

SHARING OF EXPERIENCE ON CLEAN DEVELOPMENT MECHANISM (CDM) PRESENTED BY VITA ERITREA COUNTRY OFFICE

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ACP -EU ENERGY FACILITY SEMINAR

Introduction

- CDM under Kyoto protocol aimed to create sustainable funding mechanism for financing project aimed at reducing GHG emissions in developing countries
- Vita vision is to create financing mechanism to roll out an improved stoves programme throughout Eritrea
 - Phase 1: CDM registration and implementation of stoves financed using EDF, raised funds by Vita and a small proportion from sale of certified emission reduction (CER).
 - Phase 2: Reinvesting remaining certified emission reduction (CER) revenue in more stoves in subsequent projects

The stove

Traditional stove 6-10 % efficiency



Improved stove 20-23 % efficiency

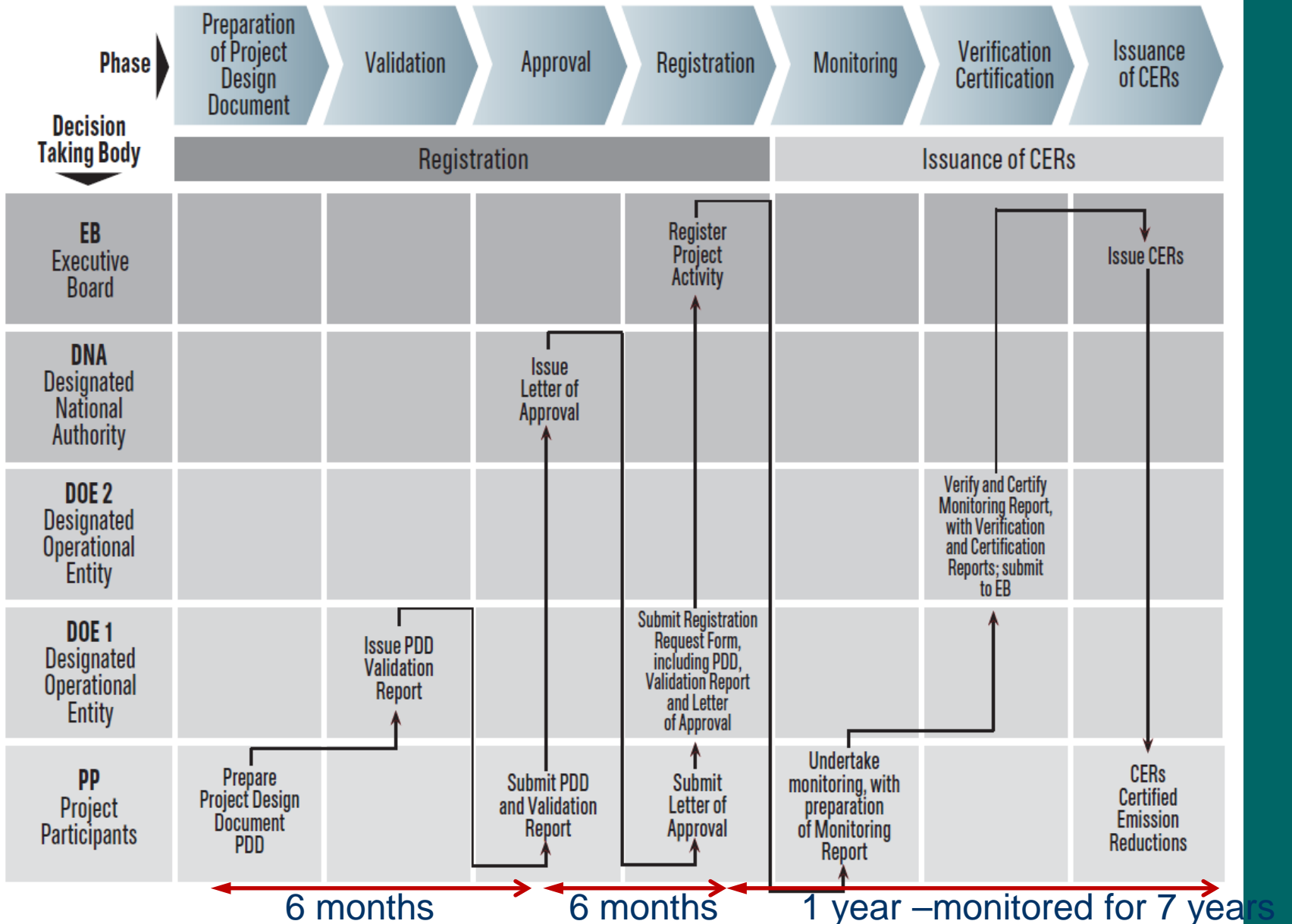


- Decrease in respiratory disease
- Decrease deforestation and woodland degradation
- Household saving on energy costs
- Empowerment of woman
- Employment of community during implementation

Why CDM

- Transaction cost can be as high as 40 % total project costs in carbon mitigation projects-depends on scale
- To minimise transaction costs it is more effective to join a CDM programme of activities (PoA) under which individual country project activities (CPA) can be registered
 - Additionally, environmental statement and public consultation done under PoADD
 - CPA project cheaper to run (7 year renewable 3 times) and less documentation/baseline studies required
- Higher project scale up to 180 GWh/a compared to 60GWh/a for micro project VER schemes
 - Reduced MRV and registration cost (fixed costs)

CDM PROJECT CYCLE



Financial model

- Sale of stove not an option for Eritrea
- Use EDF project funds and Vita donations to prime the 1st phase by Installing 10000 stoves and to cover PoA registration costs
- Small scope for investment capital at IRR of 1.6 %

CBA Using CO2 price at time of analysis (5 € per t CO₂)

		Stoves		
		10000	20000	40000
Phase 1 (7 years)	Cost (€)			
	Instillation	250,000.00	500,000.00	1,000,000.00
	MRV	128,200.00	128,200.00	128,200.00
	Transaction	158,920.19	237,840.39	395,680.78
		537,120.19	866,040.39	1,523,880.78
	Income (€)			
	EDF	344,200.00	344,200.00	344,200.00
	Vita	-	250,000.00	750,000.00
	CERS	292,297.02	584,594.03	1,169,188.07
		636,497.02	1,178,794.03	2,263,388.07
Balance invested in more stove CPA	€99,376.82	€312,753.64	€739,507.29	

Phase 2: model generates revenue for implementing half the initial stoves

Financial model

- CO₂ price for ETS dropped to 1.5 € per tonne since project began
- Due to annex A countries not requiring to purchase CERs to meet Kyoto target
- and dumping of C on market

CBA Using current CO₂ (1.5 € per t CO₂)

		Stoves		
		10000	20000	40000
Phase 1 (7 years)	Cost (€)			
	Instillation	250,000.00	500,000.00	1,000,000.00
	MRV	128,200.00	128,200.00	128,200.00
	Transaction	103,676.06	127,352.12	174,704.23
		481,876.06	755,552.12	1,302,904.23
	Income (€)			
	EDF	344,198.00	344,198.00	344,198.00
	Vita	-	250,000.00	750,000.00
	CERS	87,689.11	175,378.21	350,756.42
		431,887.11	769,576.21	1,444,954.42
Balance invested in more stove CPA	-€49,988.95	€14,024.09	€142,050.19	
Break even CO₂ price	2.75 €	1.40 €	0.67 €	

CDM not sustainable under current price unless large scale (increase risk)

Lessons learned

- PoA registration under CDM and partial aid funding can generate revenue for large scale stoves programmes
- Transaction and MRV costs reduce with increased scale, but higher upfront costs required
- Current CER price and CDM methodology makes this option not feasible terms of creating a sustainable funding mechanism
 - CDM method only considers biomass (large use of dung and residues in Eritrea) woody biomass consumption 0.4 t compared to 0.9 to 2 t per capita on neighbouring countries
 - Inclusion of dung and other GHGs increases emission reduction from 0.9 to 1.6 t CO₂ per household per year.

Going forward

- Consider other funding mechanisms or VER scheme where
 - Price is higher 4 to 7 € for stove VERs
 - Include methane, nitrous oxide and dung in emission reduction estimates
- Need to be assessed against scale limit (60 GWh/a micro project-Gold Standard) and increase transaction, design, registration cost for multiple projects