National CDM PoA on Improved Cookstoves

Prof. Yogender Kumar Yadav
Director
SSS-National Institute of Renewable Energy, Kapurthala

Clean cookstoves can improve the lives of billions

- ✓ **A staggering 2.6 billion people still depend on traditional cookstoves or open fires for cooking and heating their homes (World Energy Outlook 2012).**
- ✓ **Many women and children are forced to spend long hours every day collecting material for fuel. As a consequence, households that use traditional forms of cooking are exposed to fumes that cause serious respiratory illnesses and eye ailments.**
- ✓ **Without new policies and measures, in 2030 the number of people still living without clean cooking facilities will remain at 2.6 billion.**
- ✓ **To address these costly health and environmental problems, clean fuel and improved-efficiency stoves have now been successfully developed.**
- ✓ **By making these stoves more widely available through a sector-based approach, the health, financial and social benefits can be significant e.g. families can dedicate more time to other activities by spending less time collecting firewood and save costs on fuel expenses.**
- ✓ **At the same time, local businesses can emerge within new improved cookstove industries (ICS); all while improving and saving lives.**

Biomass Cookstove Testing and Development

- ✓ **The Institute (SSS-NIRE) has been approved as the Testing and Certification Centre by MNRE (for HR, Punjab, HP, J&K) with an outlay of Rs. 97.908 Lakhs for the next 03 years.**
- ✓ **The Process has been initiated to establish the "Testing and Certification Center " at the Institute as per New BIS norms.**
- ✓ **Testing and developments of improved cookstove models to enhance their affordability, durability and making them acceptable by the end users at lower price is going on.**

- **Focus on clean and affordable stoves:**
  - **Forced Draft: "Gasifier" stoves with two-stage combustion aided by fan**
  - **Natural Draft: Improved one stage burning- "rocket elbow" combustion chamber**

Testing Facilities for Improved Cookstove at SSSNIRE

Biomass cookstove testing facility including SPM measuring system and flue gas analyser

NIRE PoA (8949)

Title: National Programme for Improved Cookstoves in India

CME: Sardar Swaran Singh National Institute of Renewable Energy

Registration Date: 28/12/2012
PoA Duration: 09 May 2012 – 08 May 2040

Methodology: AMS-II.G. ver. 3 - Energy efficiency measures in thermal applications of non-renewable biomass

PURPOSE OF THE PoA

Objective:

The programme will promote improved cookstove categories to replace existing less efficient (traditional) cookstoves.

Scope:

The geographical coverage of the PoA will be the entire country. The stove could be fixed type or portable type.

Target group:

The intended target group for the PoA are domestic users at the household level and community institutions where meals are prepared for a group or community members on a non-commercial basis such as schools, prisons, community centers, and religious institutions.

CONSTITUTION OF CPA

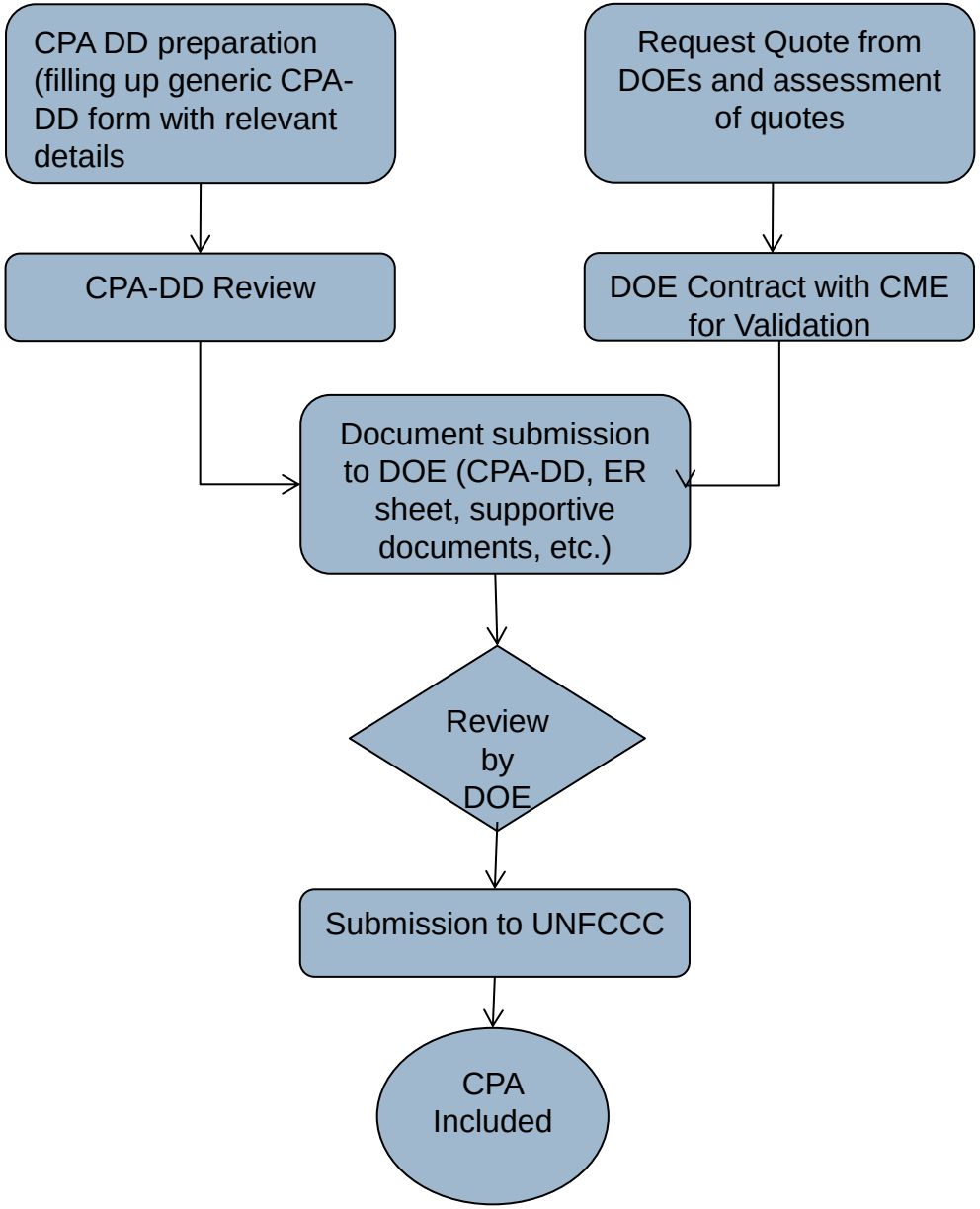
CPA Implementer: The CPA implementer can be any of State Nodal Agencies (SNA) of MNRE, NGOs, Cookstove Manufactures and/or distributers, Financial Institutions, Carbon Mitigation Projects Developers, or any other organisation/institute willing to venture into cookstove dissemination business.

Number of ICS per CPA: The maximum number of ICS which could form a CPA is limited by the amount of thermal savings of 180 GWh thermal per annum. The thermal savings are dependent on the following variables:

- **Efficiency of ICS;**
- **Number of ICS in the respective year;**
- **Amount of fuelwood consumption per stove per year (tonnes/ICS/year);**

With some typical values the amount of (household) ICS are likely to be around 25,000. The minimum number of ICS will get restricted by the CDM transaction costs and should likely be more than 10,000. Alternatively, bundling of several such small implementers can be sought.

CPA INCLUSION PROCESS



CPA ASSESSMENT TOOL

- Assessment of Emission reduction potential per stove
- Expected annual emission reductions
- State wise computation of Non-renewable biomass fraction is inbuilt
- Check for Small scale threshold based on cookstove dissemination
- Cash flow and NPV analysis for CPA implementation schedule
- Breakeven CER price calculation.

CPA ASSESSMENT TOOL

Input

Baseline Information					
?	Project location	Gujarat			
?	What is the baseline fuel?	Woody biomass			
?	Baseline fuel consumption	Default	2.35		ton/stove/yr
?	Baseline Stove Efficiency	Default	10%		%
Project Implementation Plan					
	Implementation Start Year	2014			
?	Project Stove Efficiency	Test Value	25.00%		
?	Operational Life	5			years
?	Adoption rate	100%			
?	Fallout Rate	2%			

?	Installation schedule	Year	Number of Stove	SSC Threshold?
		2014	5000	No
		2015	10000	No
		2016	12000	No
		2017	0	No
		2018	0	No
		2019	6000	No
		2020	12000	No
		2021	12000	No
		2022	0	No
		2023	0	No

	fNRB	Pre-Defined	78%		
Project Cookstove Cost					
?	Cost of Stove for implementer	1,600			INR/Stove
?	Cost of Stove for End User	100			INR/Stove
?	Subsidy	400			INR/Stove
Project Implementation cost					
?	Project Management	Pre-Defined	435000		INR/year
?	Employee	Pre-Defined	456000		INR/year
?	Maintenance Cost	Pre-Defined	2.00%		INR/year
	Inflation Rate	User Input	8%		
	Discount Rate	User Input	12%		

Carbon Transaction Costs					
?	Expected CER price	4.75			Euro/tCO2
?	CER share for CME	5%			
?	CPA Inclusion Cost	User-Defined		600000	INR
?	CPA Monitoring Cost	User-Defined		600000	
?	CPA Verification Cost	User-Defined		600000	
?	Other Related Cost	Pre-Defined	100000		
	Exchange rate (Euro - INR)	83	INR/EUR		
	Exchange rate (USD - INR)	61	INR/USD		

Output

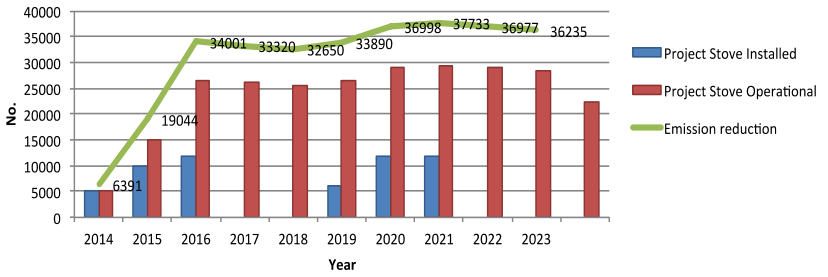
Annual Emission reductions (ERs)	28604	tCO2/year
Total Emission reductions	286040	tCO2/year
Annual Emission reduction per stove	1.1	tCO2/stove/yr
ER per stove over lifetime of stove	5.39	tCO2/stove

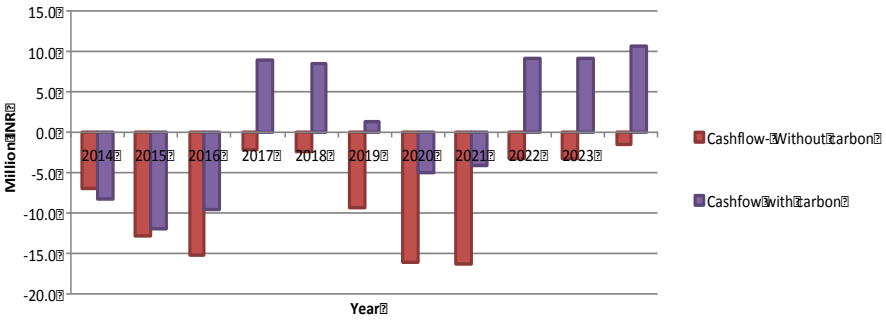
Annual Emission reductions	Year	Emission Redutions
	2014	6391
	2015	19044
	2016	34001
	2017	33320
	2018	32650
	2019	33890
	2020	36998
	2021	37733
	2022	36977
	2023	36235

Financial feasibility

Breakeven Calculation

NPV (Withut Carbon revenue)	-51.1	Million INR
NPV (With Carbon revenue)	-6.8	Million INR
Breakeven CER price	4.52	Euro / tCO2





WEB PORTAL DEVELOPMENT

The CME is coordinating the web portal development which will enable:

- Easy access of information for the potential CPA implementer
- CPA assessment tool can be downloaded
- Templates of different contracts and CPA-DD form will be made available
- The interested CPA implementers can submit key inputs through online form.

Domain Name: www.cookstovepoa.in
Email id: cme8949@gmail.com; sktiitd@gmail.com

Expression of Interest (EoIs)

- **The CME along with GIZ and its Consultant has prepared an EoI and circulated it to the possible CPA implementer(s).**
- **The potential CPA implementer(s) shall be finalized for the inclusion into the cookstove PoA in due course of time.**
- **The CME and GIZ are also discussing the possibilities to have more interaction with the possible CPA implementers/stakeholders through regional workshops to PROMOTE the PoA in due course of time.**

THANK YOU