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Market-based
Partnerships for Health

Unlocking Carbon Finance

for Advanced Cook Stoves in India

Summary of Proceedings

August 10, 2011

New Delhi

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Acronyms

ACS	Advanced Cook Stoves
BIS	Bureau of Indian Standards
CDM	Clean Development Mechanism
CPA	CDM Program of Activities
CER	Certified Emission Reductions
DOE	Designated Operational Entities
ETS	Emissions Trading Scheme
EU	European Union
GACC	Global Alliance for Clean Cookstoves
GHE	Green House Gas Emissions
GHG	Green House Gases
GIZ	Gesellschaftfür Internationale Zusammenarbeit
GOI	Government of India
GS	Gold Standard
IAP	Indoor Air Pollution
IFC	International Finance Corporation
IIT	Indian Institute of Technology
JSMBT	Janara Samuha Mutual Benefit Trust
LDC	Least Developed Countries
MBPH	Market-based Partnerships for Health
MIS	Management Information System
MtCO2e	Metric tonnes carbon dioxide equivalent
MNRE	Ministry of New and Renewable Energy
NABARD	National Bank for Agriculture and Rural Development
NRHM	National Rural Health Mission
PoA	Program of Activities
PDD	Project Design Document
TERI	The Energy and Resources Institute
UNDP	United Nations Development Programme
UNFCC	UN Framework Convention on Climate Change
USAID	United States Agency for International Development
VER	Verified Emission Reductions
WHO	World Health Organization

Executive Summary

The USAID funded Market-based Partnerships for Health (MBPH) project implements the Advanced Cook Stoves (ACS) Initiative in India. The objective of the ACS Initiative is to develop market-based solutions to increase access to and adoption of ACS as a means of reducing women's and children's exposure to Indoor Air Pollution (IAP). On August 10, 2011, MBPH held a workshop on "Unlocking Carbon Finance for Advanced Cook Stoves in India" in New Delhi, India. Over 60 participants attended the workshop with representations from the Government of India, donor agencies, carbon consultants, ACS manufacturers, social enterprises and public health and environmental organizations, amongst others.

There was a general consensus among all the participants that affordability is one of the several barriers to wide-scale adoption of ACS in India. While subsidies can be an option to increase affordability for disadvantaged populations, offering similar pricing structures to the market at large may be unrealistic. Against this background, carbon finance potentially offers an alternative for increasing the affordability of ACS devices, provided that non-price barriers, such as stove technology, behavior change and supply chain issues are also simultaneously addressed. However, the effectiveness of this relatively new financing model and its relevance for the ACS market in India, remain to be demonstrated. Given that carbon finance protocols and standards for ACS have only been in place since 2008, and that carbon projects can take up to two years to develop, few ACS projects have reached the crediting stage. In this context, the workshop provided a forum for the identification of key trends, challenges and opportunities with respect to developing carbon financing for ACS in India, as well as the most effective ways in which the Government of India (GOI) and donors such as USAID can accelerate its development.

A key topic of discussion at the workshop was that ACS offers the maximum potential for carbon savings per dollar of investment, compared to other sustainable energy technologies like solar lanterns and biomass gasifiers. However, the awareness of carbon market opportunities and processes is limited among many implementers and stakeholders in the public and private sectors. A lack of sound data, on the basis of which to calculate Non-Renewable Biomass (NRB), is an issue faced by many projects. Fuel use differs widely by geography, which further complicates the issue and increases costs for developers. Like most small scale projects vying for carbon finance, ACS projects in India are also confronted with the high cost of registering for carbon credits and monitoring implementation. A highlight of the discussions was the directive of the European Union (EU) Emissions Trading Scheme (ETS) under which post December 2012, the EU will only purchase credits from Clean Development Mechanism (CDM) projects in non-Least Developing Countries (LDC)[1] that have been registered till 2012. This is of critical importance for the future of carbon revenues in India, since CDM remains the main market, and the EU ETS is by far the largest buyer of CDM credits.

Experts deliberated on various approaches to reduce the complexity and cost of accessing carbon finance with respect to various processes. It was suggested that incorporating default factors and using

[1] The list of LDCs does not include India

existing studies, for example for forest surveys would improve cost efficiencies and simplify processes. Guidelines which could potentially reduce the entry barrier for small scale enterprises projects needing carbon finance were also discussed at the workshop. One of the key recommendations was for GOI to register a national level Program of Activities (PoA) for ACS before the end of the Kyoto Protocol in 2012. The registration of a PoA India will enable small ACS projects to access carbon finance after 2012. It was also proposed that bilateral agencies build a knowledge center on ACS in India, whose main purpose will be to share commercialization strategies, develop new technologies and support government initiatives in this area.

This report summarizes the observations and recommendations of speakers and participants at the workshop.

MBPH ACS Initiative

Abt Associates implements the USAID funded Market-based Partnerships for Health (MBPH) project in India. MBPH provides technical assistance for private sector initiatives, and focuses on strategic partnerships and fostering of commercial alliances to address a wide range of health issues including reproductive health, maternal and child survival, tuberculosis, water, hygiene, HIV/AIDS and delivers health impacts that are commercially viable and scalable. In light of the relationship between Indoor Air Pollution (IAP) from cook stoves and maternal and child health, the project is implementing the Advanced Cook Stoves (ACS) Initiative. ACS are cooking devices which are adaptations of traditional stoves (chullahs) designed to reduce IAP.

India has one of the highest incidences of IAP, which accounts for over 440,000 deaths a year[2]. Open cook stoves without chimneys are a major source of IAP. In almost all National Rural Health Mission (NRHM) high focus states with the worst maternal and child health indicators, over 75 percent households use open chimneys either inside or outside their house.[3] In 2005, over 770 million Indians living in nearly 160 million households primarily met their cooking needs with solid fuel, 97 percent of which was biomass and the rest coal.[4] The worst impacted by IAP are women, who remain the primary caregivers in most households. High levels of IAP, especially in situations where there is little respite from its adverse effects, impacts health in multiple ways, resulting in a high incidence of childhood acute lower respiratory infections, chronic obstructive pulmonary disease, lung cancer, peri-natal mortality, low birth weights and cataracts.

The MBPH ACS Initiative aims to develop market-based solutions to increase access to and adoption of ACS as a means of reducing women's and children's exposure to IAP. It works in partnership with stakeholders such as the Ministry of New and Renewable Energy (MNRE), ACS manufacturers, Microfinance Institutions (MFI), rural distribution networks, and technical and public health experts, to contribute to an in-depth understanding of consumer behavior with respect to ACS, provide insights into attributes of a workable distribution model, lay out potential financing options, and create an enabling regulatory environment for enhanced private sector participation in the ACS industry.

[2] Smith K., National Burden of Disease in India from Indoor Air Pollution, Proceedings of the National Academy of Science, 2000, 97: 13286-92

[3] 2005-06, National Family Health Survey (NFHS-3)

[4] Venkataraman C, Sagar A.D.,Habib G, Lam.N , Smith K., The Indian National Initiative for Advanced Biomass Cook Stoves: The benefits of clean combustion energy for Sustainable Development 14 (2010) 63-72

Proceedings

Introduction

Kerry Pelzman, Director, USAID Office of Population, Health and Nutrition, in her opening remarks, highlighted the importance of carbon finance for ACS. She reiterated USAID's commitment to working with the Government of India on IAP through increased access to ACS among target population. One key challenge in increasing accessibility includes affordability. This is a major barrier, since manufacturers have little scope to leverage economies of scale, creating a situation that calls for subsidies. However, she expressed the need for exploring non-price factors such as behavior change within communities, and customizing products that cater to cooking needs of different consumers.

USAID is exploring the use of microfinance, and tax and tariff structures in the industry, as means to increase affordability and/or increase production economies. Ms. Pelzman mentioned that carbon finance is another mechanism which can reduce the price barrier for consumers. Lack of correct and comprehensive information on the subject, especially in the Indian context, partly explains low resort to carbon finance in the ACS industry. It is therefore, important to address these gaps through discussion around adoption of innovative and cost-effective options in accessing this financing tool.

Delivering the Keynote Address, **Dr. A. K. Shukla, Advisor, Ministry of New and Renewable Energy, GOI** emphasized the importance of reaching the rural poor in developing nations with products like ACS that are duly customized to their needs. While carbon finance could be explored to reduce costs, the challenges and costs associated with monitoring usage and emission reduction need to be considered. He suggested that for communities that use biomass from forests, agriculture sources and/or coal, there was no need for a baseline survey and that existing data could be used instead. This could be a useful step given the high cost/budget implications for carrying out baseline studies. According to him, if manufacturers and communities are to realize benefits of carbon financing, transaction costs will have to be taken into account, using simplified approaches. A collective effort will therefore be required to modify and simplify procedures in as far as carbon finance for ACS was concerned.

In India, improved stoves have been part of the national agenda. Their importance is reflected in the National Biomass Cook Stoves Initiative, a national program reinitiated by MNRE in 2009. Dr. Shukla was of the opinion that government efforts should sustain the Initiative for at least three decades, and that developing countries such as India can create an enabling environment in which ACS has the potential to be accepted in every rural household with multiple sources of fuel to choose from, depending on their need and pattern of usage. Given this scenario, carbon finance undoubtedly becomes one of the many tools to increase access to and adoption of ACS.

Session I

Carbon Market Opportunities for ACS

This session was moderated by Abhishek Goyal, Deputy Technical Director, Gold Standard Foundation.

Support for Carbon Finance in ACS Projects

- Develop a framework for carbon asset development to facilitate broad access to carbon finance.
- Provide seed capital to support stove programs in attracting private carbon finance investment.
- Ensure price guarantees through forwards, thus hedging for market risks, especially in the post 2012 phase.
- Set up a center to develop cost-effective monitoring and data management solutions.
- Design carbon transaction models and financial instruments that can be replicated easily through a nodal enterprise (NABARD/ MNRE) for projects through banks.

Birjendra Sangwaiya, Principal Consultant, Carbon Advisory Business, Emergent Ventures gave an overview of the carbon market, price structures and carbon financing options available to ACS manufacturers/projects. He drew attention to international carbon markets, which comprise of compliance mechanisms on the one hand and voluntary regimes on the other. Most of the discussion centered on the CDM compliance market. While CDM can be a source of financing and visibility for projects, these continue to face a variety of challenges having to do with CDM registration and qualification, upfront financing, monitoring and verification of emission reductions, and price risk management.

One of the major barriers to investing in ACS projects in India is the small scale of these projects. In addition, the distinction between renewable and non-renewable biomass complicates the calculation of greenhouse gas (GHG) benefits from ACS projects. Recent positive developments include the increasing use of technology for record keeping, select buyers/funds/investors being open to forward purchases of CERs, thus reducing the risk for ACS projects in a scenario where the price of carbon credits in the market is below project expectations. Project developers and investors are also expanding their scope of activities under the bilateral project-based mechanisms for Carbon Credit outside the EU-ETS and Kyoto regimes.

Rajesh Kumar Miglani, Regional Climate Change Specialist, South Asia, IFC emphasized that ACS was a promising consumer-oriented mechanism with potential to offer solutions for climate change. He shared data to show that carbon savings from ACS were higher than those from either solar lamps or biomass gasifers. A point to be noted was that ACS do not use cattle dung and biomass (often used in traditional chullahs) but have significantly high savings on wood used, as compared to a traditional chullah. This leads to substantial carbon savings with calculations showing that each ACS has the potential to earn up to 1.75 carbon credits. Further, the additionality of ACS projects is generally quite straightforward to demonstrate, resulting in a relatively low validation risk. ACS also makes for attractive carbon finance projects to the extent that given a huge potential market size, high sales volumes can translate into rapid capital cost recovery. ACS devices provide a huge opportunity for development by improving the health of millions of families in rural India which continue to use the traditional chullah as the primary means of cooking. ACS businesses generate employment opportunities in production and distribution, besides having great potential for earning carbon revenues.

Going forward, it is important to overcome barriers to realizing carbon revenues related to the high upfront costs and long gestation time involved in carbon project development. Think tanks and consultancies working in the ACS space also need to convince local financial institutions that such projects are feasible and financially worthwhile. ACS manufacturers need to create greater efficiencies in execution capabilities and invest in enhancing available technologies. The risks and barriers can be mitigated by providing an economically friendly environment for investors and producers including social organizations in this sector.

Accelerating Carbon Finance in ACS

- Introduce baseline figures to reduce initial costs.
- Manufacture stoves with longer lifespans.
- Simplify Gold Standard methodology.
- Develop programmatic CDM before 2012 at the national level.
- Indian Government to work towards bilateral agreement with developed countries
- Work toward proof of concept early on in the project.
- Accord priority to voluntary carbon buyers for distributed power generation projects.

Increasing access to carbon finance

- Find technically sound partners to implement the project at all levels - carbon registration, baselines, financial feasibility and monitoring.
- Advocate with venture capitalists for investment in awareness building and distribution in exchange for future carbon revenues.
- Improve knowledge levels on carbon and find ways of reducing cost of stoves.

Pradeep Pursnani, Business Director, Breathing Space Shell Foundation, in his presentation, discussed the growing interest in ACS and how it can be leveraged to generate CERs. According to him, ACS offers greater potential for carbon savings as compared to other energy saving consumer products such as solar lamps and domestic biogas plants. By manufacturing and distributing products at the cheapest possible cost, a higher volume of CERs can be generated. Manufacturing, marketing and distribution can be supported by providing projects with upfront financing through a revolving carbon fund. This will release capital and help manufacturers reduce the cost of stoves and invest in bringing higher quality stoves to more households at the last mile.

However, challenges in accessing carbon finance include low overall knowledge of processes, risks and systems of carbon financing mechanisms, high pre- and post-registration costs, volatile prices, and lack of transparency and/or insufficient monitoring with respect to usage patterns. Mr. Pursnani was of the opinion that setting up a carbon fund to provide upfront working capital to ACS manufacturers could help reduce risks related to investing in better technology and innovative marketing and distribution.

Using high quality technology in producing cook stoves is imperative for bringing in carbon revenues and sustaining the interest of users in adopting the stoves over a long period of time. This, along with better knowledge of commercialization and improved project implementation capacity, especially among the traditional stove producers, can contribute to creating a sustainable market for ACS.

Evan Haigler, Executive Director, Impact Carbon and Co-Chair, GACC Carbon Finance Working Group, explained that the aim of the GACC is to work towards having 100 million homes adopt clean and efficient stoves and fuels by 2020. The Alliance focuses on a broad spectrum of issues related to advocacy, research, market-based solutions, ACS standards, and testing and financing.

The vision of the GACC carbon finance working group is to facilitate increased access to carbon finance for ACS manufacturers and implementers. By 2020, the Alliance envisages that ACS programs will contribute to 500 MtCO2e in aggregate reductions, generating USD 7.5 billion in carbon revenues. Key objectives of the carbon finance working group include reducing entry barriers in the compliance carbon market, reducing information gaps, facilitating access to investment capital and promoting demand for clean cook stove emission reductions in global carbon markets. The GACC will also document and promote health, local environmental and household economy co-benefits of emission reductions from clean cook stove projects.

After 2012, the European Emissions Trading Scheme (ETS) will only accept credits from Least Developed Countries (LDC), which does not include India; credits originating in India will thus become ineligible for transaction in the compliance marketplace. It is imperative that India consider registering a national level Program of Activities (PoA) before the deadline of December 2012. India could also enter into bilateral agreements with European markets, outside of the Kyoto and EU carbon protocols or operate in the voluntary market.

Looking ahead: GACC vision for the next decade

- Demonstrate health, climate and economic benefits of clean and efficient cooking solutions by developing robust research, monitoring and evaluation.
- Adopt 100 million clean and efficient ACS by 2020 covering 20 percent of globally affected population.
- Invest to bring the issue at par for other public health and environmental risks.
- Develop a mature global ACS sector operating at scale and at low cost.

Session II

Tools for Accessing Carbon Finance for ACS

This session was moderated by Evan Haigler, Co-chair Alliance for Clean Cook Stoves, Carbon Finance Working Group.

GIZ: The Uganda experience

- In Uganda, GIZ disseminated nearly 1.5 million stoves without using subsidies.
- The market was built and developed over a period of five years.
- Following this intervention by GIZ, certain projects were introduced where cook stoves were provided for free, disturbing market dynamics.
- Distribution of free stoves creates risks which get further compounded with an absence of standards under UNFCC or GS and no regulations on how carbon companies use credits.

Michael Blunck, Project Officer, GIZ said that his learnings were based on the vast experience that GIZ has with promoting ACS in Africa. He was optimistic about the potential of carbon finance and viewed it as an opportunity to support the distribution of ACS and to train stove producers on design improvements, basic testing methodologies and correct use. However, he cautioned that while there is huge potential in ACS projects, these are not without risks. Challenges include the lack of upfront financing, issuance of carbon credits taking over two years, and elaborate administrative and monitoring procedures requiring highly evolved local initiative/ownership for carbon projects.

Presently, GIZ is scaling up projects in Africa while supporting partners in the development of a PoA. A handy guidebook had been developed for ACS project implementers who are interested in accessing carbon finance along with an easy-to-use CER calculation tool based on certain inputs and assumptions that can help approximate the number of credits generated by any project. These tools aim to help access carbon finance in an easy and less expensive manner.

Neha Rao, Regional Director, Asia, Gold Standard Foundation highlighted the challenges for ACS projects in accessing carbon finance and how the Gold Standard (GS) can help reduce barriers for small-scale enterprises. The GS is an important certification standard for both the CDM and voluntary carbon markets.

GS is a tool that can reduce carbon financing barriers such as complex documentation, high transaction costs and difficulty in finding a buyer. The 'GS Methodology for Technologies and Practices to Displace Decentralized Thermal Energy Consumption' is applicable to non-domestic (i.e., mass manufacturing) set-ups and allows for similar technologies and multiple baselines to be included under a single project framework. This is particularly useful for smaller projects such as those seen in the ACS space in India. The process has been simplified through the introduction of various default factors. For example, under the 20 percent technology penetration rule, if the project developer can demonstrate that the penetration of its technology in that target area is less than 20 percent, the project is qualified as a first-of-its kind and the demonstration of additionality is simplified.

The Gold Standard Foundation recently introduced schemes targeted towards small-(micro)-scale operations for which validation and verification fees have been reduced [See box]. Both the validation and verification are conducted by an internal team, who work to reduce the timeframe required for faster registration. Ms. Rao concluded by saying that if certain conditions are fulfilled, select micro-scale projects will be able to avail themselves of retroactive registration and crediting.

GS Micro-scale Schemes

- Two micro-scale schemes under GS:
  - First generation micro-scale scheme (Validation fee USD 5000, Verification fee USD 2500 per annum).
  - Community focused micro-scale scheme (Validation fee USD 10000, Verification fee USD 2500 per annum).
- For renewable energy and end-use energy efficiency improvement projects such as ACS.
- Project activities that generate <5,000 CO_2 per annum.
- For community focused micro-scale projects, the Gold Standard has templates available for PDD, validation and verification.

Need for affirmative action

- People who need ACS most can least afford it.
- Users who cannot afford to buy firewood need to see benefits accruing from carbon income.
- Those at the bottom of the energy ladder need a guaranteed price for their carbon emissions.
- The cost of transitioning from 'demand' to 'need' is Rs. 630, €10, $14 per CER.

T Pradeep, Founder and Chief Executive, iSquareD said that in order to discontinue the practice of scavenging for firewood, which often takes a toll on the health and education of women and children, the poor must be provided with an incentive to use ACS, and a guaranteed benefit on carbon emissions could be an option. He presented the company's experience with the two CDM ACS projects in India.

The objective of these projects is to generate about 893,050 CERs over a 10-year crediting period based on the uptake of ACS in approximately 43,000 households. The projects are being implemented in the two districts of Raichur and Koppal in the state of Karnataka.

Both the projects have been registered under the CDM mechanism while the Gold Standard registration is pending. The price per CER for the first cycle of five years was estimated to be €9.34. Households in the project areas will receive free ACS and households and communities will receive 70 percent of surplus income generated from CERs. Each household is expected to generate 2.1 CERs in the first project and 2.35 in the second.

iSquareD is considering negotiating for an Emission Reductions Purchase Agreement (ERPA) which would facilitate upfront payment for CERs. One of the hurdles experienced was the time taken for registration (24 months) under the CDM mechanism. Other challenges have arisen around the need to test various ACS technologies and understand households' cooking behavior.

Session III

Carbon Finance for ACS: The Indian Landscape

This session was moderated by Reema Nanavaty, Director, SEWA.

Abhishek Bansal, International Implementation Support Manager, South Pole Carbon Asset Management, provided an overview of South Pole's work involving ACS, including the sale of high quality emission reductions, and the provision of advisory services and carbon information technology solutions.

ACS projects need to build supply chains to maximize the number of households receiving ACS, disseminate durable stoves and conduct periodic monitoring activities to encourage continued and consistent use while ensuring that the stoves remain affordable for a significant proportion of the population. ACS technologies that are compatible with cooking and eating habits, food preferences and domestic architectures are an important determinant of projects' success.

Common challenges include the inclusion of non-CO_2 gases, calculation of non-renewable biomass, and the prevention of leakage. The global climate policy and fate of compliance carbon markets is uncertain at this point, and while CDM projects registered prior to 2012 will be able to generate carbon credits, even these face significant marketing and price risk. It is hence advisable for projects to secure financing arrangements (e.g. involving a fixed price structure with upside price sharing) that secure the minimum price needed for project viability.

CF for ACS in India: Current Status

- Three ACS projects have been registered under CDM.
  - Two projects in Raichur and Koppal in Karnataka have been registered.
  - One project from Udaipur, Rajasthan is under validation.
- Seven ACS projects from India are under the Gold Standard pipeline.
- Methodology
  - CDM: AMS II.G. version 3: Energy efficiency measures in thermal applications of non-renewable biomass.
  - Gold Standard: Technologies and Practices to Displace Decentralized Thermal Energy Consumption: Version 1 (Large scale possible)

Profile of the Target Audience

- Rural populations in the higher socio-economic strata (R1 and R2) have been defined as early adopters for Envirofit ACS.
- The other groups, R3 and R4 perceive the product price to be very high.
- This group has the requisite disposable income to make the purchase and can be reached through mass media.
- Key purchase decision-maker is the chief wage earner in the family.

Harish Anchan, Managing Director, Envirofit India underlined challenges faced by manufacturers in building a market for ACS. Marketing critically needs to be geared both towards women as the primary users of cook stoves, and to their husbands, who typically make financial decisions affecting the household. Effective communication strategies need to target both.

Envirofit initiated operations in 2008 and has already distributed cook stoves to approximately 200,000 households across India. Given the high distribution costs to reach rural areas, directing funds for market building is difficult. However, support received from the Shell Foundation in creating awareness about IAP has helped in building ACS as a category. In addition, since price is a significant barrier to adoption, a finance pool funded through carbon credits could be created to subsidize ACS. Envirofit is at an advanced stage of the registration using the voluntary market Gold Standard.

However, Mr. Anchan reiterated that understanding consumer dynamics in terms of pitching the product to the purchase decision-maker and meeting his/her requirements is instrumental in scaling up a cook stove project. Awareness levels of potential end-users can be increased through advertising in mass-media and ensuring positive word-of-mouth communication.

Liz Grubin, Project Development Officer, Impact Carbon shared an optimistic outlook for the huge ACS market in India which has over 160 million households cooking with solid fuel (97 percent biomass and 3 percent coal). However, the penetration of improved technologies remains low, with 75 percent of households using a three-stove fire or chullah. India is unique in that there has been long standing support from Government for ACS programs and for private sector participation in the ACS industry. Tapping into resources from the carbon market will increase the sustainability of the programs.

It is important to identify the key barriers to accessing carbon for ACS projects in India. The national estimates for Non-Renewable Biomass (NRB) vary widely, from as low as 15 percent to as high as 66 percent. NRB rates are a critical element of cook stove projects and their profitability, and hence, these factors are a source of considerable risk. Regulatory bodies, such as the Designated Operational Entities (DoE) may question the validity of the data. An option would be to use regional/project specific studies to correctly assess NRB figures.

Post December 2012, the European Union (EU) will only purchase credits from CDM projects in non-LDCs that have been registered in 2012. This means that for CDM cook stove projects to be viable in India, they will need to have been registered by December 2012. With this deadline fast approaching, one practical option would be to register a national PoA. This would be national level project but each of the CDM Program Activities (CPAs) could be implemented in a different region. The technology types, baseline fuel and NRB can be defined at the CPA level, and this structure is highly inclusive of technology and fuel types. The challenge here is the project development timeline, which can take anywhere from 8 to 18 months. However, given the momentum that already exists in India, it is a viable option.

Expedited timelines for national – level PoA

- India can avail of expedited service options offered by some DoEs. There are three broad stages to developing a PoA
- First Stage: 8-18 months for the feasibility assessment (financial and social, project development (project design document) and project validation (evaluation by external audit team).
- Second Stage: 6 weeks for project registration
- Final Stage: 1-3 months for project verification.

Session IV

ACS Standards, Monitoring and Tracking

The session was moderated by Tim Bauer, Vice–President of Operations, Director & Envirofit Co-founder

The National Biomass Cook Stoves Initiative

- Initiative of the Ministry of New and Renewable Energy (MNRE), Government of India, launched in 2009 with the aim of distributing approximately 150 million ACS in the next 15 years.
- Vision: to develop and promote ACS technologies comparable with other clean energy sources such as LPG. IIT Delhi and TERI developed the contours of this new initiative and advised MNRE on technical aspects (R&D, testing), ACS delivery, fuel processing and supply, a global innovation contest and the implementation of a community stove project.

Prof. Rajendra Prasad, Professor, IIT Delhi, like some of the previous speakers, reiterated the importance of testing protocols and standards. While product promotion and sales are drivers, the key question is how to define the product itself. Product subsidy or other consumer financing support, including carbon finance could drive adoption, but if the product is not designed to cater to the needs of the community, and if it does not conform to minimum accepted standards, it is bound to fail in the market.

In the absence of universally accepted standards and testing protocols for ACS, there is no consensus on "what" defines an ACS. It is important to note, however, that India is probably the only country where formal/official standards and testing protocols were developed, accepted and applied to a mega-program on improved biomass stoves nearly a decade ago, under the government's National Programme on Improved Chulha (NPIC). These standards, developed by the Bureau of Indian Standards (BIS) are focused on measuring thermal efficiency. With the emergence of new technologies like gasifier and forced draft stoves, and increased emphasis on health impacts of IAP, there is need to update existing standards and/or modify them, as the case maybe.

Karabi Dutta, Independent Consultant, Household Energy and Stoves, discussed stove monitoring and tracking for carbon finance within the Indian context. She drew attention to the role of traditional stoves in contributing to greenhouse gas emissions and shared information on recent studies that identify domestic ACS as a major source of emissions. She explained that traditional stoves were being increasingly replaced with cleaner varieties, thus raising the possibility of mitigating IAP and reducing emissions.

As awareness increased and markets expand, field monitoring and evaluation for ACS will have to be undertaken through qualitative surveys amongst users. A point-of-sale tracking mechanism will be a useful tool for tracking stove adoption and usage. Strong local partnerships will have to be forged, especially since each project is different and relies on local support. Comprehensive checklists and robust kitchen performance tests will further bridge gaps in accessing carbon finance for ACS projects.

Monitoring the adoption and use of ACS is needed to determine the real impact of these stoves on the environment and health of communities. Information derived from field monitoring is not only important from the point of view of carbon finance but also provides substantive inputs into ongoing and future ACS projects. The results of such exercises can help inform on-going projects and be mutually beneficial to the user and the producer.

Factors to consider during field monitoring

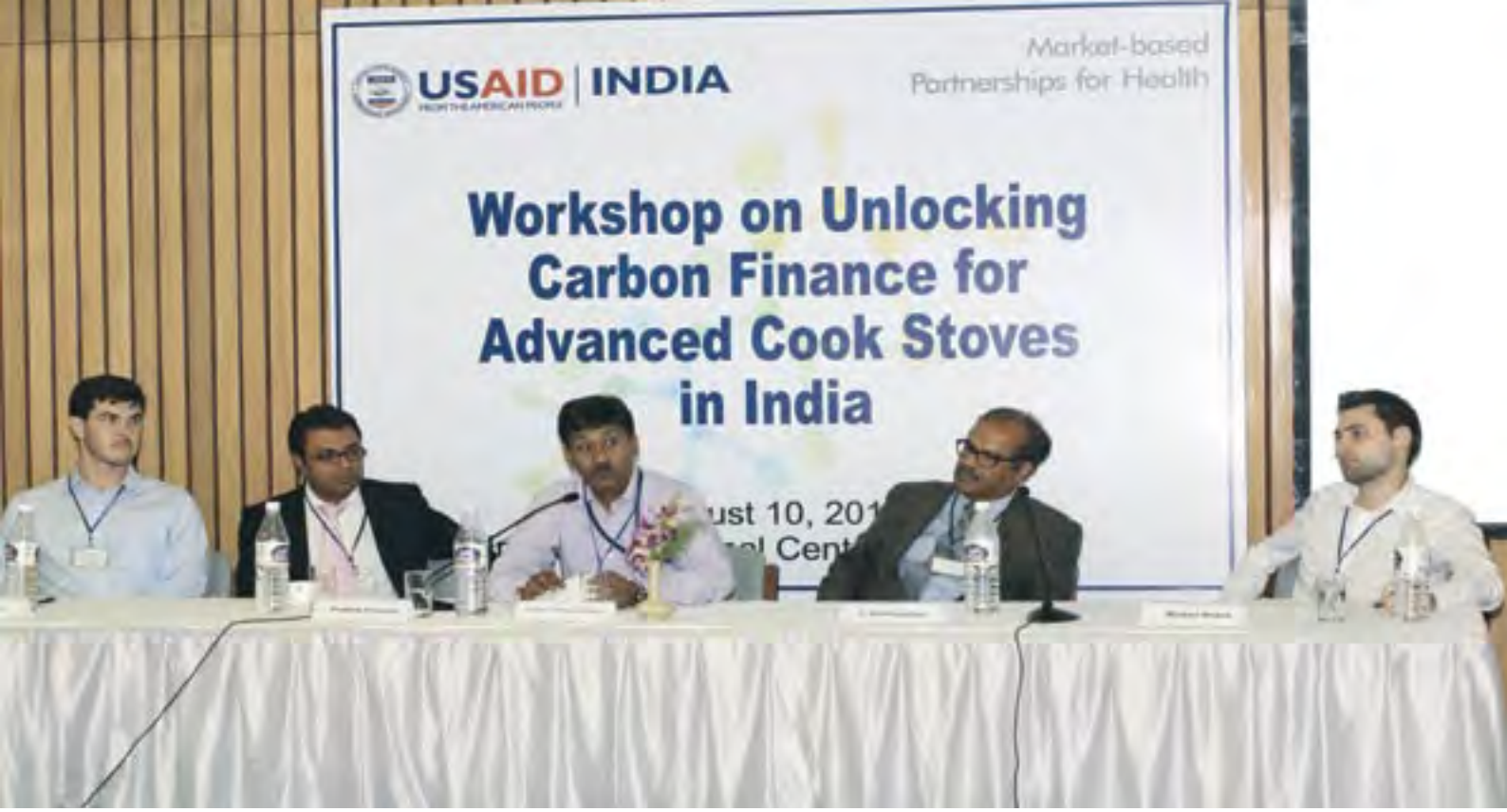
- Hours of use by type of stove.
- Impact of ACS price on adoption.
- Durability of ACS.
- Ease of use.
- Change in fuel used.
- Configuration of home and/ or stove in kitchen (location, windows, etc).
- Pollution levels in homes (ambient air quality) and pollution reduced by stoves (total stove emissions).

Monitoring Parameters for ACS

- Operating efficiency of ACS – to account for reduced operating efficiency per year of use.
- Disposal of traditional/baseline cook stoves and leakage. Disposal is necessary to ensure that there is no over crediting.
- Leakage effects from use of the old stove instead of improved stove, cooking more food on the new stove, and from use of stove for space heating or lighting purposes.
- Number of ACS sold and the drop off fraction in stove usage over time.

Radhika Tomar, Project Manager, Eco Securities highlighted the challenges associated with monitoring. Monitoring is a key component of carbon finance, as it is a necessary step for projects to issue carbon credits. While different methodologies (AM 2G, Gold Standard) have different monitoring requirements, there are certain parameters that are common to all methodologies and that are universal in emission reduction calculation.

ACS devices are small units which are often spread over a large geographical area. In the context of carbon finance, this has high cost implications for field testing and monitoring. Carbon finance regulatory bodies are cognizant of this and provide projects with low cost solutions. For example, the CDM executive board has recently published a new methodology that provides a default discount factor for efficiency loss of ACS per year of operation. This should simplify and reduce costs related to the monitoring of this parameter. A second aspect is with respect to the disposal of traditional stoves. Even if a project ensures that these stoves are removed at the time of installation of the ACS, there is no guarantee that the end user will not rebuild them. Households can thus potentially be using both types of stoves. In case of such simultaneous usage, determining a default adjustment factor, which can be fixed at the time of validation, will help the monitoring process. Projects also need to have an active control over distribution and supply streams so that parameters such as drop-off fraction and leakage can be measured. A default factor for leakage as provided by AMS 2G and the new GS methodology will help reduce costs.



Panel Discussion

Facilitating Access to Carbon Finance for ACS in India

The panel comprised of representatives from USAID, GIZ, GACC and the Shell Foundation and was moderated by Ibrahim Hafeezur Rehman, Director, Social Transformation Division at The Energy and Resources Institute (TERI) in New Delhi.

Mr. Rehman said that although carbon finance presents ample opportunities and challenges, it is yet to be completely explored. Mechanisms and guidelines are needed to cover gaps in capacity and information with respect to evaluating risks and returns of utilizing carbon credits as a financing tool and understanding processes associated with project registration. More than the government or public sector, it is the private sector, civil society organizations and bilateral institutions which have a major role to play in various areas such as capacity building, developing monitoring and tracking mechanisms and assessing actual transaction costs.

Mr. Haigler spoke as a representative of the Global Alliance for Clean Cookstoves at this panel discussion. He said that the number of households using biomass as a cooking fuel in India was staggering and it was imperative that ACS projects in India continue to have access to this form of financing. GACC is focused on providing support to ensure access post 2012. There is a need for a PoA that is structured to be inclusive of different projects, different technologies and geographies. The other aspect of carbon financing that is important is to be conservative and reduce the risk of over crediting.

Mr. Pursnani said that revenues from carbon financing will not guarantee sustainable ACS projects unless there is significant investment in the central elements of product quality, effective distribution and behavior change. The government has an important role to play in generating awareness about the issue of IAP and the benefits of ACS. It may also be useful for ACS projects to leverage government infrastructure to distribute ACS.

Mr. Padmanabhan highlighted the fact that in the last decade, the ACS space has changed for the better, with greater awareness of the relationship between improved health and reduced exposure to IAP. However there are challenges related to scale, in terms of the extent of emission reductions from each unit, and issues related to monitoring ACS usage. Finally, the association between health benefits and carbon savings is not necessarily one-for-one. The role that an entity like USAID can play is to create and manage a virtual center which will be a hub for information and innovation. This could be an incubation center for the incubation of ideas related to technology improvements, financing tools and techniques for commercialization.

Mr. Blunck said that GIZ could leverage its learning from decades of work on ACS in Africa and assist in capacity building for carbon projects in India. However, he stressed that unless communities are involved and included in the entire process, the large opportunities that exist in the ACS space would remain largely untapped. He urged India to register a PoA by 2012.

Mr. Rehman concluded by saying carbon finance is one part of the puzzle, with marketing, distribution and ACS technology being equally important in increasing access to ACS.

Key Discussion Points

Session I

Carbon Market Opportunities for Advanced Cook Stove Projects

- Assess the challenges of conducting baseline/s and determine if renewable sources (dung, crop residues) should be accounted for in calculating credits.
- Understand the need to be conservative and avoid over-crediting in a project.
- Modify existing standards under the Bureau of Indian Standards (BIS) for categorizing stoves. All cook stoves that qualify for a particular minimum standard can then be accepted for carbon credits. This will have to be negotiated with regulatory bodies operating in CDM and voluntary market regimes
- It would be useful for project developers to draw in smaller carbon finance players who have a niche market approach and are willing to invest in ACS projects.
- Explore mechanisms to reduce cost and tap local distributors for rural areas and partner with large corporations with strong rural/local linkages (In Africa for instance, cost of ACS was brought down from $30 to $5 with distributors selling at $15).

Session II

Tools for Accessing Carbon Finance for Advanced Cook Stove Projects

- It is a challenge to market ACS to communities. Currently, people do not feel the need for conserving firewood and changing their cooking device.
- Projects should consider addressing health burdens of IAP and chullahs. Greater awareness about the negative health impact of IAP may increase adoption of ACS.
- Fuel may be free today but is getting scarcer and hence being monetized over time. Setting up of wood logs, owned by the community could be an option for collective ownership of resources and reduce the burden on the poor.
- Non Renewable Biomass (NRB) is specific to particular geographies. In many parts of India NRB can be accessed through published studies, such as the Forest Survey of India. However household surveys point out that estimates from these studies may be low and that CDM methodologies are conservative in estimating these figures.

Session III

Carbon Finance for Advanced Cook Stove Projects: The Indian Landscape

- Studies show that while households in lower economic groups (R3 and R4) depend on one type of stove, households in higher economic strata (R1 and R2) use multiple devices. This is an important consideration in monitoring usage and discounting carbon credits based on use.
- In certain areas, the forest department restricts people collecting firewood, lowering their dependence on firewood and driving them to shift from biomass to LPG. This factor has to be considered while estimating baselines.

Panel Discussion

Facilitating Access to Carbon Finance for ACS in India

- To overcome barriers, there is a need to drive behavior change among consumers. The feedback of communities needs to be taken in account before any attempt at awareness generation on health and environmental impact is made. Regional dynamics, vis-à-vis marketing approaches has to be kept in mind to zero in on the most effective and impactful forms of communication. Another option that can be considered is to sell stoves through consumer loans with the option of payment in smaller installments.
- Type of fuel used and economics drive most cooking behavior patterns and buying decisions.
- Technology must be affordable, and should conform to the consumer's cooking habits. Technology is not only about mere thermal efficiency and emissions but also takes into account convenience and comfort of use for the consumer.
- Optimum distribution models have the potential to increase the margins in an ACS intervention. For example, barriers in Uganda existed but by following a door-to-door campaign, awareness was created and sales were increased. In a similar pilot program in India, with door-to-door delivery and training in the community, the rate of adoption was tripled.
- ACS operates among a variety of fuels and needs an effective strategy to integrate fuels and stoves to avoid effect of fuel on consumer perception.
- MNRE should position nodal agencies to make people aware of the benefits of improved cooking technology. Wide-scale dissemination of better technologies can further be expedited by strengthening the Centers of Excellence.

Annexure

Agenda

Time	Session
9:30-10:30	Registration and Tea
10:30- 10:45	**Introduction and Welcome** *Kerry Pelzman Director, USAID Office of Population, Health and Nutrition*
10:45:11:00	**Keynote Address** *Dr. A.R.Shukla, Advisor, Ministry of New and Renewable Energy, Government of India*
11:00-12:00	**The Carbon Market – Opportunities and Challenges for Advanced Cook Stove Projects** *Birjendra Sangwaiya, Principal Consultant – Carbon Advisory Business, Emergent Ventures* *Evan Haigler, Executive Director, Impact Carbon and Co-chair, Global Alliance for Clean Cook Stoves, Carbon Finance Working Group* *Rajesh Kumar Miglani, Regional Climate Change Specialist, South Asia, International Finance Corporation* *Pradeep Pursnani, Business Director Breathing Space Shell Foundation* ***Moderator** Abhishek Goyal, Deputy Technical Director, Gold Standard Foundation* Discussion
12:00-12:15	Tea
12:15- 1:05	**Tools for Accessing Carbon Finance for Advanced Cook Stove Projects** *Michael Blunck, Project Officer, Deutsche Gesellschaftfür Internationale Zusammenarbeit (GIZ) GmbH* *Neha Rao, Regional Director, Asia, Gold Standard Foundation* *T Pradeep, Founder and Chief Executive, iSquareD* ***Moderator** Evan Haigler, Co-chair, Global Alliance for Clean Cook Stoves, Carbon Finance Working Group* Discussion

Time	Session
1:05- 2:05	Lunch
2:05- 2:55	**Carbon Finance for Advanced Cook Stoves – The Indian Landscape** *Abhishek Bansal, International Implementation Support Manager, South Pole Carbon Asset Management Ltd.* *Harish Anchan, Managing Director, Envirofit India* *Liz Grubin, Project Development Officer, Impact Carbon* ***Moderator** Reema Nanavaty, Director SEWA* Discussion
2:55-3:45	**Carbon Finance and ACS Standards – Universal Standards, Monitoring and Tracking** *Prof. Rajendra Prasad, Professer, IIT Delhi* *Karabi Dutta, Technical Expert* *Radhika Tomar, Project Manager, Eco Securities* ***Moderator** Tim Bauer, Vice-President of Operations, Director & Envirofit Co-founder* Discussion
3:45-4:00	Tea
4:00-5:00	**Panel Discussion – Facilitating Access to Carbon Finance for ACS in India** *Representatives from MNRE, USAID, Carbon Impact, GIZ, GACC, Shell Foundation, etc.* ***Moderator** Ibrahim Hafeezur Rehman, Director, Social Transformation Division TERI* Discussion
5:00- 5:15	**Vote of Thanks** *Anand Sinha, Country Manager – India, Abt Associates Inc.*

List of Participants

Participant	Organization
Abhishek Bansal	CDM Expert, South Pole
Abhishek Goyal	Deputy Technical Director, The Gold Standard
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Anshul Goswami	Monitor Group
Anurag Bhatnagar	Chief Executive, Grassroots Trading Network for Women
Ayushi Jain	Assistant Regional Manager, Gold Standard Foundation
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Birjendra Sangwaiya	Principal Consultant, Carbon Advisory Business, Emergent Ventures India
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Evan Haigler	Executive Director, Impact Carbon
Gimms Andrew	CEO, Hope Foundation
Gopal Kabara	Chief Executive, G K Energy Marketers
Hari Natarajan	SSIDF
Harish Anchan	Managing Director, Envirofit India
H Y Mahajan	Rural Energy Expert, Appropriate Rural Technology Institute (ARTI)
Ibrahim Hafeezur Rehman	Director, Social Transformation Division, TERI
Jai Kumar Gaurav	Research Associate, Climate Change Community Solution Exchange, UNDP
John Dunham	Environment Officer, Embassy of United States of America
Karabi Dutta	Technical Expert
Kerry Pelzman	Director PHN, USAID
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N Raghunathan	Swasti Health Resource Centre
Pradeep Pursnani	Business Director, Breathing Space, Shell Foundation
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Prof Rajendra Prasad	Professor, IIT-Delhi
Rachna Sujay	Director, Health Programs, Hope Foundation
Radhika Tomar	Project Manager, Eco Securities
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Suchismita Mukhopadhyay	Asst Director, Environment & Climate Change FICCI
Tanu Chhabra	Communications Specialist, USAID
Tim Bauer	Vice-President of Operations, Director and Co-Founder Envirofit
T Pradeep	Chief Executive, ISquareD
Varghese Paul	USAID