SED FUND

VASUDHA FOUNDATION
Green ways for a good earth!

LiFE
Lifestyle for Environment

DEEP ELECTRIFICATION FORUM

PROCEEDINGS OF THE LUCKNOW CONVENING

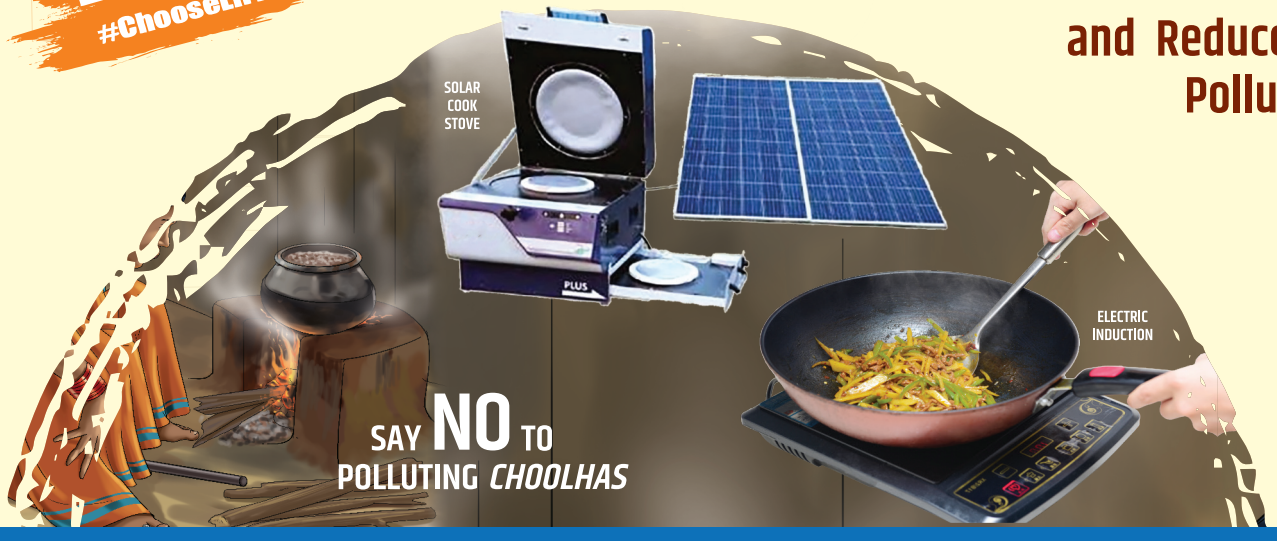
ADVANCING SUSTAINABLE, CLEAN, AND AFFORDABLE COOKING

UNDER THE **MISSION LiFE** AND **GO ELECTRIC** CAMPAIGN

Save Energy
#ChooseLiFE

MAY 30
2023
09:30 AM – 14:00 PM
Hilton Garden Inn Lucknow

Use Clean Cooking Stoves to Minimise Carbon Emission and Reduce Air Pollution



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ABOUT THE FORUM CONVENING

Deep Electrification is the process of replacing any non-electric energy source using fossil fuels with technologies that use electricity as a fuel source. Deep electrification includes direct electrification in cases where electric technologies can replace fossil fuel use and indirect electrification is applied in hard-to-abate sectors preferably by using renewable energy for hydrogen production.

Vasudha Foundation with support from SED Fund launched the Deep Electrification Forum on January 20, 2023, in Delhi with an objective to engage in consensus building and policy discourse around deep electrification as a sustainable energy transition pathway to achieve India's net-zero targets. Further, it is critical to engage a myriad of stakeholders across the country to ensure the successful implementation of the Forum outcomes. Hence, we conceptualised regional meetings to deep dive into innovative and bottom-up approaches for electrifying end-uses in India.

With this background, regional Forum meetings were organised previously in Chennai and Pune with an objective to deep dive into two sub-sectors - Road Transport and Cooking through deep electrification pathways. The desired outcome of these regional Forum convenings is to build the discourse around the challenges, local aspects and prospects prevailing in the electric vehicle and electric cooking ecosystem in India.

The Forum would like to accord special thanks to the participants for their invaluable inputs and the Forum delegates for sharing their insights on the key initiatives being undertaken on deep electrification pathways and the prospects. Especially to Sh. Manoj Singh, IAS, Additional Chief Secretary, EF&CC, Government of Uttar Pradesh; Sh. Pramod Kumar Gupta, IFS, Chief Conservator of Forests, Joint Forest Management, Government of Uttar Pradesh; and Sh. Ashish Tiwari, IFS, Secretary, EF&CC, Government of Uttar Pradesh; and Sh. Ashok Kumar Srivastava, FIE, Senior Project Officer, UPNEDA.

INAUGURAL PANEL SESSION

MR. SRINIVAS KRISHNASWAMY, CEO, VASUDHA FOUNDATION

He presented a compelling case for establishing the Deep Electrification Forum, highlighting the critical importance of deep electrification and the need to align with government programs, such as "Go Electric" and "Mission LiFE" to achieve India's long-term goal of becoming net zero by 2070.

In his welcome address, he outlined the Forum's key objectives:

- Focusing on electric cooking and transportation through deep electrification pathways.
- Convening experts to engage in constructive dialogue to develop policy discourse, ensuring that these efforts are informed by the latest research and practical experience.
- Pursuing ambitious goals, including plans to expand the Forum's scope to include hard-to-abate sectors such as fertilizer, textile, and cement in future phases.
- Taking a pragmatic approach, with the goal of identifying and implementing actionable steps that can be translated into tangible results on the ground.

He also emphasized the importance of leapfrogging from traditional biomass to electric cooking. While cooking may not be the highest emitter, its impact on socio-economic development makes it an ideal starting point for discussion.

These key objectives demonstrate the Forum's commitment to addressing environmental challenges holistically, bringing together experts from various fields to work towards practical, sustainable solutions.

SHRI ASHISH TIWARI, IFS, SECRETARY, EF&CC, GOVERNMENT OF UTTAR PRADESH

He set the context by mentioning the importance to adopt clean and affordable cooking in order to reduce indoor air pollution, especially PM2.5 concentration caused due to cooking and heating. Some of the key takeaways from his address are as follows:

- The Government of Uttar Pradesh is taking various steps to make it a clean and climate-resilient state.
- He announced that the state is developing a large scale airshed based Uttar Pradesh Clean Air Management Project (UPCAMP). This is being developed in consultation and support from various stakeholders i.e., IOCL, EESL, Renew Power, World Bank, TERI, Intellecap, Sustain Plus etc. He further mentioned that domestic and commercial cooking is one of the most prominent sources of air pollution which

contributes about 30% to the annual average PM2.5 in the State's airshed. However, the aim is to look at all encompassing elements that impact the air-quality of the state.

- Interestingly, he mentioned that the state is pioneering many efforts towards promoting clean energy such as the green hydrogen policy where UP will be the first state to explore the potential of green hydrogen which can play a very important role in decarbonizing the hard-to-abate sectors especially the fertilizer sector.

SHRI PRAMOD KUMAR, CHIEF CONSERVATOR OF FORESTS, JOINT FOREST MANAGEMENT, GOVERNMENT OF UTTAR PRADESH

He presented the special address by highlighting the focus on understanding the mindset of the end users being critical to adopting clean and affordable cooking. He mentioned that the northern and southern belts have a large consumption of fuelwood due to closer proximity to the forests. Some of the suggestions opined by him are as follows:

- Technology should be available within the kitchen, unlike a solar cooker which needs to be placed in sunlight outside the kitchen.
- While no one size fits all, there is a need to look at step by step approach where the target should be to have a zero-firewood collection or decrease the dependency firewood and move to other fuel sources. There is a need to have a solution for weekly/ monthly firewood collection practices and not to collect on a daily basis.
- It is very important to bring all the stakeholders on one platform and industry to innovate more clean cooking solutions.

SHRI MANOJ SINGH, IAS, ADDITIONAL CHIEF SECRETARY, EF&CC, GOVERNMENT OF UTTAR PRADESH

He presented the keynote address for the event. Some of the highlights from his address to bring a paradigm change for promoting clean cooking in India are as follows:

- ***Change in demand***: It is very important to change users' perception to adopt clean cooking. The policies should be made based on the ground reality and there is a need to have solutions which can address the end users' problems.For example, users complain about the unsatisfactory taste and smell of food prepared using electric induction. There is a need to take a holistic view of how we can tackle such issues on the demand side through key interventions.
- ***Change in supply***: Remove the inefficient and polluting products from the market and make only solar and gas-based efficient cookstoves available in the market.
- ***Policy interventions***: Creating subsidy mechanism and change in regulations based

on the ground conditions. Exploring the penalty pay mechanism for retailers and manufacturers selling inefficient products.

- ***Change in sociology**:* People need to be demonstrated and made to use clean cookstoves at home/hotel at least once a week.
- ***Training and capacity building**:* Training and capacity building of the whole value chain especially focusing on after-sales services. This could be done by training and building capacities at the *Nyaya* Panchayat levels, which is an agglomeration of nine villages. This is similar to how the state has trained and provided correspondents in the banking system at the *Nyaya* Panchayat level and villages.

PRESENTATION BY VASUDHA FOUNDATION

A user-friendly web tool designed to conduct a techno-economic analysis of cooking technologies was presented by **Ms. Vrinda Gupta, Senior Advisor (Energy and Power), Vasudha Foundation** and **Mr. Bikash Sahu, Senior Policy Officer (Clean Energy and Power Sector), Vasudha Foundation**.

The tool enables a regional comparison of primary cooking solutions and investigates the potential benefits of transitioning to clean and electric alternatives. The key use cases of the tool are outlined as follows:

- ***Promoting Health and Safety***: Through the evaluation of cookstove technologies based on their techno-economic aspects, the tool identifies options that minimize indoor air pollution, thereby enhancing the health and safety of users.
- ***Addressing Environmental Concerns***: The tool equips policymakers, NGOs, and individuals with crucial information for making informed decisions regarding the adoption of cleaner and more efficient cookstoves.
- ***Enhancing Energy Efficiency and Economic Viability***: The tool considers the significant expense of cooking fuel, particularly for households reliant on costly or scarce fuel sources. Its aim is to identify solutions that optimize energy efficiency and economic viability.

The tool's schematic encompasses the analysis of monthly energy consumption and costing, considering factors such as household profiles (size and area type), meal profiles, hot water consumption, and overall usage patterns. Facilitating a comprehensive comparison among various cooking solutions.

- Further developments planned include language localization, exploring financing options, accessing subsidies, and addressing commercial cooking requirements and solutions.
- The tool aims to offer valuable insights into the techno-economic aspects of cooking technologies, thereby assisting in the transition towards cleaner and more efficient cooking methods.

TECHNICAL SESSION 1

The panel discussion on 'Technologies, Policy and Financing Options for Clean Cooking in India' was moderated by **Mr. Santosh Kumar Singh, Partner and MD, Intellecap - Advisory Services Private Limited.**

Major highlights shared by each of the panellists are as follows:

SHRI MANOJ SINGH, IAS, ADDITIONAL CHIEF SECRETARY, EF&CC, GOVERNMENT OF UTTAR PRADESH

- To initiate the transition, replace the traditional chulhas with LPG in forest areas. This shift can significantly improve cooking efficiency and reduce emissions.
- In urban areas, promotion of electric induction cooktops can be an effective strategy. These cooktops offer efficient and clean cooking solutions, making them suitable for urban households.
- Solar cookstoves should be promoted in peri-urban areas, where access to electricity is limited.
- It is crucial to develop a comprehensive ecosystem that promotes and supports the adoption of these various clean cooking options. This includes creating awareness campaigns, providing necessary infrastructure, and facilitating access to financing and subsidies.

SHRI ASHISH TIWARI, IFS, SECRETARY, DOEFCC, GOVERNMENT OF UTTAR PRADESH

He provided the five elements *'Panchamrit'* that need to be considered for developing a roadmap for clean and affordable cooking in the State.

- First, an immediate policy intervention to facilitate the financing and development of a robust distribution system coupled with behavioural change initiatives/localised community-based solutions etc.
- Second, carbon financing coupled with demand aggregation with subsidy and micro-financing can address the cost issues of the clean cooking solutions which are a major initial hurdle for their uptake.
- Thirdly, developing a well-knit delivery system that can provide easy and affordable clean cooking access to the end users along with post-sales services, UPSRLM Self Help Groups and Farmer Producer Organisations could be the best options.
- Fourth, capacity building and skill up-gradation of the stakeholders in the distribution and post-sale services value chain.

- Finally, facilitate a market-driven delivery system and ensure robust quality control mechanisms that can sustain clean cooking.

SHRI ASHOK SRIVASTAV, FIE, SENIOR PROJECT OFFICER, UPNEDA

- UPNEDA is working to promote solar energy in the state. Focusing on commercial and residential consumers for rooftop solar installations. In addition to this, UPNEDA is also promoting induction along with the solar rooftop installation, but the major challenge is in the use of induction when adequate sunshine is not available. The provision of including solar thermal energy backup was suggested by him.
- It is very important to identify the targeted users to promote clean cooking. The initial focus is on urban areas to increase the penetration of clean cooking and then approach the rural areas.

MR. JOSTEIN NYGARD, SENIOR ENVIRONMENTAL SPECIALIST, WORLD BANK

- It is crucial for the household head or women of the family to be aware of clean cooking solutions.
- Scaling up community-based cooking is a challenge.
- There is a need to provide certified and more improved chulhas (cookstoves).
- There is a need for flexible and multiple financing options to support the transition to clean cooking.

DR. UMISH SRIVASTAV, CHIEF GENERAL MANAGER, IOCL

- Surya Nutan is an innovative indoor solar cooking system designed and developed by IOCL. The stove collects energy from Sun and converts it into heat through a specially designed heating element then this thermal energy gets stored in a scientifically proven thermal battery and recovered for use in cooking.
- IOCL has worked extensively to reduce the cost of Surya Nutan. The cost of Surya Nutan is less than the other options available in the market.
- Some of the advantages of Surya Nutan are usability around the year and indoors, prepares all types of meal, and provides high temperatures.
- Around 100 solar cookstoves (Surya Nutan) have been installed and are working in different cities in India. IOCL gets periodic updates from the remote monitoring system devices included in the cookstove. Further 10 parties have been empanelled to undertake marketing and communication for Surya Nutan.

TECHNICAL SESSION 1

- The pieces of equipment used for the Surya Nutan development are available within the country, only solar panels are imported from outside.
- One of the major challenges for the IOCL is the difference between the cost and price of the system. Though the cost is low, but the market price of Surya Nutan is high and IOCL is working to address this issue.
- He further underscored the critical role of women in accepting this technology.

MR. GIRJA SHANKAR, GENERAL MANAGER, EESL

- Among the various available fuels and technologies such as LPG, PNG, Biomass, and Electricity, electric induction stands out as highly efficient, boasting an efficiency rate of approximately 84%. Additionally, electric pressure cookers offer a promising choice for clean cooking.
- EESL has set up a target to deploy around 1 Lakh solar cookstoves across the country.
- The objective is to provide a market based solar based cooking solution to all beneficiaries along with basic induction-based cookware practically at no cost by leveraging carbon financing.

MR. DEEPAK GUPTA, SENIOR VICE PRESIDENT & HEAD, RENEW POWER

- There are three key factors to enhance the penetration of clean cooking: scaling up, affordability, and raising awareness about the entire ecosystem.
- Understanding the principles and mechanisms of carbon financing is crucial to access its benefits.
- Intervention and support from both central and state governments are necessary for carbon financing.
- Renew has been offering cooking solutions to families based on their economic circumstances.

MR. VIMAL KUMAR, INDIA LEAD – MECS PROGRAMME & CO-FOUNDER – FINOVISTA

- He emphasized the significance of clean cooking by referring to a study that indicates a potential cost of 2.4 trillion dollars to the global economy if the transition to clean cooking is not pursued.
- Electric cooking is the best option if electricity is available, especially in urban areas. In rural areas, solar cookstove is the best option.

TECHNICAL SESSION 1

- The obstacle to adopting electric cooking lies in the necessity of specific equipment. Transitioning to electric induction requires a change in kitchen utensils.

MR. RUPESH KUMAR, SENIOR SECTOR LEAD, HCL FOUNDATION

- Around 140 families are using biogas systems provided by HCL Foundation. The lack of a robust ecosystem hampers the scaling up of biogas systems installation.
- Higher capital cost and financing are two major challenges in scaling up. Carbon financing could be an option to overcome this challenge.
- More innovative solutions aligned with the on-ground reality are needed to meet the requirements.

TECHNICAL SESSION 2

The first part of the session comprised of a fireside chat to discuss ground perspectives on clean cooking, followed by a panel discussion on the Opportunities, Challenges & Strategies towards clean cooking.

FIRESIDE CHAT

This session was moderated by **Ms. Naimisha Joshi, Coordinator, SEWA (Self-Employed Women's Association)** in a conversation with the following Gram Pradhans & Secretaries.

- Mr. Amit, Gram Pradhan, Malakpura, Jalaun
- Mr. Deshraj Bharti, Gram Pradhan, Jamalpur Rampur, Amethi
- Mr. Surya Prakash Maurya, Gram Pradhan, Ayar, Harhua, Varanasi
- Mr. Anil Kumar Singh, Gram Secretary, Sarai Mahesha, Amethi

Challenges for switching to clean cooking: In rural areas, an increasing number of households are switching from chulhas to LPG and electric cooking. However, there are four key challenges based on the ground experience

- **Poor after sales services**
  - Skilled technician for the repair and maintenance of the new technology is absent. Required skilled labour for the construction of a biogas plant is not available.
  - *Low Awareness*: Technology awareness, availability and feasibility are a challenge.
  - *High Upfront Costs*: The upfront investment is expensive. Subsidy/incentives awareness is very limited, and people are also not aware of those benefits (if any).
  - *Actual Adoption and usage*: LPG refill of the gas cylinder period has increased from 45 days to 4-5 months nowadays. People are returning to using firewood or dung cakes for cooking meals and using LPG solely for making only tea/snacks.

- **Exploring biogas-based solutions**
  - Mr. Amit highlighted the effectiveness of biogas plants as the ideal solution for rural areas. He provided examples of existing plants in the village. Additionally, he expressed his desire to expand the biogas infrastructure in the village. However, challenges such as higher capital costs, absence of demand aggregation and a lack of skilled individuals for biogas construction hinder the scalability. He further described that the lack of availability of biogas-based systems in villages.
  - Ms. Naimisha reported that SEWA has successfully facilitated the installation of approximately 5000 biogas plants at a minimal cost. Notably, these biogas plants with carbon financing, have resulted in a significant reduction in the overall cost. The initial price of INR 40,000 has been reduced to just INR 9000.

TECHNICAL SESSION 2

- **Awareness and Communication**: For new product demonstrations, the rural women household decision-makers should be provided with demo models for free use for at least 2-3 months. This instils confidence in its usage and promotes increased adoption.

PANEL DISCUSSION

This session on the Opportunities, Challenges & Strategies towards clean cooking was moderated by **Ms. Bigsna Gill, Lead – North Hub, Sustain Plus**.

Major highlights shared by each of the panellists are as follows:

MR. GAURAV MEHTA, CEO, DHARMA LIFE

- A continuous effort has been made to provide clean cooking solutions to women. As of now, approximately 13,000 women across 13 states have benefitted from these initiatives.
- Around 45,000 inductions have been distributed without subsidy.
- Cooking solutions are available with financing and without financing options.
- Cooking competitions, camps and demos could further help in promoting clean cooking solutions.
- Exploring production linked incentives for manufacturing induction cookstoves.

MR. VIJAY KUMAR PANDEY, PROJECT COORDINATOR, GEAG

- According to a survey conducted across 40 villages, the primary challenges faced in the adoption of electric cooking or induction are electricity shortages and high voltage fluctuations, which limit the usage of induction cooktops.
- The shift to induction cooking places an additional burden on villagers due to the need to change their kitchen utensils to be compatible with induction technology.
- The cooking solutions being implemented should prioritize being environmentally friendly, economically feasible, and socially acceptable.
- Another significant challenge in rural areas is the lack of infrastructure to support the implementation of clean cooking solutions.

MR. SANDEEP KHARE, VIGYAN FOUNDATION

- Solutions should be devised for individuals with limited documentation, minimizing paperwork for accessing schemes and benefits.
- There is a requirement to provide roadside cooking solutions for urban poor i.e., autowalas, residing in slums etc.

- It is crucial to develop a plan to address the needs of individuals migrating from rural to urban areas.

MR. PRASHANT SWAIN, FELLOW, TERI

- TERI has been promoting natural and forced draft improved cookstoves in rural areas. The forced draft cookstove has been developed with the addition of a fan, resulting in improved efficiency. These cookstoves utilize firewood or cow dung as fuel.
- They have been continuously deploying these systems in rural areas by bundling clean cooking and lighting together. The bundled system is called as Integrated Domestic Energy System (IDES). The cost of the system is INR 9000 (INR 4500 Cost and INR 3500 from CSR). The customer can pay for the cookstove in instalments, reducing the one-time upfront cost for the user.
- In Bihar, the introduction of instalment payments and flexible payment methods has been implemented. Also, training and capacity building have been conducted for repair and maintenance of the installed system.

THE WAY FORWARD ON CLEAN COOKING

The third technical panel discussion was moderated by **Mr. Srinivas Krishnaswamy, CEO, Vasudha Foundation** and the panel comprised of the following members.

- Dr. Debajit Palit, Professor, NTPC School of Business Management
- Dr. Sriram Appulingam, In charge (Climate Change Centre, Lucknow), BIRD – NABARD
- Mr. Manish Sinha, General Manager, SIDBI

The panel agreed that achieving the 25% target of electric cooking suggested by MoPNG in a report is easily achievable. However, the following need to be addressed: raising awareness and upskilling, providing the necessary supply and electricity infrastructure, and fulfilling financial requirements to overcome the first-cost barriers. Finance should be made available at a subsidized rate based on the economic status of the consumer. The target in fact could be increased to range from 40% to 70% to make it more aspirational.

Dr. Debajit suggested the following interventions in order to increase electricity penetration in cooking

- Strengthening the electricity distribution infrastructure in peri-urban and rural areas.
- More awareness by DISCOMs & sensitizing the consumers on the cost-benefit of electric cooking vis-à-vis LPG stoves considering social and cultural aspects.
- Strengthening ecosystem for sale & after-sales service infra by electric cookstoves suppliers.
- Given the high capital cost of solar stove, treating them as concept sale by selling the service based on a weekly price rather than selling it as a product with capital cost borne by ESCOs. Finance could be made more affordable by including blended financial instruments.

Dr. Sriram and **Mr. Manish** highlighted the diverse needs of different end users and emphasized integrating the energy aspect into clean energy plans, especially from a financier's perspective. They also discussed the significance of acceptability and finding effective ways to convince people to transition from conventional cooking methods to cleaner alternatives.

The recommendations discussed are as follows:

- A support system is required to finance commercial kitchens, which is a non-traditional banking project presently due to the different nature of cash flows and assets. Hence, in addition to awareness, the whole ecosystem around electrifying commercial kitchens needs to be developed. Some of the immediate areas which need to be focused on are technology options available, price, electricity consumption, and future upgradation.

THE WAY FORWARD ON CLEAN COOKING

- Two financing options separately supporting purchase and operating costs need to be provided to the commercial kitchens for retrofitting or new installation of clean cooking technologies. The terms of financing needed to be looked at in such a way that it is customized and oriented to their business.
- The scope of electric cooking should be included under the Revamped Distribution Sector Scheme (RDSS) program. Going forward, the Ministry of Power, Government of India needs to consider this in future upgradation and strengthening of the rural electricity infrastructure.
- A complete revamp of the cooking value chain is required from supply to demand. The concept sale of cooking products whose purchase cost exceeds INR 20,000 needs to be looked at as a service and not just as an individual appliance sale. Providing cooking as a service through pay-as-you-go mechanisms would be viable for the consumer.
- The role of MFIs in acting as channel partners for distributing electric cooking solutions to increase access to finance needs to be leveraged.
- In order to develop scalable and customized clean cooking solutions specifically designed for the Indian context, it is vital to nurture the progress of entrepreneurs by providing incubation support. Institutions such as SIDBI and NABARD can play a key role in supporting these initiatives.

Dr Umish from Indian Oil during the closing question and answer session added:

"As per IOCL experiments using various cooking technologies, cooking using an induction stove consumes less than 3 units per day which includes breakfast, lunch, dinner, and tea/snacks. This translates to a monthly expenditure of around INR 600, assuming an electricity unit price of INR 6 and the food is for a family of four, each meal consists of 12 rotis, 230 grams of dal, 430 grams of vegetables, and 125 grams of rice. This is much cheaper compared to an LPG cylinder of 14.2 kgs which costs approximately INR 1100 and lasts for 45 days".

SUMMING UP AND NEXT STEPS

The discussions held in this regional convening helped the organisers and the participants identify the granular aspects that are needed to be addressed to achieve the cooking sector's aspirations, especially for Uttar Pradesh.

A compendium of the key insights received during the Forum convenings and from Forum members will be shared with key stakeholders including policymakers and decision-makers to take an informed decision on deep electrification pathways for emission reduction.

ANNEXURE 1 - FORUM ATTENDEES

Special thanks to the following delegates for attending and giving inputs in the regional meeting of the Deep Electrification Forum held in Chennai.

1. **Abhijit**, EY
2. **Abhishek Kumar**, Chief Programme Manager, Dharma Life
3. **Akansha Kulshreshtha**, Rashtriya Mook Badhir Vidhyalaya
4. **Alok Sahai,** Secretary, Bhartiya Mahila Evam Gramin Uttam Sanstha
5. **Alok Srivastav**, Trustee, Shramik Bharti Foundation
6. **Altaf Azam**, Programme Coordinator - Govt Policy, The Climate Group
7. **Ambarish Singh**, CMG Member, PANI
8. **Ambuj Kumar**, Sector Lead, HCL Foundation
9. **Amit**, Gram Pradhan, Malakpura, Jalaun
10. **Amit Singh**, Program Manager, Villgro
11. **Anil Kumar Singh**, Gram Secretary, Sarai Mahesha, Amethi
12. **Archana Sharma**, Pradhan
13. **Aryan Yadav**, Pradhan Pratinidhi, Bahardurpur Majhgaon Kannauj
14. **Ashish Tiwari**, IFS, Secretary, EF&CC, GoUP
15. **Ashok Kumar Srivastava**, FIE, Senior Project Officer, UPNEDA
16. **Ashvani Kumar Rajoriya**, President, Komal Foundation Firozabad
17. **Azim Khan**, Sr. Consultant, E&Y
18. **Bigsna Gill**, Lead - North Hub, Sustain Plus
19. **Brijesh Sharma**, Sadasya, Paryavaran
20. **Christopher Wright**, Dharma Life
21. **Deepak Gupta**, Sr. Vice President & Head, ReNew
22. **Deshraj Bharti**, Gram Pradhan, Jamalpur Rampur, Amethi
23. **Dharmendra Singh**, Gram Pradhan
24. **Dheeraj Singh**, State Programme Manager, Help Age India
25. **Dhruv Kumar**, Director, Panchsheel Dev Trust
26. **Dilip Tripathi**, Pradhan, Gram Panchayat
27. **Divyanshu Shukla**, R.A., TERI
28. **Dr Umish Srivastav**, Executive Director, Indian Oil
29. **Dr S.K Pandey**, Program Director, TCL

ANNEXURE 1 - FORUM ATTENDEES

30. **Gaurav Mehta**, CEO, Dharma Life
31. **Girja Shankar**, General Manager, Energy Efficiency Services Limited (EESL)
32. **Girjesh Pandey**, President, Vikas Bharti
33. **Govind Daspal**, President, Samarpan Jankalyan Samiti
34. **Himanshu**, Manager Operations, GVSS
35. **Jaishankar Prasad**, Secretory, Bhartiya Jankalyan Sansthan
36. **Jostein Nygard**, Senior Environmental Specialist, The World Bank
37. **Kamal Narayan Sharma**, Former Pradhan
38. **Kavarjeet Verma**, Programme Manager, U.P.S.R.L.M
39. **Manish Mishra**, Payal Welfare Society
40. **Manoj Singh**, IAS, Additional Chief Secretary, EF&CC, GoUP
41. **MM Alam**, General Manager, IOCL
42. **Mr. Prashant Swain**, Fellow, TERI
43. **Mud Mangal Singh**, Pradhan, Bahardurpur Majhgaon Kannuaj
44. **Mukesh Sadana**, Project Director, PANI
45. **Naimisha Joshi**, Coordinator, SEWA (Self-Employed Women's Association)
46. **Nasim Ansari**, Director, Tarun Chetna
47. **Neha Sharma**, Environment Consultant, World Bank
48. **Omair Ahmed**, Managing Editor, The Third Pole
49. **Onkar Pandey**, Director, Social Alpha
50. **Pramod Kumar Gupta**, IFS, Chief Conservator of Forests, Joint Forest Management, Government of Uttar Pradesh
51. **Pranav Jain**, IFS Member CNG, EF&CC, GoUP
52. **Prasanta Mondal**, Project Manager, Child Fund India
53. **Prashant Swain**, Fellow, TERI
54. **R.P Singh**, Director, Aga Khan Foundation
55. **Rakesh Pandey**, CEO, Shramik Bharti
56. **Rakesh Singh**, Reginal Head, Tata Trusts
57. **Ram Kumar**
58. **Ravindra**, Project Manager, Saijyoti Sansthan
59. **Rupesh Kumar**, Senior Sector Lead – Environment, Energy & Infrastructure, HCL Foundation

ANNEXURE 1 - FORUM ATTENDEES

60. **Sachin Bhatt**, Payal Welfare Society
61. **Sachiv**, Gram Sudhar Samithi
62. **Saket Shukla**, Sr. Consultant, E&Y
63. **Sandeep Khare**, Vigyan Foundation
64. **Santosh K. Singh**, Managing Director, Intellecap
65. **Shashi Tiwari**, TERI
66. **Saurabh Singh**, Yadavpatti Pradhan, Yadavpatti Pratapgarh
67. **S.K. Dwivedi**, ED, Grameen Development Services
68. **Subhash Chandra Pandey**, Gram Secretary, Kamrauli, Amethi
69. **Sudeep Chauhan**, Pradhan, Gram Pradhan
70. **Sudhir Chillarega**, State Programme Manager, Aga Khan Foundation
71. **Sumit Kumar**, Pradhan, Yadavpatti Pratapgarh
72. **Sweta**, State Lead, APAG-UP
73. **Vijay Kumar Pandey**, Project Coordinator, GEAG
74. **Vimal Kumar**, India Lead - MECS Programme & Co-Founder, Finovista
75. **Vineet Kashyap**, Manager Policy, Dharma Life Foundation
76. **Vinod Jain**, PD, Trust Community Livelihoods
77. **Vishwa Mohan Kulshrestha**, Secretary, Rashtriya Mook Badhir Vidhyalaya

Following were the Forum Secretariat representatives from Vasudha Foundation:

1. **Srinivas Krishnaswamy**, CEO
2. **Raman Mehta**, Programme Director
3. **Vrinda Gupta**, Senior Advisor- Energy and Power
4. **Rini Dutt,** Senior Manager – Climate Change
5. **Nikhil Mall**, Manager - Clean Energy and Power Sector
6. **Rahul Patidar,** Manager - Clean Energy and Power Sector
7. **Bikash Sahu**, Senior Policy Officer - Clean Energy and Power Sector
8. **Mansi Dalal,** Policy Officer – Climate Change
9. **Tanyata Dhiman**, Research Intern- Renewable Energy
10. **Debarati Dey**, Research Intern- Renewable Energy

ANNEXURE 2 – AGENDA

DEEP ELECTRIFICATION FORUM

WORKSHOP ON ADVANCING SUSTAINABLE, CLEAN, AND AFFORDABLE COOKING UNDER THE MISSION LIFE AND GO ELECTRIC CAMPAIGN

Date: Tuesday, May 30th, 2023, Time: 09:30 AM to 14:00 PM

Venue: Camellia & Garden Grille, Hilton Garden Inn, Vibhuti Khand, Gomti Nagar, Lucknow – 226010

AGENDA

09:30 AM to 10:30AM	Registration & High Tea
Inaugural Panel Session	
10:30 AM to 11:30 AM	▪ *Welcome Address* by Mr. Srinivas Krishnaswamy, CEO, Vasudha Foundation ▪ *Setting the Context* by Mr. Ashish Tiwari, IFS, Secretary, EF&CC, Government of Uttar Pradesh ▪ *Special Address* by Mr. Pramod Kumar Gupta, IFS, Chief Conservator of Forests, Joint Forest Management, Government of Uttar Pradesh ▪ *Keynote Address* by Mr. Manoj Singh, IAS, Additional Chief Secretary, EF&CC, Government of Uttar Pradesh ▪ *LiFE Pledge* ▪ Vote of Thanks
Setting the Context - Clean Cooking Landscape in India	
11:30 AM to 11:40 AM	*Presentation* by Mr. Bikash Sahu, Senior Policy Officer, Vasudha Foundation

ANNEXURE 2 – AGENDA

Technical Session 1: Technologies, Policy and Financing Options for Clean Cooking in India	
Session Chair: Mr. Ashish Tiwari, IFS, Secretary, DoEF&CC, GoUP **Moderator: Mr. Santosh K. Singh, Managing Director, Intellecap**	
11:40 AM to 12:25 PM	**Panellists** ▪ Mr. Jostein Nygard, Senior Environmental Specialist, The World Bank ▪ Dr. Umish Srivastav, Chief General Manager, Indian Oil ▪ Mr. Girja Shankar, General Manager, Energy Efficiency Services Limited (EESL) ▪ Mr. Ashok Kumar Srivastava, Senior Project Officer, UPNEDA ▪ Mr. Deepak Gupta, Sr. Vice President & Head, Renew Power ▪ Mr. Vimal Kumar, India Lead - MECS Programme & Co-Founder, Finovista ▪ Mr. Rupesh Kumar, Senior Sector Lead – Environment, Energy & Infrastructure, HCL Foundation
Technical Session 2: Perspectives from the ground: Opportunities, Challenges & Strategies towards clean cooking	
Fireside Chat & Panel Discussion	
Fireside Chat (12:25 PM to 13:10 PM)	▪ Gram Pradhans / Panchayat Secretaries with Ms. Naimisha Joshi, Coordinator, SEWA (Self-Employed Women's Association) ▪ Mr. Amit, Gram Pradhan, Malakpura, Jalaun ▪ Mr. Deshraj Bharti, Gram Pradhan, Jamalpur Rampur, Amethi ▪ Mr. Surya Prakash Maurya, Gram Pradhan, Ayar, Harhua, Varanasi ▪ Mr. Anil Kumar Singh, Gram Secretary, Sarai Mahesha, Amethi

ANNEXURE 2 – AGENDA

Panel Discussion (13:10 PM to 13:30 PM)	Panel Discussion moderated by Ms. Bigsna Gill, Lead - North Hub, Sustain Plus
	Panellists ▪ Mr. Gaurav Mehta, CEO, Dharma Life ▪ Mr. Sandeep Khare, Vigyan Foundation ▪ Ms. Vimla Behan, Vinoba Sewa Ashram ▪ Mr. Vijay Kumar Pandey, Project Coordinator, GEAG ▪ Mr. Prashant Swain, Fellow, TERI
Panel Discussion - The way forward on clean cooking	
13:30 PM to 14:00 PM	Moderated by Mr. Srinivas Krishnaswamy, CEO, Vasudha Foundation **Panellists** ▪ Dr. Debajit Palit, Professor, NTPC School of Business Management ▪ Dr. Sriram Appulingam, In charge – Climate Change Centre - Lucknow, BIRD – NABARD ▪ Mr. Manish Sinha, General Manager, SIDBI
14:00 PM to 15:00 PM	Networking Lunch

ANNEXURE 3 – BACKGROUND NOTE

DEEP ELECTRIFICATION FORUM

Workshop on Advancing Sustainable, Clean, and Affordable Cooking Under the Mission LiFE and Go Electric Campaign

Date: Tuesday, May 30th, 2023

Venue: Camellia & Garden Grille, Hilton Garden Inn, Vibhuti Khand, Gomti Nagar, Lucknow – 226010

BACKGROUND NOTE

Introduction

Department of Environment, Forest & Climate Change, Government of Uttar Pradesh (DoEF&CC, GoUP) in collaboration with Vasudha Foundation is organising the Workshop on Advancing Sustainable, Clean, and Affordable Cooking under the Mission LiFE (Lifestyle for Environment) initiative. The workshop aims to address the challenges faced by the cooking sector in India and explore innovative solutions for transitioning towards clean and electric cooking technologies. With a focus on sustainability, affordability, and environmental impact, the workshop brings together experts, policymakers, financiers, distributors and stakeholders from the cooking industry to discuss and deliberate on crucial aspects of clean cooking adoption in India. The workshop is part of a larger initiative of Vasudha Foundation which through the setting up of the Deep Electrification Forum supported by SED Fund, is organising a series of discussions to scale up electric cooking and electric vehicles in India, which is in line with the Government of India's "Go Electric Campaign", launched in Feb 2021.

SESSION 1: TECHNOLOGIES, POLICY, AND FINANCING OPTIONS FOR CLEAN COOKING IN INDIA

The workshop's first session will delve into the various technologies, policies, and financing options available to promote clean cooking in India. It will highlight the importance of transitioning away from traditional cooking methods, such as solid fuels like biomass and coal, towards cleaner alternatives. The session will cover topics such as improved cook stoves, biogas systems, solar induction cook tops, solar cookers, thermal energy storage cook stoves and other innovative technologies that reduce indoor and outdoor air pollution, enhance efficiency, and minimize environmental impact. Experts in the field will share insights on policy frameworks, regulations, and financing mechanisms that can facilitate the adoption and scalability of clean cooking technologies across the country.

ANNEXURE 3 – BACKGROUND NOTE

SESSION 2: PERSPECTIVES FROM THE GROUND: OPPORTUNITIES AND CHALLENGES TOWARDS ELECTRIFYING THE COOKING SECTOR

The workshop's second session aims to provide a ground-level perspective on the opportunities and challenges associated with transition to clean cooking and electrifying the cooking sector in India. It will feature case studies, experiences, and success stories from individuals, communities, and organizations that have successfully transitioned to clean cooking solutions. The session will shed light on the benefits of clean/electric cooking, such as reduced indoor pollution, improved health outcomes, and economic empowerment. The challenges and barriers hindering the widespread adoption of clean cooking, including infrastructure requirements, affordability, and consumer behaviour, will also be discussed. The session will also bring out the challenges and experiences with transitioning to LPG-based cooking and further assess the need of various clean cooking for those areas.

SESSION 3: PANEL DISCUSSION - THE WAY FORWARD ON E-COOKING

The third and final session of the workshop will be a panel discussion focused on charting the way forward for clean cooking including e-cooking in India. The panel will exchange ideas, insights, and recommendations on accelerating the transition to clean cooking with special emphasis on Decentralized Renewable Energy (DRE) based electric cooking. The discussion will cover topics such as technology advancements, policy interventions, financing models, and awareness campaigns that can facilitate the large-scale adoption of clean cooking DRE solutions. The panel will explore collaborative approaches, partnerships, and strategies to overcome the challenges and ensure a sustainable and affordable cooking ecosystem in India.


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