

Learning from Scaling Biogas in Rural Ecosystems Impact Failure Conclave 2022

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Organisers: Sustain Plus Energy Foundation (SPEF) and National Dairy Development Board (NDDB), as a part of the Impact Failure Conclave 2022, held at IIM Bangalore.



Background: India has completed 40 years of its biogas program, and yet biogas and biodigesters remain significantly underused. Recent developments in bio-digester and slurry processing technologies have led to the re-emergence of the biogas sector. While the benefits of an efficient and drudgery-free clean cooking fuel at zero operational cost has already demonstrated its value across most user households, there is also now an added focus on leveraging and monetising the slurry and manure value chains. Several technology models (floating dome, flexible, fixed dome) are being deployed at household and institutional levels through various government schemes, programs and philanthropic support. At an industry level, many new practitioners and innovators have entered the market to harness the potential of *gobar* through direct sales, service and enterprise based models.

As the diffusion and adoption of biogas technologies gains momentum and the market opens up, we celebrate the progress. At the same time, it is crucial that current experiences and learnings feed into improving the delivery of solutions sustainably, and also set precedents for operational and financial viability.

This session sought to discuss, reflect-on and consider the operational, technological and strategic factors that have challenged our assumptions, not gone as planned or require a deeper examination from a contextual, ground-realities perspective.

The conference was planned over two sessions constituting panel discussion from a range of stakeholders from the sector. This includes representatives from milk unions, technology service

providers, implementation agencies, carbon finance experts, biogas associations and eco-system enablers.

Session 1: STRATEGY AND PROGRAM DESIGN	
Rajesh Singh, Moderator	Innovation and Project Management Cell, NDDDB
Girish G Sohani	BAIF Development Research Foundation
Richie Ahuja	Climate Smart Agriculture, Environmental Defence Fund
Gaurav Kedia	Indian Biogas Association
Himanshu Mishra	Livelihood, Social Alpha
Bigsna Gill	Sustain Plus Energy Foundation

Session 2: TECH DEVELOPMENT & OPERATIONS	
Siddharth Gahoi, Moderator	Sustain Plus Energy Foundation
Ayan Deb, Moderator	Sustain Plus Energy Foundation
Atul Mittal	Sistema.bio
Bhimashankar Shetkar	NDDDB Nrida Ltd.
Aashish Dutt	SAAF Biogas
Mateen Abdul	Grassroots Energy Inc.
Neeta Kamat	Women Development Depart., Kolhapur Milk Union
Priyank Mehta	Banas Dairy



A look at some of the key takeaways from the panel discussion

Solution Positioning: The bio-digester solution as a whole delivers two by-products in the form of biogas and slurry. Each of these deliver specific value to the customer when appropriately used. Traditionally, biogas has been considered to be the main product of this solution. However, the development of slurry processing technologies has unlocked the potential of processing and monetising slurry, making the overall bio-digester solution much more remunerative. Therefore, bio-digester solutions and programs need to be developed / implemented to derive maximum value and potential from both these products.

Maximising the potential of slurry: Drawing significance from the processing of waste (cow dung), biogas offers a route towards a circular economy in the use of products beyond the end of their service life. The value from the application of bio-slurry from the digester ensures



sustainability of the environment in the long term and potential for financial gain for the local community.

Implementation timelines vs agri life cycles: While biogas is able to demonstrate its value to the user upon generation of first flame, the visible impact of using slurry (directly or as PROM) only becomes evident to a farmer overtime, after using it for a couple of cultivation cycles. Project timelines tend to be limited to the implementation of technologies, limiting opportunity to derive crucial learnings of bioslurry application. Actors and enablers in the sector need to factor agriculture life-cycle timelines into their program design, to allow for experience based evidence to be generated at the user level.

Inclusive design: Clean cooking is a fundamental need and women of the household are at the centre of it. Yet, the local ecosystems positioning biodigester solutions are often not designed bearing women as key actors. Catalysing behaviour change at the household level will require inclusion of women, their needs, and an understanding of their role to play.

Financing: Grants for promotion of biogas have lent initial impetus to the adoption of bio-digester solutions. However, blended finance mechanisms are key in order to achieve scale and widespread adoption. Availability of affordable credit depends on the financier's assessment of the solution as a low-risk and high remuneration asset. It is crucial to highlight evidence of savings and potential increase in income from biodigesters in order to make a case for financing. Bio-digesters are also a strong candidate for carbon financing, which can aid its further scale up. A Generational Based Incentive (GBI) system may serve as one of the effective ways to encourage the adoption of technology in general.

Institutionalisation: Biogas implementation requires the establishment of training and capacity-building needs among the grassroots organisations that anchor the entire system. The entire sub sector needs a much deeper collaboration between the actors and the enablers. It was further iterated that Sustain Plus Energy Foundation and NDDB will plan for enabling this necessary collaboration.