

Asia and Pacific Regional Workshop: Promoting CDM and Market Mechanisms

13-15 October 2014 Bangkok, Thailand

Experience and lesson learned in developing standardized baseline (Rice mill sector)

Uy Kamal Cambodia DNA

Acknowledgement

This Standardized Baseline (SB) is made available for Cambodia through cooperation and assistance of the Market Mechanism Group, Institute for Global Environmental Strategies of Japan.

Why Standardized Baseline?

Cambodia is abundant with small and medium scale of rice mill that are unable to apply for CDM due to technical and financial barriers.

With SB, it can:

- Reducing transaction cost
- Enhancing transparency, objectivity and predictability
- Facilitating access to CDM
- Scaling up the abatement of GHG emissions

2. SB Submission

- DNA submitting this form: Cambodia (MoE)
- Developer of SB: IGES
- Party or Parties to which SB applies: Cambodia
- Sector to which the proposed SB applies: Rice mill sector
- The final report was submitted to EB by MoE on 25 Sept. 2012.
- The second Submission (after comment from CDM team) was on 7-Jun. 2013
- SB was approved during CoP19 (Nov. 2013)

CDM proposed s (V	tandardized baseline form ersion 01.0)		
(To be used by a designated national authority (DNA) accordance with the "Procedure for submission and c	when submitting a proposed standardized baseline in onsideration of standardized baselines".)		
SECTION 1: GENE	RAL INFORMATION		
DNA submitting this form:	Cambodia		
	(Ministry of Environment)		
Developer of the standardized baseline: (Parties, project participants, international industry organizations or admitted observer organizations)	Institute for Global Environmental Strategies (IGES)		
Party or Parties to which the standardized baseline applies:	Cambodia		
Sector to which the proposed standardized baseline applies: (the sector according to the definition of sector in the "Guidelines for the establishment of sector specific standardized baselines")	Rice mill sector		
SECTION 2: LIST OF DOCUMENTS TO BE	ATTACHED TO THIS FORM (please check)		
DNAs of the Parties to which the standardized by Additional documentation supporting the submis- studies, calculation tables, etc.), when applicable	aseline applies; sion (e.g. relevant data, documentation, statistics,		
Name of authorized officer signing for the DNA:	H.E. Thuk Kroeun Vutha, Secretary of State, Ministry of Environment, Cambodia		
Name of authorized officer signing for the DNA: Date and signature for the DNA:	H.E. Thuk Kroeun Vutha, Secretary of State, Ministry of Environment, Cambodia		
Name of authorized officer signing for the DNA: Date and signature for the DNA: Name and contact details of the focal point(s) for any follow up communication:	Ministry of Environment, Cambodia Ministry of Environment, Cambodia Mr. Sum Thy, Director of Climate Change Department, Ministry of Environment,		
Name of authorized officer signing for the DNA: Date and signature for the DNA: Name and contact details of the focal point(s) for any follow up communication: (all communication regarding procedural or technical issues will be sent to the focal point(s))	H.E. Thuk Kroeun Vutha, Secretary of State, Ministry of Environment, Cambodia Mr. Sum Thy, Director of Climate Change Department, Ministry of Environment, No.48, Samdech Preah Sihanouk Blvd, Tonle Bassac, Chomkarmon, Phnom Penh, Cambodia		
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Name of authorized officer signing for the DNA: Date and signature for the DNA: Name and contact details of the focal point(s) for any follow up communication: (all communication regarding procedural or technical issues will be sent to the focal point(s)) SECTION BELOW TO BE COMPLETE	H.E. Thuk Kroeun Vutha, Secretary of State, Ministry of Environment, Cambodia / Mr. Sum Thy, Director of Climate Change Department, Ministry of Environment, No.46, Samdech Preah Sihanouk Blvd, Tonle Bassas, Chomkarmon, Phnom Penh, Cambodia Tel: +855 23 218 370 Fax: +855 23 218 370 Email: cceap@online.com.kh D by THE UNFCCC SECRETARIAT		
Name of authorized officer signing for the DNA: Date and signature for the DNA: Name and contact details of the focal point(s) for any follow up communication: (all communication regarding procedural or technical issues will be sent to the focal point(s)) SECTION BELOW TO BE COMPLETE CDM-PSB ID number:	H.E. Thuk Kroeun Vutha, Secretary of State, Ministry of Environment, Cambodia / Mr. Sum Thy, Director of Climate Change Department, Ministry of Environment, No.48, Samwäch Preah Sihanouk Blvd, Tonle Bassas, Chomkarmon, Phnom Penh, Cambodia Tel: +855 23 218 370 Email: ccesp@online.com.kh D BY THE UNFCCC SECRETARIAT		
Name of authorized officer signing for the DNA: Date and signature for the DNA: Name and contact details of the focal point(s) for any follow up communication: (all communication regarding procedural or technical issues will be sent to the focal point(s)) SECTION BELOW TO BE COMPLETE CDM-PSB ID number: Date when the form was received at UNFCCC secretariat:	ME. Thuk Kroeun Vutha, Sacretary of State, Ministry of Environment, Cambodia / Mr. Sum Thy, Director of Climate Change Department, Ministry of Environment, No.48, Samdech Preah Sihanouk Blvd, Tonle Bassac, Chomkarmon, Phnom Penh, Cambodia Teit: +855 23 218 370 Fax: +855 23 218 370 Email: cceep@online.com.kh D BY THE UNFCCC SECRETARIAT		

SB development activity was started in late 2011

- Cambodia, according to the statistic, has about 27,000 rice millers entire the country ranging from the small moving unit to large installment.
 - Not available data for SBs => Sampling survey





Data needs:

- Status of use of fuel(energy source) and technology for operating a rice mill factory
- Parameter for the rice mill sector's emission factor;
 Qt. of fuel consumption, Qt. of rice production, type of fuel (energy source), CO₂ emission factor/Net calorific value by fuel(IPCC)

The required specific data was collected base on a set of questionnaire from selected rice millers.

3. SB Development Field survey activities







Technology 1: Power Driven by diesel engine



$$EF_{t1,m,y} = \frac{DC_{m,y} \times DD \times EF_{CO2,diesel} \times 10^{-3}}{MR_{m,y}}$$

$$EF_{t1,y} = \frac{\sum_{m} (EF_{t1,m,y} \times MR_{m,y})}{\sum MR_{m,y}}$$

Where:	
$\text{EF}_{tl,y}$	Emission Factor of Technology 1 in year y (t-CO ₂ /t-rice)
$\text{EF}_{tl,m,y}$	Emission Factor of rice mill m adopting Technology 1 in year y (t-CO ₂ /t-rice)
DC <i>m</i> , <i>y</i>	Quantity of diesel consumption in rice mill m in year y (l)
DD	Density of diesel (0.8439 kg/l (International Energy Agency et al, 2004))
EF CO2, diesel	CO ₂ emission factor of diesel (3.2 kg-CO ₂ per kg of diesel, AMS-I.B.)
MR <i>m</i> , <i>y</i>	Quantity of milled rice production in rice mill <i>m</i> in year <i>y</i> (t)
М	Rice mill adopting Technology 1
Y	The relevant year
Ν	Number of rice mills adopting Technology 1

Technology 2: Electricity Supplied from Rural

Electricity Entrepreneur

Ν



Number of rice mills adopting Technology 2

Technology 3: Power Driven by a dual mode engine and rice husk gasification



Technology 4: Electricity generated by steam turbine with rice husk combustion



Emissions from this technology are zero t-CO₂

This technology does not consume any fuel other than rice husk, a by-product of the milling process.





Energy generation technology of rice mill sector

- Technology 1 Power-driven by a diesel engine
- Technology 2 Electricity supplied from REE
- Technology 3 Power-driven by a dual mode engine and rice husk gasification
- Technology 4 Electricity generated by steam turbine with combustion of rice husk



Additionality demonstration

Cost comparison analysis in the first proposal



Cost comparison analysis was excluded finally, because Technology 3 and 4 in this case can meet the criteria for automatically additional.

✓ UP to 5 MW that employ renewable energy as their primary technology
 ✓ The geographic location of the project activity is in one of the LDCs

Guidelines for demonstrating additionality of microscale project activities





5. Final Decision by EB - Number of monitoring parameters is <u>one (basically)</u>

	$BE_y = \min(3000$, Q,	rice,y	$Q_{cap,daily} \times 200) \times EF_{baseline}$	Equation (1)		
	Where:						
	BEy	=	Bas	eline emissions in year y (t CO ₂)			
	Q _{rice,y}	=	Qua	ntity of rice produced in year y (t rice)			
	Q _{cap,dally}	=	Max acco	imum quantity of rice produced per day, determined ording to design specification of the rice mill machine	ex ante es (t rice/day)		
	200	=	Typi an a	ical number of days for processing per year (days); v Iternative number may be used	with justification		
	EF _{baseline}	=	Bas sma large	eline emission factor (t CO_2/t rice), 0.0506 t CO_2/t ric II/medium mills ($\leq 1,000$ t rice /yr) and 0.033 t CO_2/t e mills (>1,000 t rice /yr and $\leq 3,000$ t rice /yr)	e for rice for semi-		
С) The following	ng	parai	meter (if diesel is consumed by the project a	activity) shall be		
monitored according to the provisions in AMS-I.B, and the other parameter the methodology do not apply:							
	(i) Quant						

EB76-A03 Standardized baseline: Technology switch in the rice mill sector of Cambodia Version 01.0

6. Justification for the data was the issue

Careful reading to the QA/QC guideline and a QC report by DNA before the proposal submission were required for a smooth assessment.

Checking items: Consistency, Completeness, Traceability, Conservativeness, Calculation, Transparency



Simple average (1st proposal) 0.054t-CO2/t-rice Grouping by scale and 90th or 80th percentile 0.026 - 0.051t-CO2/t-rice

7. Conclusion and recommendation

Key factors for the success to developing SB proposal

- To identify a target project type, check not only the potential of emission reductions but also data availability
- ✓ Well designed survey plan and quality check system
- Carefully review the related guidelines
- ✓ Work closer cooperation with DNA and the UNFCCC secretariat

Improvement for the SB related guidelines

Need to provide flexibility for the requirements

- Data vintage
- Threshold for baseline & additionality
- Options for demonstration of technology/fuel/feedstock penetration
- Options for additionality demonstration measure
- Allow to use for partly incomplete data and information with some treatment
- •The role and responsibility of DNA for developing and maintaining data

7. Conclusion and recommendation

- The SB seems very appropriate with "Small-middle" and "Semi-large" categories of rice mill,
- The above rice mills may need to have special financial support in order to engage them with PoA and new technologies,
- SB is basically for CDM PoA, using it in other carbon credit mechanisms remains a question,
- Rice husk is a potential renewable energy that could help

reducing production cost of milled rice, which is an important factor for improving competition of rice market of Cambodia.

THANK YOU

Cambodia's DNA

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