Online Capacity Building of SAARC Professionals on Commercial Scale Biogas Plants

Training Schedule (Tentative)

Day/Date	Time (PST)	Title & Speaker	Broad content to be covered
Inauguration and Technical Session 01: Introduction to biogas technology			
Day 1 August 23, 2021	2:00 – 2:20pm	**Inauguration of the Training program**	• Welcome address by Prof. Arun Kumar, HRED, IIT Roorkee • Inaugural address by Dr. Nawaz Ahmad, Director, SAARC Energy Centre-Islamabad
	2:20 – 3:15pm	**Slot 1:** Overview of biogas technology as future fuel by **Prof. Sanjeev Kumar, HRED IIT Roorkee, India**	• Fundamentals on biogas technology • Family type *v/s* commercial biogas plant • Biogas plant designs for commercial scale production
	3:15 – 3:30pm	**Break**	
	3:30 – 4:15pm	**Slot 2:** Current status and future potential of commercial-scale biogas in SAARC members states by **Prof. Deepak Sharma, MPUAT Udaipur**	• Global scenarios of the biogas market • Historical development of biogas in SAARC members states • Current status and future potential of biogas commercialization in SAARC member states
	4:15 – 4:30pm	Quiz for day 1	• MCQ based online quiz on the content covered
Technical Session 02: Biogas production process and feedstocks			
Day 2 August 24, 2021	2:00 – 2:55pm	**Slot 1:** Fundamentals on Biogas production process by **Prof. Sanjeev Kumar, HRED, IIT Roorkee**	• Biogas production process: four steps involved • General biochemical aspects of the biogas production process • Process parameters for substantial biogas production • Problems associated with biogas production and troubleshooting • Recent advances in biogas production technology
	2:55 – 3:10pm	**Break**	•
	3:10 – 4:05pm	**Slot 2:** Feedstock types; their availability; cost and procurement w.r.t to SAARC member states by **Prof. Pratham Arora, HRED IIT Roorkee, India**	• Common feedstocks for commercial biogas: global scenarios • Feedstock availability and procurement • Processing of common feedstock for biogas production • Emerging feedstock for biogas: agriculture waste, algal biomass, and MSW
	4:05 – 4:15pm	Quiz for day 2	• MCQ based online quiz on the content covered

Technical Session 03: Biogas plants and applications of biogas			
Day 3 August 25, 2021	2:00 – 2:55pm	**Slot 1:** Biogas plant design concepts and considerations for establishment of commercial scale facilities by **Prof. Deepak Sharma, MPUAT Udaipur**	• Biogas plants; their types, components, and resource requirements • Small scale Vs commercial biogas plants • Size analysis, commissioning, and construction of biogas plants • Designs and selection factors for biodigesters • The operation, maintenance, and feasibility/ scalability assessment of plants • Quality control of biogas plants
	2:55 – 3:10pm	**Break**	•
	3:10 – 4:05pm	**Day 3; Slot 2:** Multifarious uses of biogas and its opportunities w.r.t power generation in SAARC member states by **Dr. Atma Ram Shukla, Adviser Bio-energy (Retd.), MNRE, Govt. of India**	• Various uses of different forms of biogas (upgraded biogas/ biogas with or without CO_2 separation) • Biogas as an alternate energy source, its advantages, and limitations • Biogas purification for commercial application of biogas in power generation • Biogas based power generation programs in SAARC member states • Tariff structure, electricity tariff of biogas plant *v/s* other technologies/fuels
	4:05 – 4:15pm	Quiz for day 3	• MCQ based online quiz on the content covered
Technical Session 04: Feasibility and scalability assessment			
Day 4 August 26, 2021	2:00 – 2:55pm	**Slot 1:** Feasibility and scalability of biogas plants I: concepts and methods by **Mr. Srinivas Kasulla, Director - Arka BRENStech Pvt. Ltd.**	• Project development for commercial biogas plants Feasibility and scalability concepts; their significance in biogas technology • Approaches to conducting the pre-feasibility and detailed feasibility of biogas plants • System description and methodology to perform pre-feasibility
	2:55 – 3:10pm	**Break**	•
	3:10 – 3:45pm	**Slot 3:** Financial viability of biogas plants by revenue value addition **by Mr. Chandan Gadgil, Hon. Adviser, BAIF, Pune, India**	• Focus on Residue management - A paradigm shift • How Bioprom impacts financials. • Impact on climate, soil, and farmers.
	3:45 – 4:25pm	**Slot 2:** Feasibility and scalability of biogas plants II: economic analysis, environmental and social benefits by **Prof. Pratham Arora, HRED IIT Roorkee**	• Techno-economic analysis (TEA) to estimate the economic performance • Life cycle assessment (LCA) to ascertain the environmental performance • Socioeconomic impacts of commercial biogas plants with exemplary case studies
	4:25 – 4:35pm	Quiz for day 4	• MCQ based online quiz on the content covered

Technical Session 05: Policies and challenges in biogas commercialization			
Day 5 August 27, 2021	2:00 – 2:55pm	**Slot 1:** Regulations and challenges linked with the development of commercial biogas plants w.r.t SAARC member states by E**r.Shailendra Shukla, Former Chairman, State Power and Renewable Energy Agencies**	• Risks associated with biogas commercialization • Protocols for the establishment of commercial-scale biogas plants • Policy instruments
	2:55 – 3:00pm	**Break**	
	3:00 – 3:40pm	**Slot 2:** Technologies for resource recovery from commercial-scale biogas plants by **Prof. Sanjeev Kumar, HRED IIT Roorkee**	• Management of waste streams in commercial biogas plants • Recovery of waste CO_2 from biogas enrichment • Valorization of digested slurry from biogas plants
	3:40 – 4:10pm	**Slot 3:** Online demonstration of commercial biogas plant	• Development, facility layout, operation, energy utilization, process implementation, and challenges of existing biogas plants
	4:10 – 4:35pm	Group discussion and brainstorming session	• Learning sharing from speakers and participants
	4:35 – 4:45pm	Valedictory session	