing India as a global R&D and manufacturing hub.



During the technical sessions, Dr. Sudip Kumar Samanta, PI-CRTDH-CMERI, Durgapur, presented an overview of futuristic technological interventions in the area of low cost machining at CRTDH-CMERI and highlighted smart and additive manufacturing can be integrated to enhance efficiency, productivity, while Shri S. Y. Pu deliberated on various initiatives undertaken by CRTDH-CMERI to help MSMEs in their R & D endeavor. Further, representatives from the MSMEs/startups/innovators presented problems faced by them while pursuing their R&D goals and highlighted the support they received from the CRTDH-CMERI, Durgapur. The session "Samvad" between DSIR Officers viz. Dr. Sujata Chaklanobis, Dr. Ranjeet Bairwa, Dr. Suman Mazumdar; CSIR-CMERI Scientists Dr. Sudip Kumar Samanta, Shri S. Pujar and MSMEs representatives, highlighted major challenges encountered by MSMEs, entrepreneurs, and innovators and offering viable solutions to the stakeholders.



Senior officers from DSIR, Dr. Ranjeet Bairwa and Dr. Suman Mazumdar, as well as entire CRTDH-CMERI team attended the event. In order to benefit from CRTDH their R&D endeavors, a sizable number of representatives from Micro, Small and Medium Enterprises (MSMEs), start-ups, individual innovators, and industry groups participated in this event.

*Press release by PIB on 'Chintan Shivir' organized at CSIR-CMERI, Durgapur*

### 3.4 ‘CHINTAN SHIVIR’ AT CRTDH\_CSIR-INSTITUTE OF MINERALS AND MATERIALS TECHNOLOGY (IMMT), BHUBANESHWAR

#### 3.4.1 TOUR OF CRTDH FACILITY

Dr. Yatendra Chaudhary led the guests and delegates to the established CRTDH facilities, where he showcased the impressive work and impact of the CRTDH. The tour highlighted various facilities and infrastructure established within CRTDH, showcasing instrumentation, technologies and products developed by the center. One of the key aspects highlighted by Dr. Chaudhary was how CRTDH serves as a bridge between academia, industry, and the public. It was emphasized that the CRTDH is not only engaged in cutting-edge research, but also focuses on translating that research into practical applications that benefit society and the economy. During the tour, Dr. Chaudhary mentioned about the commercialization of nutrient-enriched biochar for organic-based fertilizers, which have the potential to revolutionize agriculture and improve crop yields while promoting sustainable and eco-friendly practices. Dr. Chaudhary highlighted CRTDH's role in supporting start-ups by providing dedicated spaces for them within the center, which demonstrates a commitment to nurturing entrepreneurship and fostering innovation in the region. One of the standout achievements of CRTDH was development of fluorinated graphene oxide coating for phosphor bronze pins used in Indian Railways. Dr. Chaudhary also emphasized the center's social impact, particularly in transferring technology for producing charcoal from paddy husk to a MSME for agarbatti production. By training Self Help Groups (SHGs) and empowering rural women in agarbatti manufacturing, the CRTDH contributes to socio-economic development at the grassroot level.



*Dr. Ramanuj Narayan, Director CSIR-IMMT, Bhubaneswar explaining the exhibit at CRTDH at CSIR-IMMT, Bhubaneswar.*

The commitment of the CRTDH has played a significant role in advancing the goals of the CRTDH. The center's activities encompass a wide range of fields, from agriculture to industrial coatings, and have the potential to make a lasting impact on both technology and society. The tour served as an important platform for collaboration, awareness-building, and showcasing the tangible outcomes of research and development efforts at the CRTDH.

#### 3.4.2 INAUGURAL SESSION

The Inaugural Session was graced by the presence of Dr. Sujata Chaklanobis, Scientist -G & Head CRTDH, Department & Scientific Industrial Research (DSIR), Ministry of Science & Technology, Govt. of India, Dr. Ramanuj Narayan, Director, CSIR-IMMT, Bhubaneswar, Prof. Manoj K. Dhar, Director, AcSIR, Dr. Vipin C. Shukla, Scientist -F, DSIR, Dr. Yatendra Chaudhary Senior Principal Scientist, CSIR-IMMT & CRTDH Coordinator and Dr. Ranjeet Bairwa, Scientist -E, and Dr. Suman Mazumdar, Scientist – E.

Dr. Ramanuj Narayan, Dr. Sujata Chaklanobis and Prof. Manoj K. Dhar inaugurated the “*Chintan Shivir*” with a ceremonial lamp lighting. Dr. Yatendra Chaudhary thanked DSIR and CSIR-IMMT, Bhubaneswar for organizing the Shivir and started the day’s proceedings with welcome address.

Inaugural session of the “*Chintan Shivir*” was addressed by Dr. N. Kalaiselvi, Secretary, DSIR and DG-CSIR. In her recorded video address, she emphasized the pivotal role of DSIR and CRTDHs in empowering MSMEs, startups, and innovators. This empowerment aligns with the mission of Hon’ble Prime Minister Shri Narendra Modi to achieve ‘Atma-nirbhar Bharat. By supporting these smaller enterprises and fostering innovation, DSIR and CRTDHs contribute to the economic growth and self-sufficiency of the nation. Dr. Kalaiselvi stressed the importance of collaboration between academia and industry. This collaboration is essential for leveraging the strengths and capabilities of both sectors to address the challenges faced by the industry. By bringing together the knowledge and expertise of academic institutions with the practical experience and resources of industries, innovative solutions can be developed and implemented effectively. Dr. Kalaiselvi advocated for an ecosystem approach to tackle the problems encountered by the industry. This approach involves creating a supportive and interconnected environment that fosters innovation, research, and development. It encompasses not only academia and industry but also government support, regulatory frameworks, infrastructure and financial resources. Such a holistic approach is crucial for addressing complex challenges and promoting sustainable growth. Dr. N. Kalaiselvi’s address emphasised on empowering smaller enterprises, promoting collaboration, and adopting a research ecosystem approach in addressing the multifaceted challenges faced by the industry.

Dr. Ramanuj Narayan, Director, CSIR-IMMT, Bhubaneswar acknowledged & appreciated DSIR in supporting the CRTDH facility for R&D endeavors of MSMEs, startups and individual innovators. Dr. Narayan envisioned that in years to come, the CRTDH would contribute significantly to the Indian economy, generating employment opportunities and driving innovation.



Dr. Ramanuj Narayan, Director, CSIR-IMMT Bhubaneswar, addressing the ‘Chintan Shivir’ at CSIR-IMMT, Bhubaneswar

Dr. Sujata Chaklanobis, in her inaugural address, made significant points regarding the “*Chintan Shivirs*” and their alignment with various Government initiatives and strategies, including the “Azadi Ka Amrit Mahotsav” initiative and the vision of “Aatmanirbhar Bharat” set forth by Hon’ble Prime Minister Shri Narendra Modi. Dr. Chaklanobis emphasized that the *Chintan Shivirs* are an integral part of the “Azadi Ka Amrit Mahotsav” initiative. This initiative commemorates 75 years of India’s independence and celebrates the country’s achievements and progress. The Shivirs serve as a stepping stone toward realizing the objectives of other important government initiatives such as Startup India, Make in India, and Skill India. The overarching goal of these initiatives, as highlighted by Dr. Chaklanobis, is to enhance economic growth and create job opportunities in India. By fostering innovation, entrepreneurship, and skill development, the Government aims to build a robust and self-reliant economy. Dr. Chaklanobis pointed out that these

initiatives are essential for showcasing India's capabilities on the global stage. By encouraging innovation, promoting manufacturing, and supporting startups, India can position itself as a competitive player in the international market. Dr. Chaklanobis highlighted the pivotal role of MSMEs in the innovation ecosystem. MSMEs are recognized as the pillars of innovation, and their active participation can contribute significantly to making India a global hub for R&D and manufacturing. Dr. Sujata Chaklanobis emphasized the importance of CRTDH in promoting self-reliance and also position India as a competitive player on the global stage, making it an attractive destination for investment and innovation.



*Dr. Sujata Chaklanobis Head CRTDH, DSIR addressing the 'Chintan Shivir' at CSIR-IMMT, Bhubaneswar*

### 3.4.3 THEMATIC SESSION

Dr. Yatendra Chaudhary's thematic session on CRTDH at CSIR-IMMT, Bhubaneswar was evidently a valuable and enlightening one. Dr. Chaudhary emphasized on CRTDH's significant initiatives aimed at fostering connections and opportunities for MSMEs. MSMEs are a crucial component of the Indian economy, and initiatives that support their growth and innovation play a vital role in economic development. The presentation provided a roadmap for collaboration between CRTDH and MSMEs. Collaboration between research institutions like CRTDH and smaller enterprises can lead to the development of new technologies, products,

and services, which in turn can drive growth and competitiveness. Dr. Chaudhary's focus on CRTDH's role in bridging the gap between academia and industry is noteworthy. Such initiatives are essential for translating research findings into practical applications that can benefit industries and society.

Dr. Chaudhary's detailed overview of CRTDH's infrastructure and facilities underscores the importance of having state-of-the-art resources to support research and innovation. These resources are instrumental in enabling researchers to develop innovative technologies. The innovative technologies developed by the CRTDH demonstrates the center's commitment to cutting-edge research. These technologies can have wide-ranging applications and contribute to industrial and economic development. Dr. Chaudhary's mention of the extensive range of services offered to MSMEs by CRTDH is significant. These services include technical assistance, training, and access to research expertise, all of which can empower MSMEs to thrive and innovate.

Dr. Yatendra Chaudhary's presentation on CRTDH was essential in fostering economic development and ensuring that research and technology development have a meaningful impact on society and industry.



*Dr. Yatendra Chaudhary, Coordinator CRTDH, addressing the 'Chintan Shivir' at CSIR-IMMT, Bhubaneswar*



### 3.4.4 SAMVAD

The “Samvad” coordinated by Dr. Vipin C Shukla, along with Dr. Yatendra Chaudhary, as part of the MSME connect initiative was fruitful and engaging session. The session’s primary focuson identifying challenges faced by MSMEs, startups, and innovators was commendable. Understanding these challenges was the first step towards finding effective solutions to support and empower these entities.

The active participation of MSME representatives in sharing and displaying their work developed at CRTDH, CSIR-IMMT, Bhubaneshwar, demonstrates the practical outcomes and impact of the collaboration between CRTDH and MSMEs. It showcases the real-world applications of research and technology developed at the center. The acknowledgment of CRTDH and DSIR for their extensive support by the MSME representatives highlights the importance of collaborative partnerships between research institutions and industry. It underscores the role of government agencies and research centers in facilitating innovation and addressing industry challenges.

The identification of five key challenges faced by MSMEs was crucial for tailoring support and solutions effectively. Understanding these challenges allows for targeted assistance and ensures that resources are allocated where they are most needed. Dr. Chaudhary’s detailed responses on how CRTDH can assist stakeholders in overcoming these challenges demonstrate the center’s commitment to providing practical and tangible solutions. This proactive approach was essential for ensuring that research and technology development translate into real-world benefits for MSMEs and the broader industry. “Samvad” session was a productive platform for dialogue and collaboration between CRTDH, DSIR, and MSMEs. It highlighted the importance of understanding industry challenges, recognizing the contributions of research institutions, and actively working

together to foster innovation and address the needs of MSMEs, startups, and innovators.

### 3.4.5 PROBLEM STATEMENT AND APPROACH

The “Chintan Shivir” deliberated on the primary obstacles encountered by MSMEs and identified potential solutions during the “Samvad” session. Compiling these challenges and solutions would offer an efficient means of presenting a structured and comprehensible summary of the results. The key challenges discussed and the possible solutions are mentioned below

Problems Statement	Possible Solution
<p><b>1. Adoption of Technology:</b> The adoption of technology poses a challenge for many MSMEs, as they struggle to harness modern technology and digital tools effectively, thereby constraining their competitiveness.</p>	<p>Training programs conducted by CRTDH to showcase technology applications can instill confidence in MSMEs, encouraging their active participation. CRTDH, serving as a technology hub, would offer access to its facilities and characterization techniques to meet the specific requirements of MSMEs as needed.</p>
<p><b>2.Shortage of skilled manpower:</b> There is a shortage of skilled manpower in the context of modernizing conventional manufacturing processes, which is placing a premium on skilled labour in high demand.</p>	<p>Improving a specific skill set requires training through various programs.</p>

<p>3. <b>Requirement for raw materials, financial hurdles, and infrastructure challenges.</b></p>	<p>Introducing a government-level software platform that enables the traceability and affordable procurement of specific raw materials within the supply chain. Raising awareness about government schemes and ensuring people understand their benefits. Facilitating the growth of MSMEs through guidance and support from academic institutions, research and development institutes, and industries.</p>
<p>4. <b>Quality standards and certifications:</b> Quality standards and certifications often elude MSMEs, leading to challenges in penetrating the market.</p>	<p>Enhancing awareness of quality standards can be achieved through initiatives such as the establishment of an information center like CRTDH, which can provide support to aspiring entrepreneurs. Additionally, certification courses can be made available to further this goal.</p>
<p>5. <b>AI-backed technological intervention for chemical and metallurgical procedures.</b></p>	<p>AI-based interventions at CRTDH can facilitate several aspects within the chemical and metallurgical processes for MSMEs, which includes automation, predictive maintenance of machinery, inspection of defects, quality control of products and enhancement of process efficiency.</p>

### 3.4.6 RECOMMENDATIONS& KEY TAKEAWAYS

During the “*Chintan Shivir*”, suggestions and feedback were obtained from the participants / stakeholders. The key takeaways from the “*Chintan Shivir*” at IMMT, Bhubaneswar are as follows:

- i. **Problem Resolution:** Effectively tackling the identified issue.
- ii. **MSME Engagement:** Strengthened connections with MSMEs to address their technological requirements.
- iii. **Fostering Collaboration:** Bolstering integration among academia, industry, and government entities for collaborative research and innovation.
- iv. **Tailored Training:** Courses and training programs meticulously crafted to cater to the distinct demands and prerequisites of MSMEs.

### 3.4.7 CONCLUSION:

The fourth “*Chintan Shivir* on CRTDHs Empowering MSMEs” proved highly productive, fostering strong industry-academia collaboration, with a focus on empowering MSMEs through training and driving innovation in new materials & chemical processes. This event brought together diverse stakeholders, reflecting the multifaceted challenges and opportunities in today’s industrial landscape. The “*Chintan Shivir*” has emerged as a beacon, illuminating the path toward a more collaborative, innovative, and empowered industrial-academic ecosystem. The lessons learned, partnerships formed, and goals set are more than mere outcomes; they are the pillar of foundational pillars upon which future successes in providing socio-economically beneficial through technological solutions will be built.

The collective wisdom, commitment, and passion demonstrated during this gathering are promising indicators of a bright future filled with innovation, disruptions, and collaboration. Organizers, participants, and all involved can reflect on this event with pride and anticipation for the transformative impact it is poised to unleash, fostering an ecosystem-driven approach in the realm of new materials and chemical processes.

## Culmination of day-long Chintan Shivir on "CRTDH Empowering MSMEs" at CSIR-Institute of Minerals and Materials Technology, Bhubaneswar supported by Department of Scientific and Industrial Research, Ministry of Science and Technology

Posted On: 16 SEP 2023 11:28AM by PIB Delhi

The fourth "Chintan Shivir on CRTDHs Empowering MSMEs" in a series of Chintan Shivirs under CRTDH program of Department of Scientific and Industrial Research, Ministry of Science and Technology culminated at DSIR-CRTDH at CSIR-Institute of Minerals and Materials Technology, Bhubaneswar.

This Chintan Shivir was organised to strengthen translational research and facilitate collaboration between industry and research institutions and in creating a conducive ecosystem to bridge the gap between scientific knowledge, ideas, and inventions and their practical application in the form of marketable products and services. CRTDH is playing a significant role by facilitating the creation of state-of-the-art facilities & resources for strengthening the MSME sector and thereby contributing to technological advancement and economic growth of the Country.

The Chintan Shivir was inaugurated by Dr. Sujata Chaklanobis, Scientist-G & Head-CRTDH, DSIR, Dr. Ramanuj Narayan, Director, CSIR-IMMT, Bhubaneswar & Prof. Manoj K. Dhar, Director, ACSIIR. In her recorded video address, Dr. N. Kalaiselvi, Secretary, DSIR & DG, CSIR emphasized on the role of DSIR and CRTDHs in promoting entrepreneurship, showcasing local research and innovation, fostering skill development across diverse sectors, and more.

Dr. Sujata Chaklanobis in her inaugural address stated that, Chintan Shivirs were part of 'Azadi Ka Amrit Mahotsav' initiative and are the stepping stone towards fulfilling the initiatives of Hon'ble Prime Minister Shri Narendra Modi ji on Startup India, Make in India, and Skill India under the "Aatmanirbhar Bharat" strategy. She emphasized that these initiatives aim to enhance economic growth, create job opportunities, and exhibit India's capabilities on the global stage. Dr. Sujata Chaklanobis highlighted the need of innovation and stated that MSMEs being the pillar of the innovation ecosystem can do wonders in making India a global R & D and manufacturing hub. Dr. Ramanuj Narayan, Director, CSIR-IMMT, Bhubaneswar acknowledged & appreciated DSIR in supporting the CRTDH facility here for R&D endeavors of MSME, startups & individual innovators. Dr. Narayan envisioned that in years to come, the CRTDH would contribute significantly to the Indian economy, generating employment opportunities and driving innovation. Dr. Yatendra Chaudhary, project coordinator for CRTDH at CSIR-IMMT, Bhubaneswar started the thematic session by delivering an overview of CRTDH at CSIR-IMMT, Bhubaneswar, its broader objective, infrastructural facility available, technologies developed & transferred / licensed, MSME connect initiated, issues resolved for MSME, services offered and available opportunities for MSMEs. As part of MSME connect, a "Samvad" was coordinated by Dr. Vijay C Shukla, Scientist-F, DSIR along with project coordinator for CRTDH at CSIR-IMMT, Bhubaneswar to further discuss the challenges faced by MSMEs/Start-ups/innovators and possible solutions. The 'Samvad' concluded with a proposition that 5 grand challenges would be identified and it would be addressed appropriately at CRTDH at CSIR-IMMT, Bhubaneswar.

The other DSIR officials present at the event were Dr Ranjeet Bairwa and Dr Suman Mazumdar. CRTDH team from CSIR-IMMT, Bhubaneswar, delegates from Chambers of Commerce, industry associations and representatives from Micro, Small and Medium Enterprises (MSMEs), start-ups, individual innovators, Self-help groups were also present at the event.

This Chintan Shivir harnessed the collective wisdom, knowledge, and expertise of the officials and stakeholders. It enabled comprehensive discussions and critical thinking for possible opportunities for MSMEs/Start-ups/innovators at CRTDH at CSIR-IMMT, Bhubaneswar.

The event concluded with the vote of thanks to Dignitaries, organizers, all stakeholders, press and media persons by Dr. R. Shaktivel, Chief Scientist, CSIR-IMMT, Bhubaneswar.



*Press release by PIB on 'Chintan Shivir' organized at CSIR-IMMT, Bhubaneswar.*

### 3.5 ‘CHINTAN SHIVIR’ AT CRTDH\_ DELHI PHARMACEUTICAL SCIENCES & RESEARCH UNIVERSITY (DPSRU), NEW DELHI

#### 3.5.1 TOUR OF CRTDH FACILITY

Prof. Geeta Aggarwal, Prof Geeta Aggarwal, Dean Academics, DPSRU, guided guests and delegates through the DSIR-CRTDH at DPSRU, New Delhi. The tour showcased various facilities, including an advanced pharmaceutical formulation analytical facility. Visitors were introduced to high-end equipment like the animal imaging system, High-performance liquid chromatography (HPLC), zeta sizer, fluorescence imaging system, Fourier Transform Infrared Spectroscopy (FTIR), and an advanced microscope system. They also explored the infrastructure of the Good Manufacturing Practices (GMP) facility, which is currently being set up and will cater to solid and semi-solid formulations upon completion.

Additionally, Prof. Aggarwal introduced the DPSRU-Centre for Precision Medicine and Pharmacy (DCPMP), equipped with advanced instruments such as the next-generation sequencer (NGS) and a cell culture facility. A key highlight of the tour was the visit to the innovation center, which includes a formulation development facility. This establishment signifies that CRTDH is not only involved in cutting-edge research but also emphasizes translating research into practical applications that benefit society and the economy.

While still in various phases of development, Prof. Aggarwal envisioned that in the coming years, these hubs would address the concerns of MSMEs and startups in the healthcare sector.

#### 3.5.2 INAUGURAL SESSION

The Inaugural Session was graced by the presence of Dr. Sujata Chaklanobis, Scientist -G & Head CRTDH, Department & Scientific Industrial Research (DSIR), Ministry of Science & Technology, Govt. of India, Prof. Ramesh K Goyal Hon’ble Vice Chancellor, DPSRU, Prof. Harvinder Popli, Registrar DPSRU, Dr. Vipin C. Shukla, Scientist -F, DSIR, Prof Geeta Aggarwal, Dean Academics, DPSRU & CRTDH Coordinator, Dr. Vandana Kalia, Scientist-F, Dr. M. S. Shashi Kumar, Scientist – E and Dr. Ranjeet Bairwa, Scientist -E.

Prof. Ramesh K Goyal, Dr. Sujata Chaklanobis, Prof. Harvinder Popli and Prof Geeta Aggarwal inaugurated the *Chintan Shivir* with a ceremonial lamp lighting. Prof Geeta Aggarwal thanked DSIR and DPSRU, New Delhi for organizing the Shivir and started the day’s proceedings with the welcome address.

During the inaugural session of the *Chintan Shivir*, Dr. N. Kalaiselvi, Secretary, DSIR and DG-CSIR addressed the gathering through video conferencing. She highlighted the crucial need for collaboration between academia and industry. She stressed that such collaboration harnesses the strengths and capabilities of both academia and industry to effectively tackle industry challenges. Dr. N. Kalaiselvi emphasized that the fusion of academic knowledge and expertise with the practical experience and resources of industries can not only lead to innovative solutions but also their successful implementation. Her address underscored the importance of empowering smaller enterprises, fostering collaboration, and adopting a research ecosystem approach to address the industry’s multifaceted challenges.



Dr. N. Kalaiselvi, Secretary, DSIR and DG, CSIR, addressing the 'Chintan Shivir' at DPSRU, New Delhi

Prof. Ramesh K Goyal Hon'ble Vice Chancellor, DPSRU acknowledged & appreciated DSIR in supporting the CRTDH facility here. He presented the vision of the University (DPSRU) and DPSRU-CRTDH. He highlighted the institution's commitment to innovation, research and empowerment within the healthcare sector.

Prof Harvinder Popli provided a comprehensive overview of the support services available at the DSIR-DPSRU-CRTDH and DPSRU Innovation and Incubation Foundation. Prof Popli shed light on the resources and opportunities offered to healthcare MSMEs and start-ups. She underscored that CRTDH and DIIF play a pivotal role in providing crucial support systems for enterprises operating within the healthcare sector.

During her inaugural address, Dr. Sujata Chaklanobis underscored the alignment of the *Chintan Shivirs* event with key government initiatives like "Azadi Ka Amrit Mahotsav," celebrating India's 75 years of independence. She emphasized that the event serves as a stepping stone for the objectives of initiatives such as Startup India, Make in India and Skill India. These initiatives aim to bolster India's economic growth, create job opportunities, and foster self-reliance. Dr. Chaklanobis stressed the significance

of innovation, entrepreneurship, and skill development in realizing these objectives. By nurturing innovation and supporting small and medium-sized enterprises (MSMEs), India can exhibit its capabilities globally and emerge as a competitive player in the international market. She also highlighted CRTDH's pivotal role in promoting self-reliance and making India an attractive destination for investment and innovation.

### 3.5.3 THEMATIC SESSION

Prof. Geeta Aggarwal elaborated on the role and scope of DPSRU-CRTDH within the healthcare research and development landscape. She highlighted the potential of CRTDH in contributing to the Indian economy and driving innovation. She emphasized that CRTDH is a catalyst for transformative research and innovation in the healthcare sector. The center's scope encompasses not only academic excellence but also its practical application, with the potential to revolutionize the Indian healthcare industry. CRTDH's significance extends to its potential to make a substantial contribution to the Indian economy. The research conducted at CRTDH translates into real-world applications, making it a key player in advancing the national economy through healthcare innovation and self-reliance. Prof Geeta Aggarwal's mentioned that, as they are still the process of getting fully established, but once fully established CRTDH becomes functional, its state-of-the-art resources would be beneficial to support research and innovation in healthcare sector for MSMEs, start-ups and innovators.

### 3.5.4 SAMVAD

The "Samvad" coordinated by Dr. Vipin C Shukla, along with Prof Geeta Aggarwal, as part of the MSME connect initiative, has been fruitful and an engaging session. The session's primary focus on identifying challenges faced by MSMEs, startups and

innovators was commendable. Understanding these challenges was the first step towards finding effective solutions to support and empower these entities.

The active participation of MSME representatives from healthcare sector demonstrates the impact of the collaboration between CRTDH and MSMEs. The identification of five key challenges faced by MSMEs was crucial for tailoring support and solutions effectively. Understanding these challenges allows for targeted assistance and ensures that resources are allocated where they are most needed.

Prof Geeta Aggarwal’s detailed responses on how CRTDH can assist stakeholders in overcoming these challenges demonstrate the center’s commitment to providing practical and tangible solutions. This proactive approach was essential for ensuring that research and technology development translate into real-world benefits for MSMEs and the broader industry. “Samvad” session has been a productive platform for dialogue and collaboration between CRTDH, DSIR, and MSMEs. It highlighted the importance of understanding industry challenges, recognizing the contributions of research institutions, and actively working together to foster innovation and address the needs of MSMEs, startups, and innovators.



Dr. Vipin C. Shukla hosting the Samvad session at DPSRU, New Delhi

### 3.5.5 PROBLEM STATEMENT AND APPROACH.

The *Chintan Shivir* deliberated on the primary obstacles encountered by MSMEs and identified potential solutions during the Samvad session. Compiling these challenges and solutions would offer an efficient means of presenting a structured and comprehensible summary of the results. The key challenges discussed and the possible solutions are mentioned below:

Problems Statement	Solution and approach to address it
R&D and Manufacturing Infrastructure: Numerous healthcare MSMEs lack access to modern R&D facilities, hindering innovation and product development. Accredited lab support by CRTDH is essential to improve R&D infrastructure, including labs, testing facilities, and technology platforms	Establish GMP facilities. Foster continuous learning. Promote tech adoption. Embrace AI and ML. Enhance raw material quality. Encourage collaboration. Increase government scheme awareness. Strengthen industry-academia ties.

<p>Regulatory Compliance and Quality Assurance: Healthcare MSMEs frequently face challenges in navigating intricate regulatory demands and ensuring product quality. The pressing issue at hand is the conversation on simplifying regulatory procedures and establishing robust quality control systems.</p>	<p>Regarding Ayush products, we need a clear regulatory framework and logical policy formation. For medical device ancillary and component manufacturing, we should reduce import dependency through local facility development. Establish cluster testing centers with advanced facilities for MSMEs. Enhance quality awareness through an information center like CRTDH and offer certification courses. Promote coordination between regulators and academia to develop indigenous quality and testing criteria, reducing reliance on foreign regulators like USFDA</p>
<p>Preclinical and Clinical Trial Challenges: Preclinical clinical trials are crucial but costly and time-consuming. Challenges include ethical clearance, GMP compliance, data management, and patient access. Strategies to expedite MSME clinical trials are needed</p>	<p>Establish a large animal testing hub accessible to MSMEs and provide them with high-tech animal imaging facilities. Create a facility for determining the molecular basis of product claims. Ensure the availability of GMP and GLP facilities for batch manufacturing to facilitate regulatory approvals.</p>

<p>Technology Adoption and Innovation: Keeping pace with the latest tech and fostering innovation is challenging for MSMEs. It's vital to discuss methods for promoting tech adoption and innovation in healthcare manufacturing and R&amp;D</p>	<p>CRTDH's training programs, highlighting technology applications, can boost MSMEs' confidence and prompt their active engagement. As a technology hub, CRTDH provides access to its facilities and characterization techniques to meet MSMEs' specific needs. Additionally, CRTDH centers should introduce a bridging course in medical devices and technology adoption.</p>
<p>Collaboration and Networking Opportunities: Creating healthcare industry collaborations for knowledge sharing and resource pooling is vital. Discussing ways for MSMEs to partner with larger healthcare firms, research institutions, and government agencies is highly beneficial.</p>	<p>To address the skilled manpower shortage, academia should create R&amp;D-focused courses in areas like AI-ML for healthcare and manufacturing, while industry handles product development and marketing. This collaboration requires a robust industry-academia ecosystem. CRTDH centers should streamline tech transfer to MSMEs, and industry can help academia understand quality aspects through refresher courses and training.</p>

### 3.5.6 RECOMMENDATION & KEY TAKEAWAYS

During the *Chintan Shivir*, suggestions and feedback were obtained from the participants / stakeholders. The key takeaways from the *Chintan Shivir* at DPSRU is as follows

- i. Tailored Training: CRTDH at academic institutions to step up in drafting courses to meet the requirements of skilled manpower for the industry.
- ii. Facility upgradation: MSMEs require major facilities in terms of high tech product testing, molecular testing for claim substantiation and large animal testing facilities. There is a need for GMP and GLP facilities for batch manufacturing for regulatory approval.
- iii. Industry-Academia collaboration: Increased collaboration of industry and academia to increase accessibility, affordability and availability of healthcare innovations.
- iv. Technology adoption: CRTDH should incorporate cutting edge futuristic technologies like AI ML and generative AI to help MSMEs with their Research and Development.

### 3.5.7 CONCLUSION:

In conclusion, the 5th *Chintan Shivir* on October 13th, hosted by DSIR, DPSRU CRTDH, and DIIF, proved to be a crucial platform for promoting innovation, collaboration, and empowerment in the healthcare sector. Esteemed experts addressed the challenges facing MSMEs and startups in various healthcare domains. The active participation of MSME representatives and the identification of key challenges offered practical solutions.

The “Samvad” sessions encouraged dialogue and collaboration, emphasizing the importance of understanding industry challenges and the contributions of research institutions. The impact of *Chintan Shivir* will continue to benefit the healthcare industry, fostering innovation and empowering MSMEs, positioning India competitively globally. Its resounding success promises to shape the future of healthcare MSMEs and emerging startups.



*Participation of stakeholder at Chintan Shivir held at DPSRU, New Delhi*



## Successful culmination of day-long Chintan Shivir on "CRTDH Empowering MSMEs" at Delhi Pharmaceutical Sciences & Research University (DPSRU), New Delhi supported by Department of Scientific and Industrial Research, Ministry of Science and Technology

Posted On: 13 OCT 2023 4:27PM by PIB Delhi

Fifth "Chintan Shivir on CRTDHs Empowering MSMEs" in a series of five Chintan Shivirs under CRTDH program of Department of Scientific and Industrial Research Ministry of Science and Technology was inaugurated on 13th October 2023 at DSIR-CRTDH at Delhi Pharmaceutical Sciences & Research University (DPSRU), New Delhi. This Chintan Shivir was organised to strengthen translational research and facilitate collaboration between industry and research institutions in creating a conducive ecosystem so as to bridge the gap between scientific knowledge, ideas, and inventions and their practical application in the form of marketable products and services.

The Chintan Shivir began with inaugural address by Chief Guest of the event, Dr N. Kalaiselvi, Secretary, DSIR & Director General. Dr. Kalaiselvi emphasized on importance of DSIR and CRTDHs in enabling MSMEs, startups, and innovators to carry out the Hon'ble Prime Minister Shri Narendra Modi Ji's vision of creating "Atmanirbhar Bharat" in her remarks at the opening ceremony. Prof Ramesh K Goyal, Vice Chancellor, DPSRU praised DSIR-CRTDH-DPSRU's efforts to assist and handhold diverse stakeholders in doing their R&D related activities. Dr Sujata Chakranobis, Head, CRTDH, gave an overview of Chintan Shivir wherein she emphasized the need for innovation, and asserted that MSMEs, as a key component of the innovation ecosystem, can significantly contribute in building India as a hub for R&D and manufacturing on a global scale. Prof Harvinder Popli, Registrar, DPSRU briefed about the DPSRU's efforts towards mobilizing industries for doing R&D and Innovation at DPSRU while Prof Geeta Aggarwal, Project Coordinator, CRTDH at DPSRU briefed about the objective, target achieved and future targets of CRTDH, MSMEs initiated, issues resolved for MSMEs, services offered and available opportunities for MSMEs.

A panel discussion on "Overcoming Manufacturing and R&D Challenges: Building a Support System for Healthcare MSMEs by CRTDH" was moderated by Dr Vipin Shukla, Scientist-F & Member Secretary-CRTDH, DSIR wherein different panelists were from industry, academia and government. The other DSIR officials present at the event were Dr Vandana Kalia, Dr Ranjeet Bairwa, Dr Shashi Kumar and Shri Naveen Chand. CRTDH team from DPSRU, New Delhi, delegates from the industry and representatives from Micro, Small and Medium Enterprises (MSMEs), start-ups, individual innovators, faculties and students were also present at the event.

The event tapped into the combined wisdom, knowledge, and expertise of Government officials, DPSRU and stakeholders through in-depth discussions, critical analysis and strategic planning. This interaction brainstormed potential solutions for the challenges that MSMEs, start-ups, and innovators encounter in the country while also leverage opportunities to establish India as a prominent global center for industrial research and manufacturing in the affordable healthcare sector.



*Press release by PIB on 'Chintan Shivir' organized at DPSRU, New Delhi.*

## THE WAY FORWARD

*Chintan Shivir* has functioned as a platform for fostering profound dialogues, igniting the creation of pioneering concepts and formulating strategic roadmaps. Through these activities, it has nurtured collaboration and the introduction of fresh ideas within their specific domains.

Looking ahead, *Chintan Shivir* will persist in cultivating an environment that nurtures the development of innovative and novel ideas. This continuous exploration of groundbreaking solutions and approaches is pivotal in addressing the challenges encountered by the MSMEs. In Phase II, we are committed to broadening participation, involving diverse stakeholders, experts and thought leaders. This expanded engagement will significantly enhance the caliber and effectiveness of the discussions.

Furthermore, the integration of contemporary technology for virtual or hybrid *Chintan Shivirs* can augment accessibility and inclusivity. It opens the door to participation from a wider geographic spectrum, rendering it more convenient for both experts and participants. We envision that each *Chintan Shivir* will culminate in the formulation of pragmatic and executable plans. These plans will come with well-defined timelines and responsibilities, ensuring that the insights and ideas generated materialize into tangible outcomes.

*Chintan Shivir* is committed not only to addressing immediate challenges but also to crafting a long-term vision and strategies that align seamlessly with the Department's mission, program objectives and National interest.

Incorporating the outcomes from *Chintan Shivir* process will help ensure that it continues to be a dynamic and effective platform for advancing research and development within the Department of Scientific and Industrial Research.

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**DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH  
MINISTRY OF SCIENCE AND TECHNOLOGY  
GOVERNMENT OF INDIA**