

2026



SPRERI
Striving for Excellence

SPRERI's NEWSLETTER

Third Quarter 2026 (July - September)

Edited by:

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About SPRERI

Sardar Patel Renewable Energy Research Institute (SPRERI), an autonomous organization based in Anand, Gujarat, has been at the forefront of renewable energy research, development, and commercialization since its establishment in **1979**.

Recognized nationally and internationally, SPRERI is known for its pioneering contributions to renewable energy technologies through fundamental research, pilot-scale demonstrations, and the commercialization of innovative solutions.



Founded by **Late Dr. H. M. Patel (Former Home Minister, Govt. of India)** and **Late Mr. Nanubhai Amin (Veteran Businessman)**

Key Recognitions

DSIR-SIRO

Recognized as Scientific & Industrial Research Organization by Department of Scientific & Industrial Research, Govt. of India

TISS Empaneled

National CSR Hub for thematic area: Renewable Energy R&D. Listed as credible NGO for CSR funding (A Hub Code: A000263)

Solar Thermal Test Centre

Testing of Solar Thermal Devices since 1985 till 2020. Supported by MNRE, approved by BIS and accredited by NABL

Academic Centre

Recognized centre for M.Tech / PhD research with national and international presence

Vision

SPRERI aims to develop environmentally friendly renewable energy technologies that are efficient and economically sustainable for society.

Mission

To excel in research, development, and the commercial deployment of renewable energy technologies, while promoting environmentally sustainable solutions through education, training, and public-private partnerships for India and other developing global economies.

Divisions

Solar Energy
Division

Thermo-chemical
Conversions
Division

Bio-chemical
Conversions
Division

Extension &
Technology
Transfer Division

Research and Development

Hydrogen Production from Crop Residues using Catalytic Steam Gasification

SPRERI conducted experimental trials on steam-assisted gasification of groundnut shell briquettes using a downdraft gasifier to enhance hydrogen concentration in producer gas for potential hydrogen production applications. The briquettes were fed at an optimized rate of 9–10 kg/h. Woody charcoal was used in the oxidation zone during start-up to facilitate ignition and maintain the required bed temperature. Steam was introduced into the oxidation zone at a controlled rate of 1 L/h, corresponding to a steam-to-biomass ratio of 0.1:1. An electrical steam generator integrated with a peristaltic pump enabled precise and continuous steam injection, helping maintain stable reactor operation. Comparative analysis demonstrated that steam addition increased the hydrogen concentration in producer gas from 11.6% to 24.4%, representing an approximately 2-fold increase. The findings highlight the potential of steam-assisted gasification to improve hydrogen enrichment from agricultural residues.

Gases	H ₂ (%)	O ₂ (%)	N ₂ (%)	CO (%)	CH ₄ (%)	CO ₂ (%)
Air	11.6	2.7	40	17.8	4.5	23.4
Air + Steam	24.4	1.7	33	10.6	3.9	26.4



Steam Gasification Set-up for Hydrogen Generation

Training Programmes

Capacity Building through Training: Banana Waste to Paper

SPRERI conducted a five-day training programme on “Banana Waste to Paper: Processing, Paper Making and Product Development” from August 17-21, 2026, with support from the Department of Science and Technology (DST) – SEED- SUNIL initiative. 15 participants from Gujarat and other states such as Maharashtra, Goa, Rajasthan etc. took part in the training programme. The programme aimed to equip participants with practical skills for converting banana pseudostem waste into fibre, paper, and a range of value-added products. The first two days focused on banana pseudostem processing, fibre extraction, machinery operation and maintenance, fibre processing, and the preparation of banana paper of varying thicknesses. The technical sessions were conducted by Mr. Hriday Ray, New Delhi, providing participants with practical exposure to the processing techniques involved in transforming agricultural residue into usable paper. The subsequent three days focused on converting banana fibre paper into useful and market-oriented products. Under the guidance of Er. Ravi Raj, Paper Engineer, participants learned practical techniques for making diaries, envelopes, folders, carry bags, and other paper-based products. The training demonstrated the potential of banana pseudostem waste as a valuable resource for sustainable product development. By integrating waste utilization with skill development and entrepreneurship, the initiative seeks to create livelihood opportunities for rural communities, women's groups, and small-scale enterprises while promoting circular-economy practices.



Training Programme at a Glance

Outreach Activities

Green Spark: Inspiring Young Minds towards Sustainability

As a part of ongoing environmental awareness initiatives, SPRERI organized five “Green Spark” Quiz Competitions in high schools across Anand district during July–September 2026. The programme aimed to enhance students’ knowledge of renewable energy technologies, energy conservation, and environmental protection through interactive learning. The competitions were conducted at St. Stephan High School, I.P. Mission Girls High School, D.Z. Patel High School, Sardar Vallabhbhai Patel High School, and D.N. High School. A total of 180 students participated directly, while an additional 543 students were reached through the initiative, taking the overall outreach to 723 students. Through Green Spark, SPRERI continues to foster environmental awareness among young learners and inspire them to adopt sustainable practices and contribute towards a cleaner, greener, and more sustainable future.



Snapshots of Green Spark Quiz Competitions

Demonstration of Renewable Energy Technologies

To promote awareness and encourage the adoption of clean and sustainable energy solutions in rural areas, SPRERI organized a renewable energy technology demonstration and awareness programme in Khambhat taluka of Anand district. The programme witnessed the participation of 45 individuals, comprising 4 men and 41 women. Farmers, rural households, women, and employees of the taluka office actively participated in the demonstrations and awareness sessions.



Demonstration of Solar dryer and Cookstoves at Khambhat

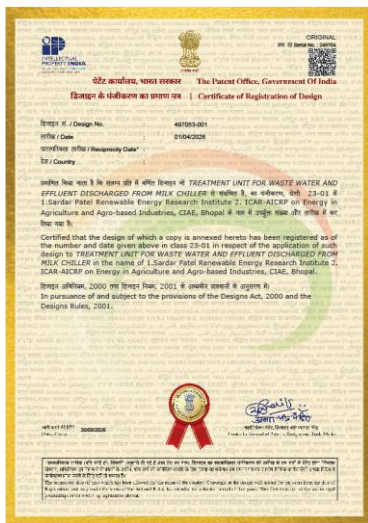
Recognitions

- Er. Milan Sojitra was invited as an Expert for the evaluation of innovative ideas under the MSME Idea Hackathon 6.0, launched by the Ministry of Micro, Small & Medium Enterprises (MSME), Government of India. The MSME Idea Hackathon 6.0 was organized by Charutar Vidya Mandal (CVM) University on August 12, 2026 under the MSME Innovative Scheme. The MSME Idea Hackathon 6.0 aims to identify, evaluate, and promote innovative ideas submitted by individuals across India in the 18–60 years age group. Under the scheme, financial assistance of up to ₹15 lakh per approved idea is provided to the Host Institute for the development and nurturing of promising innovations.
- Dr. Mukund G Adsul, Principal Scientist and Head BCT Division, was conferred the 'Marathwada Ratna' award for his contribution in the Bioenergy Research. The award was presented during the Marathwada Liberation Struggle commemoration organized by the Marathwada Janvikas Parishad, Thane, at Ram Ganesh Gadkari Rangayatan Talav Pali, Thane, on September 27, 2026.



Patents/ Publications

- SPRERI has secured a design patent (No. 497053-001) for its “Treatment Unit for Waste Water and Effluent Discharged from Milk Chiller”, with support from ICAR-AICRP on EAAI. The innovation contributes towards cleaner dairy operations, improved effluent management and sustainable resource utilization, particularly in rural areas where simple and practical treatment solutions are essential.



- O. Sarkar, J. S. Sravan, R. Katkojwala, M. V. Rohit, M. Hemalatha, A. Narayanasamy, G. Mohanakrishna, G. R. Aristya, Y-C. Chang (2026). Recent advances in sustainable aviation fuel from organic and inorganic waste: A biobased perspective, Processes, 14(15), 2441. <https://doi.org/10.3390/pr14152441>.
- A. Narayanasamy, A. Suthar, N. Singh, and M. Adsul (2026). Microalgal bioremediation of fire-wood-based flue gas for CO₂ fixation. Journal of Agricultural Engineering India.
- M.J. Borah, A. Das, M. V. Rohit, N. Singh, K. Mohanty (2026). Catalytic hydrothermal liquefaction of chlorella sorokiniana for high quality biocrude production over Mg modified activated red mud catalyst, Journal of Analytical and Applied Pyrolysis, 193(2), 107384. <https://doi.org/10.1016/j.jaap.2025.107384>.
- A. Tagade, A. Das, M.V. Rohit, K. Mohanty (2026). mono and bimetallic ni/mg-modified red mud catalysts for co-hydrothermal liquefaction of chlorella sorokiniana and sewage sludge: Product characterization and reaction mechanism insights, Journal of Analytical and Applied Pyrolysis, 199, 108023. <https://doi.org/10.1016/j.jaap.2026.108023>.

Collaborations through MoU/MoA

SPRERI signed a Tripartite Memorandum of Understanding (MoU) on August 6, 2026 with Jaival Shipping Solutions Pvt. Ltd., India, and Jaival Africa Shipping Ltd., Tanzania, to explore and develop renewable energy opportunities in Kutch, East Africa, and Botswana. The collaboration envisages joint technical studies, feasibility assessments, renewable energy technology development and deployment, knowledge exchange, and project implementation.



Tripartite MoU signing between SPRERI and Jaival Shipping Solutions Pvt. Ltd., India, and Jaival Africa Shipping Ltd., Tanzania

This strategic partnership marks a significant step towards strengthening international cooperation in renewable energy and advancing initiatives that contribute to energy security, climate change mitigation, and sustainable development across the regions.

Meetings Attended

- Dr. Anil Kumar Dubey, represented the Institute in the Bureau of Indian Standards (BIS), New Delhi, on solid biofuels on August 4, 2026 (Online).
- Dr. Mukul Kumar Dubey invited as Guest speaker on the topic “Use of Solar Energy in Dairy & Food Industry” at Vidya Dairy, Anand on August 19, 2026.
- Dr. Anil Kumar Dubey, invited as Guest speaker on the topic “Energy Scenario and Global Environmental Concern” at Vidya Dairy, Anand on August 20, 2026.
- Dr. Anil Kumar Dubey, Dr. Geeta Kumari, Dr. Amrita Doshi, Er. Asim Kumar Joshi, invited for the AERC Foundation Day Lecture 2026 and book release at Anand on September 11, 2026.
- Dr. Anil Kumar Dubey attended online session on IGSTC Research & Innovation Dialogue Series – Distinguished Lecture by Prof. Dr. Frauke Melchior at Indo-German Science & Technology Centre, Technology Bhavan, New Delhi on September 14, 2026.
- Dr. Anil Kumar Dubey, Dr. Mukul Kumar Dubey, Dr. Mukund Adsul, Dr. Geeta Kumari, Er. Milan Sojitra, Er. Kirti Sharma participated in a two-day program on the “HiEERA Primer Workshop: Towards Designing a Thinkers’ Circle” organized by R&D and IPR cell, BVM, Anand, during September 21-22, 2026.

New Facilities



**Bio-methane Potential (BMP)
Instrument**



**Biomass Pretreatment and
Methanol/Butanol Production
Reactor (100 L)**

Upcoming Events at SPRERI



Training Programme on “Biochar Production and Applications from Agro-residues”



November 23–27, 2026



With support from Department of Science and Technology,
Government of India.



Training Programme on “Biogas Production from Crop Residues and other Organic Wastes using SPRERI Technologies”



December 7–11, 2026



With support from Department of Science and Technology,
Government of India.



National-Level Seminar on “Carbon Capture and Valorization: Emerging Biotechnological and Chemical Approaches for a Low-carbon Future”



December 18, 2026



With support from Gujarat State Biotechnology Mission,
Government of Gujarat.

Board of Management

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Shri Bhikubhai B Patel

Chairman, Charutar Vidya Mandal, Vallabh Vidyanagar, Anand

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Shri Paresh Chavda

Unit Head & Deputy Environmental Engineer, Gujarat Environmental Management Institute, Gandhinagar

Shri Manish S. Patel

Vice-President, Charutar Vidya Mandal, Vallabh Vidyanagar, Anand

Er. Sydney Lobo

Senior Technical Advisor, Clean Tech Space, Mumbai.

Former Head - Sustainability and Clean Technology Projects, Tata Power Company Ltd., Mumbai

Prof. Datta Madamwar

Scientific Advisor & Director University Research Centre, Charotar University of Science and Technology, CHARUSAT, Changa

Former Professor Head & Dean, Post Graduate Department of Biosciences, Sardar Patel University, VV Nagar, Anand, Gujarat

Dr. D.K. Tuli

Former Executive Director Indian Oil Corporation (R&D), Faridabad

Former Chief Executive Officer, Indian Oil Technologies Ltd., Faridabad

Former Chair, DBT-IOC, Centre for Advanced Bioenergy Research, Faridabad

Prof. Anuradda Ganesh

Adjunct Professor, Indian Institute of Technology, Madras

Former Professor & Head, Department of Energy Science & Engineering, IIT Bombay

Former Chief Technical Advisor and Director, CUMMINS Technologies India Limited, Pune

Prof. Satish B. Agnihotri, IAS

Professor, Centre for Technology Alternatives for Rural Areas (CTARA), IIT Bombay

Former Secretary, Ministry of New and Renewable Energy, Government of India

Former Secretary (Coordination & Public Grievances), Cabinet Secretariat, Government of India

Er. Vivek Amin

Chief Executive Officer, Bomin Industries Pvt. Ltd, Ahmedabad

Dr. A. Mahesh

Assistant Professor, C. L. Patel Institute of Studies and Research in Renewable Energy, Anand, Gujarat

Mr. Apoorva Oza (Till December 2025)

Chief Executive, Aga Khan Rural Support Programme, Ahmedabad

Member-Secretary

Dr. Anil Kumar Dubey

Director, SPRERI, Vallabh Vidyanagar

Let's work together to achieve net zero mission of country's future!



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