

Bharat MSME Innovation Challenge
(Engineering Solutions for Industry Problems) Theme-1: Pharma & Chemical sector
Problem Statements from Pharma and Chemical industries

S.No	Problem Statement	Explanation for Startups
1	Continuous Flow Transition	Most pharmaceutical and chemical MSMEs still use batch reactors, which consume more energy, generate higher waste, and have safety risks. Develop cost-effective technologies or retrofit solutions that enable a transition to continuous flow manufacturing while improving productivity, product quality, and process safety.
2	Effluent Traceability	Develop affordable systems to continuously monitor wastewater for traces of APIs and hazardous chemicals in real time to ensure environmental compliance and early detection of contamination.
3	Green Catalyst Development	Replace costly precious metal catalysts with sustainable, earth-abundant or bio-based catalysts without compromising efficiency or product quality.
4	Micro-reactor Scaling	Develop scalable reactor designs, monitoring systems, or simulation tools that maintain thermal and hydraulic precision from lab to pilot scale.
5	Flash Distillation	Develop energy-efficient separation technologies for heat-sensitive intermediates that minimize thermal degradation while maintaining product purity.
6	Polymorph Detection	Create real-time monitoring systems to detect crystal form changes during manufacturing and prevent batch failures.
7	VOC Leak Detection	Develop sensors, AI-based monitoring, or predictive maintenance solutions to detect fugitive VOC emissions from equipment.
8	Bio-feedstock Integration	Develop retrofit technologies or process innovations that enable existing reactors to efficiently process viscous, corrosive, or variable bio-based feedstocks.

9	Supply Chain Traceability	Develop digital traceability solutions using IoT, RFID, QR codes, blockchain, or AI to track raw materials and medicines throughout the supply chain.
10	Recycling of Packaging Material	Develop technologies to separate and recycle multilayer pharmaceutical packaging or create sustainable packaging alternatives.
11	Chemical Waste Disposal and Reuse	Develop technologies for recovery and reuse of chemicals, solvents, and water from treated industrial waste streams.
12	Reducing Water Loss in Cooling Systems	Develop technologies that reduce evaporation losses, improve cooling efficiency, and enable water recovery or reuse.
13	Real-time Reaction Endpoint Prediction	Develop AI-sensor, or spectroscopy-based systems that accurately predict reaction completion in real time.
14	Heat Management in Exothermic Reactions	Develop intelligent heat management, predictive monitoring, or automated control systems to prevent runaway reactions.
15	Cleaning of Reactors	Develop innovative cleaning technologies, coatings, robotic systems, or automated processes that reduce cleaning time, solvent use, and contamination risks.

Note: If you have any other interesting problem statements and solutions related to Pharma and Chemical sector, please feel free to propose the same.



Outreach Partners / Industry Bodies:



Confederation of Indian Industry

Industry Mentors for Innovation Challenge:



Applications submission form: Please access below Google form link for submitting the application

<https://forms.gle/rK7ay95rY8zmz1VA7>

Terms of Reference for Bharat MSME Innovation Challenge

1. Background:

Micro, Small, and Medium Enterprises (MSMEs) play a critical role in driving industrial growth and generating employment. However, many MSMEs continue to face challenges such as high resource consumption, waste generation, and limited adoption of sustainable and resource-efficient technologies. Under the Greening of MSMEs component of the Raising and Accelerating MSME Performance (RAMP) Program, the Research and Innovation Circle of Hyderabad (RICH) is facilitating innovation-driven solutions to support MSMEs in transitioning towards sustainable, low-carbon, and resource-efficient operations.

As part of this initiative, a total of eight Innovation Challenges will be conducted under the Greening of MSMEs component of the RAMP Program to address sector-specific sustainability challenges. The current Innovation Challenge is being organized for the Pharma and Chemical sector, focusing on identified problem statements aimed at promoting innovative, practical, and scalable solutions for improving environmental performance and operational efficiency in MSMEs.

2. Objectives of the Challenge:

- Collaborative development of scalable and cost-effective innovative solutions for MSMEs
- Facilitate pilot implementation with proactive MSMEs
- Support adoption of clean and sustainable technologies

3. Eligibility criteria to apply:

Applications are invited from Startups, Technology Providers, MSMEs, Academic and Research Institutions, Students, Individual Innovators, Industry Associations, and NGOs etc. Participants may apply individually or as a team.

Solutions with innovations at least an experimental proof of concept—are eligible to participate in the program. Applicants should be able to demonstrate the technical feasibility of their proposed solution on the Innovation Challenge day. The innovative solutions must not have any negative environmental impact and consumer/ end-user safety.

4. Support provided by the program:

- Technical mentoring and guidance from industry experts
- Opportunity for develop and implementation of pilot model under RAMP Program.
- Networking with industry experts
- Recognition certificate
- Provide access to market & investors for proven solutions through a structured MSME Innovation Challenge
- Rapid Prototyping and design support through partner institutions up to Rs 50,000/-

5. Applications submission form: Please access below Google form link for submitting the application

<https://forms.gle/rK7ay95rY8zmz1VA7>

6. Contact Details:

In case of any questions or concerns, please feel free to contact us at

Research and Innovation Circle of Hyderabad (RICH)

Contact Person: G. Kishore Kumar

Designation : Senior Project Manager

Email : srpm.citsa.rich@gmail.com

Phone : 98857 91590

Website : www.rich.telangana.gov.in

7. Application Timelines

Theme-1: Pharma & Chemical sector:

Activity	Timeline
Doubt clearing session	15-July-2026, 11:00am Online Meeting Link: https://meet.google.com/aie-tmts-qvu
Last Date for Submission of Applications	18-July-2026
Shortlisting of Applications	23-July-2026
Innovation Challenge Day	30-July-2026
Announcement of Winners	30-July-2026

8. Evaluation of solutions:

All applications will undergo a two-stage evaluation process.

- Stage-1: Shortlisting of applications through internal evaluation
- Stage-2: Pitching solutions to the jury on Innovation Challenge Day.

Stage-1: Shortlisting of applications through internal evaluation:

Applications submitted will be evaluated by an internal panel of experts comprising Industry bodies, Subject Matter Experts and Consultants. Only solutions that are shortlisted shall be invited for the presentations on the Innovation Challenge Day.

Stage-2: Pitching of solutions to the jury on Innovation Challenge Day:

- A panel of judges (4 - 5 representatives) will evaluate the solutions and finalize the individuals / teams on the Innovation Challenge Day.
- The evaluation will be conducted collectively, on a composite score out of 100, and the best solutions will be considered for support through the program.

Evaluation Category	Description	Weight (out of 100)
Relevance to the key problem Area	Alignment of the solution with industrial problem areas	10
Technical strength	Is the proposed solution technically robust?	10
Solution Differentiation	How is the proposed solution different from existing solutions in the market or in development?	20
Readiness	Is the proof of concept clearly demonstrated?	20
Feasibility and Impact	Real-world applicability, scalability, and potential for environmental impact.	20
Team Strength	Strength of the team, technical and business expertise	10
Clarity of Presentation	Structure, visual clarity, and effectiveness of communication in the pitch deck.	10

9. Outcome of the Innovation Challenge Day:

- All submitted solutions will be evaluated by an expert jury based on predefined criteria such as technical feasibility, innovation, scalability, sustainability impact, and relevance to the identified problem statements.
- The selected solutions will be considered for further development, validation, and potential pilot implementation in relevant MSME units or industrial clusters.
- Selected solution providers will receive support as outlined in the **Support Section** of the program guidelines, which may include technical mentoring, facilitation for pilot demonstration, industry linkages, and guidance for scale-up and commercialization.
- The Innovation Challenge will enable collaboration between startups, industry stakeholders, and implementing agencies to promote the adoption of innovative and sustainable solutions in MSMEs.
- The overall outcome of the Innovation Challenge is to generate practical, scalable, and sector-relevant solutions that address real industry challenges and contribute to improving resource efficiency, productivity, and environmental sustainability in MSMEs.

10. Arrangements for participants on the Innovation Challenge Day:

- Participants must bring their own laptops, extension cords, hard-disks or any other equipment they may need to complete the Innovation Challenge.
- A/V setup for presentations – projectors, microphones, screens, and speakers will be provided by RICH.
- Basic stationery like pen, A4 papers, and sticky notes will be provided by RICH.
- Participants may use the guest WiFi as required.
- Food and Refreshments will be arranged as necessary to the participants on the Innovation Challenge Day.
- Event volunteers and staff will be available for a smooth onboarding process and event co-ordination.

11. Code of Conduct – Innovation Challenge

- Participants shall maintain professional, respectful, and ethical behavior throughout the Innovation Challenge.
- All submitted solutions must be original. Any form of plagiarism or misrepresentation will lead to disqualification.
- Participants must comply with all rules, instructions, and timelines communicated by the organizers.
- Any form of harassment, discrimination, or misconduct will not be tolerated.
- Participants shall respect confidentiality and intellectual property rights of all stakeholders.
- The decisions of the jury and organizers shall be final and binding.
- The organizers reserve the right to take appropriate action, including disqualification, in case of any violation of the Code of Conduct.

12. Privacy policy:

- This Privacy Policy outlines how the organizers of RAMP - Greening of MSMEs Innovation Challenge Series (“we”, “us”, “our”, “event organizers”) collect, use, store, and protect information provided by participants (“you”, “your”, “users”) during the course of the event.
- We may collect personal identification information from participants at the time of registration and during event interactions. This may include, but is not limited to, your name, email address, contact number, institutional affiliation, and any payment-related details if applicable.

- In addition to personal information, we may also collect non-personal identification information when you interact with our platforms. This may include browser type, device information, operating system, IP address, and other technical data related to your method of access.
- Information collected may be used to manage and operate the event effectively, communicate important updates and instructions, personalize participant experience, and send occasional emails or notifications related to the event. You may opt out of non-essential communications at any time.
- We employ standard security practices to protect your data from unauthorized access, alteration, or disclosure. This includes the safeguarding of sensitive data such as login credentials and transaction details.
- We do not sell, trade, or rent your personal identification information to third parties. However, anonymized and aggregated data may be shared with trusted partners, sponsors, or affiliates solely for purposes related to event improvement and reporting.
- The organizers may revise this policy at any time. Any changes will be communicated through the official event platform. Participants are encouraged to review the policy periodically to stay informed.
- By registering for and participating in the Innovation Challenge, you acknowledge and accept the terms outlined in this Privacy Policy.

13. Terms & Conditions:

- By participating in the **RAMP - Greening of MSMEs Innovation Challenge Series**, all attendees agree to comply with the rules, Code of Conduct, and guidelines set forth by the event organizers. These Terms and Conditions apply to all registered participants and are binding throughout the duration of the event.
- All intellectual property created during the Innovation Challenge remains the property of the respective participants or teams. However, by submitting their work, participants grant the organizers of RAMP - Greening of MSMEs Innovation Challenge Series a non-exclusive, royalty-free license to use, display, reproduce, and distribute the submitted content, either in part or in full, for promotional, academic, or outreach purposes related to the event.
- Personal data collected during registration and event participation will be managed in accordance with the RICH Privacy Policy. By registering, participants acknowledge and agree to the terms of this policy.

- All participants are expected to contribute to a safe, respectful, and inclusive environment as outlined in the Code of Conduct. Any form of harassment, discrimination, or inappropriate behavior will result in immediate disqualification and removal from the event.
- Any issues, concerns, or incidents during the Innovation Challenge should be reported promptly to the organizing team using the official reporting channels provided.
- The organizers of RAMP - Greening of MSMEs Innovation Challenge Series reserve the right to alter the event's schedule, structure, content, or speaker lineup at any time, should unforeseen circumstances arise. Participants will be informed of any substantial changes.
- The organizers, sponsors, and affiliated institutions assume no responsibility for any direct or indirect loss, damages, or personal injury incurred as a result of participation in the event.
- Participation may be revoked at any point if a participant is found to be in violation of the event's Terms and Conditions or is disruptive to the overall experience of others.
- These Terms and Conditions are governed by the laws of **India**, and any disputes shall be subject to the jurisdiction of the courts located therein.

Best Regards,
From Research and Innovation Circle of Hyderabad.