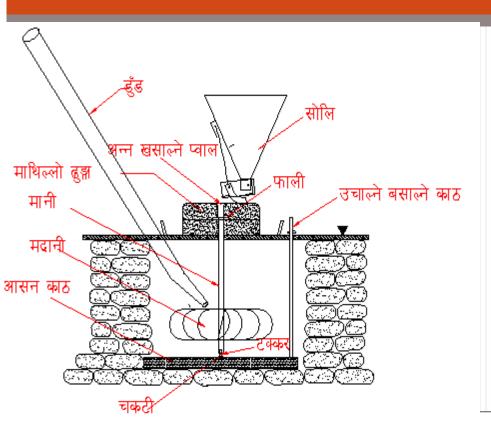






LDC PoA Case Study: Improved Water Mill (IWM) PoA in Nepal



Raju Laudari, Asstant Director, AEPC

AEPC & Improved Water Mill PoA

- AEPC established in 1996 for Improving people's livelihoods and protecting environment through RET promotion
- National Executing Agency for Renewable energy programmes and projects.
- 14% electricity from small RETs
- More than 1.5 million households benefitted from RETs
- Micro/mini hydro, solar, biogas, IWM, Efficient stove, wind
- 5 CDM projects and 1 PoA registered, and two PoA are in pipeline
- IWM PoA developed with technical support from ADB
 - CER buyer as Trustee: FCF-ADB





Traditional Vs Improved Water Mill

Increase in Efficiency & Service diversification

Traditional Water Mill

For grain grinding only

Not efficient:

Available power 0.5 kW Processing capacity:

10-20 kg / hour

Improved Water Mill

For grain grinding and other end-uses

Efficient

Available power: 1-3 kW

Processing capacity:

20-50 kg/ hour

Short Shaft

Only for efficient grain grinding

Long Shaft

Opportunities for grinding and various end-uses like: paddy hulling, oil expelling, saw milling, electricity generation etc.

ison of Technical Parameters



Traditional Water Mill		Improved Water Mills	
Zompar 180m or	Technical	Parameter 5	

Traditional Water Mill	Improved Water Mills
Wooden water wheel with flat paddles	Metal runners with buckets
Wooden hub covers the wooden vertical shaft	Metal vertical shaft

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Wooden open chute of uniform cross-section	6"-8" diameter, HDPE pipes (with nozzle)

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Runner mounted on to a wooden frame	Runner mounted on to a wooden frame
	A pulley and belt system is introduced for power transmission (except for short shaft, for grinding)
Requires high flow of water to run TWM	Low amount of water suffices to run IWM
	Grinding of cereal, 20-50 kg per hour paddy

Grinding of cereal grains only maize, millet, hulling, 50-70 kg per hour oil expelling, 1-3 kW wheat, rice, etc. with 10-20 kg per hour output electricity generation



The Baseline





- Diesel mills that would be used in the baseline to cater the increasing processing needs.
- Statistics depict the increased proliferation of the diesel mills in recent past.
- Statistics shows 19,000+ TWMs exist in Nepal i.e. in absence of the PoA there is equal chance of diesel mill invasion

The Project Scenario





Traditional water mills is displaced by IWM. Alternately an IWM is installed by new user who might possibly have been the diesel mill entrepreneur.

Avoidance of the diesel and diesel induced emission attributable to diesel mills.

Management System

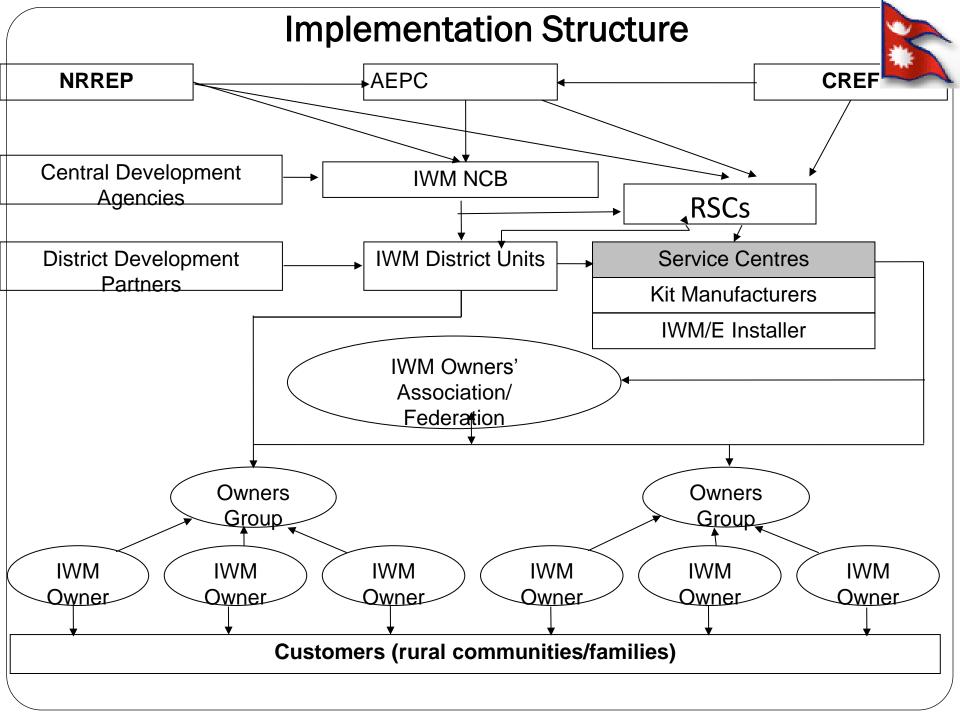


PoA Management

- Ensuring full compliance with CDM processes related to documentation, validation, monitoring and verification of IWM PoA.
- Establishing communication with the UNFCCC and DOE on the matters related to CDM PoA.
- Conducting Annual IWM Users' Survey for Emission Reduction monitoring.
- □ Releasing annual activities to Regional Service Centres (RSCs) regarding implementation and monitoring of IWM PoA.

General Management

- □ Administration of subsidy for IWM.
- Quality control, internal monitoring of IWM through RSCs and service centres (SCs).
- □ Pre-qualification of the IWM kit manufacturing companies and SCs.
- □ Releasing annual activities to Regional Service Centres (RSCs) regarding the capacity building of concerned stakeholders i.e. Service Centers, Ghatta Owners Association (GOA), IWM owners, Kit manufacturing companies.



Sustainable Development Benefits



Environmental Well Being

- Project produces real and measurable reductions in GHG emissions
- Avoid local pollution from diesel mills in communities
- Reduce dependency on fossil fuels

Technological Well Being

- Increase access to basic energy services to rural people
- Program promotes sustainable energy efficient technology

Economic Well Being

- Diversified agro-processing services will be available for rural households from this project.
- Development of local entrepreneurship
- Program acts as a cost effective solution to address the country's energy crisis

Social Well Being

- Faster milling and less waiting time with more efficient mills.
- Reduction of workload (mainly for women and children) from mechanized milling of paddy and pressing oil thus avoiding drudgery related to manual milling



Milestones in PoA Validation

•2010: Baseline Study(ies)

•2011 Oct: Validation Start (GSP Upload)

• 2011 Nov: Validation site visit

•2013 May: Second validation field visit by DOE

•2014 Feb: Validation complete & submission for registration

•2014 Apr: UNFCCC raised incompleteness of the submission

• 2014 Aug: Submission of the revised documents to the DOE



Challenges

- Validation challenges:
 - DOE's view on baseline: It was really tough to convince the DOE about the baseline as diesel.
 - DOE's view on the scrapping of TWM: The displaced TWM parts comes in form of wooden paddle and shaft. DOE seeks some records of these scraps.
- Post-submission challenges:
 - Incompleteness pertaining to the documentation.
 - Incompleteness pertaining to the methodology.
 - Incompleteness pertaining to the sampling.

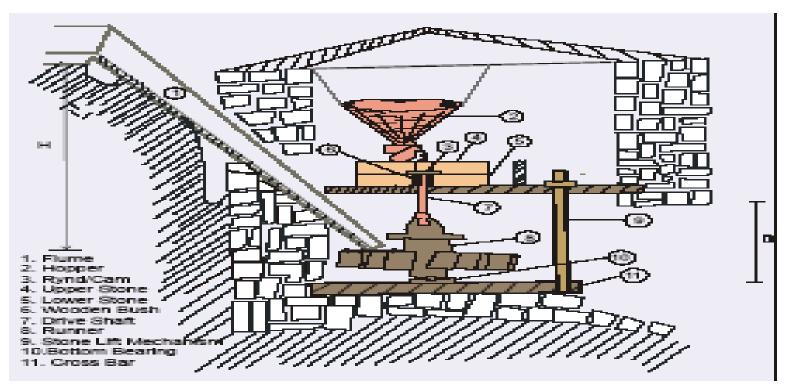


Corrections

- Validation challenges:
 - Second validation field visit was organized in order to assure the DOE on baseline matter.
 - Regarding the use of displaced parts of the TWM, ultimately DOE agreed to close the issues putting a condition to further it during verification.
- Post-submission challenges:
 - Post-submission challenges were largely related to documentation which was corrected with relative ease.
 - Technical issues regarding the use of emission factor was corrected

Thanks for your kind attention!!





Raju Laudari

Assistant Director, Alternative Energy Promotion Centre (AEPC)
Climate Change and Productive Energy Use Manager, AEPC/NRREP
www.aepc.gov.np

raju.laudari@aepc.gov.np