

Low Carbon Technologies for MSMEs in Myanmar

Department of Research & Innovation

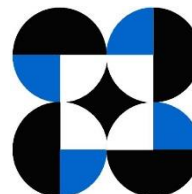
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18-19, September, 2019

Metro Manila

Myanmar



Myanmar MSME Profile

Myanmar

MSME Classifications

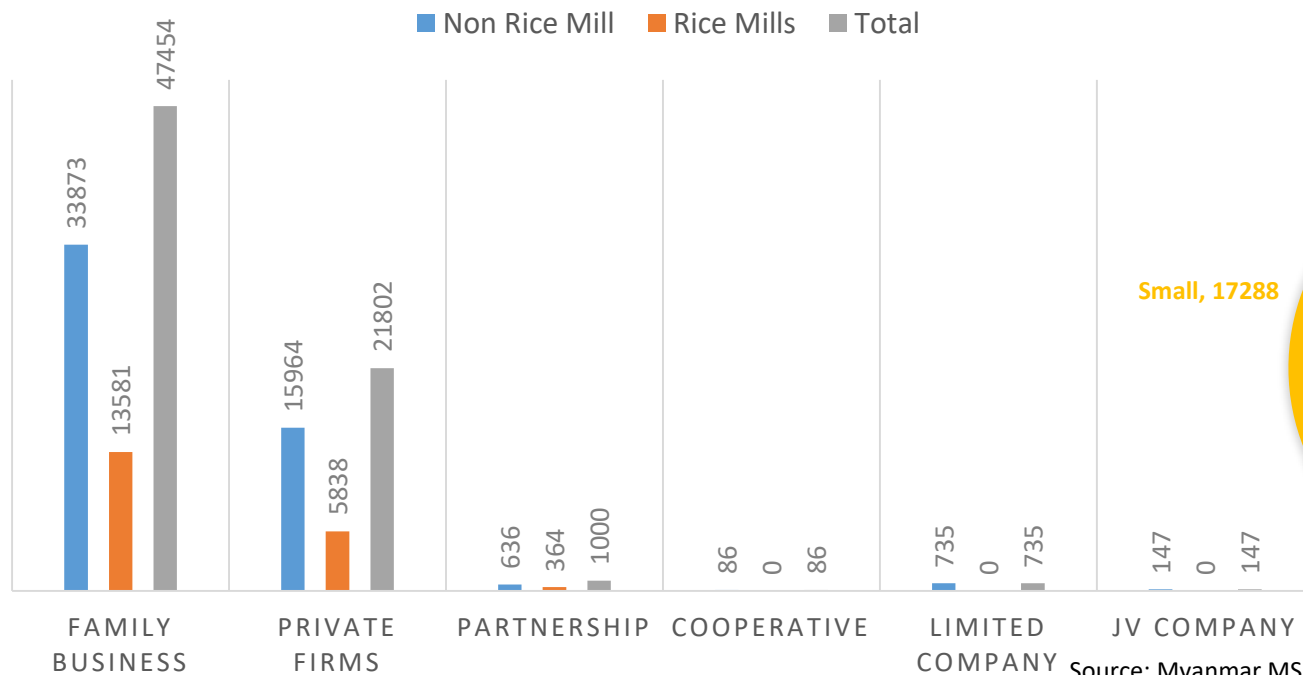
M-Micro→1-9 Members

S-Small→10-49

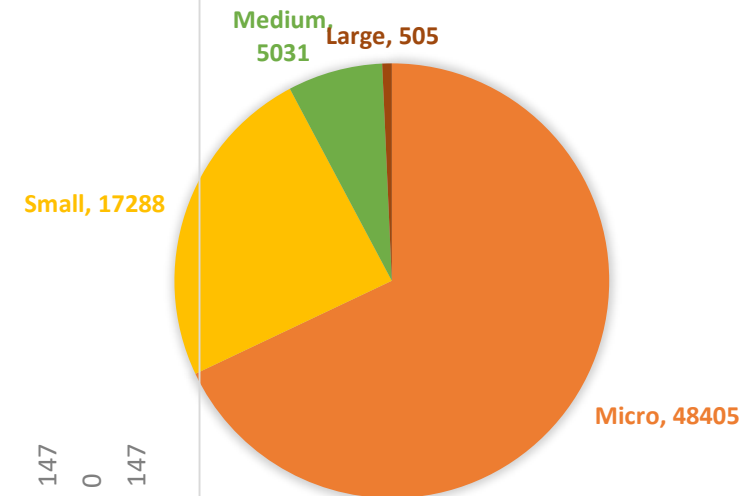
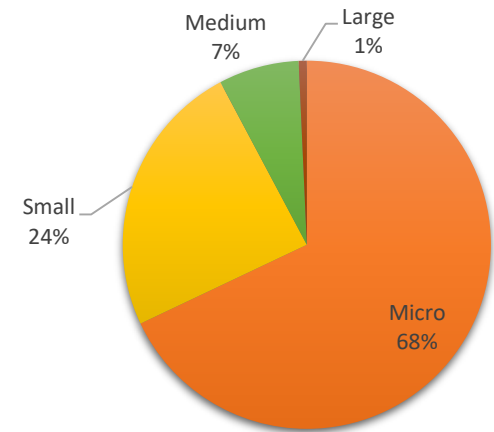
M-Medium→50-299

L-Large→>300

FIRMS VS TYPE OF BUSINESS



Percentage of Four Types of MSMEs

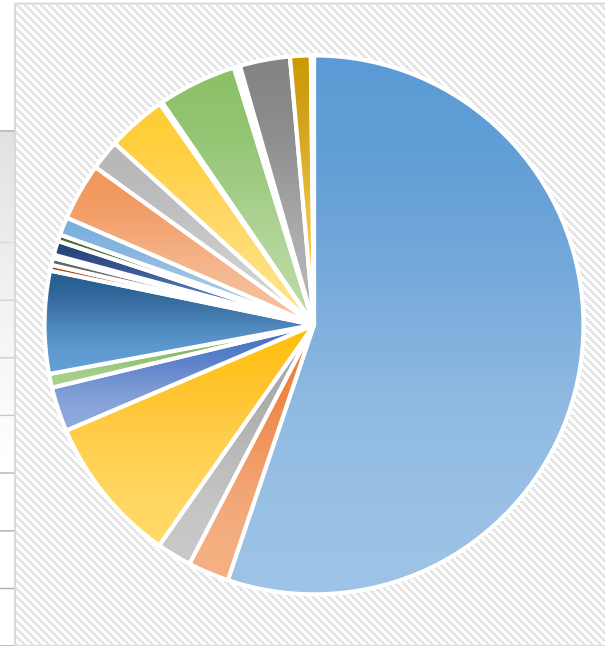
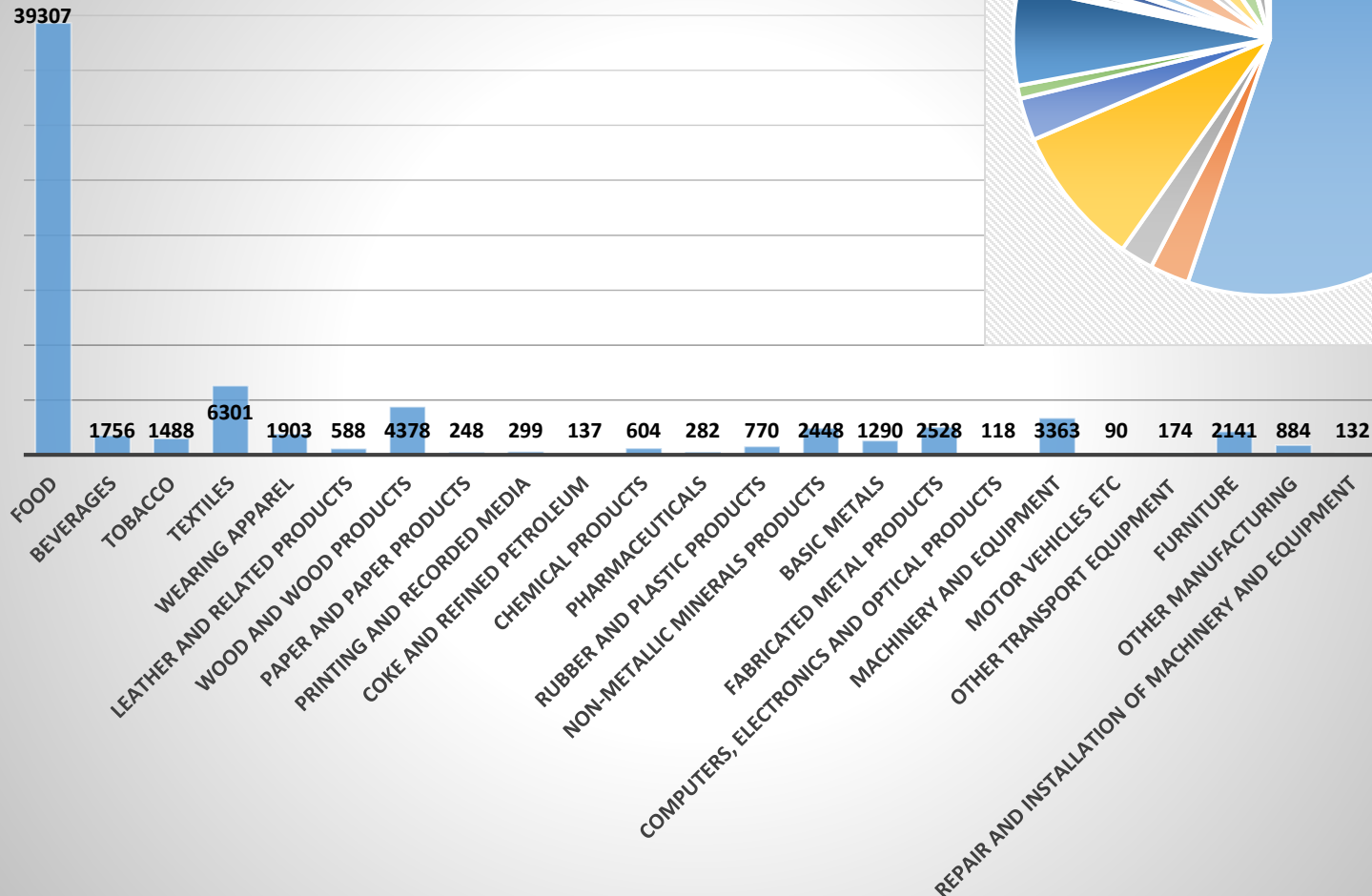


Source: Myanmar MSME Survey 2017(MOPF)

MSME Profile-Distribution by Sector

Myanmar

Firms Vs Industry



Source: Myanmar MSME Survey 2017(MOPF)

MSME Policies-Latest Country Framework Plan

Myanmar

Indicators	Improvement Area
Business Enabling-Environment	Enterprises, Banks, Authorities
Access to Finance	loan, interest rate, regulation, permits
Access to Markets	Supply chain, procedures, permits
Productivity and Efficiency	Standard, Labelling, Quality control
Low Carbon, Energy Efficiency & Renewable Energy Related Support Program for MSMEs	Labeling of products, Energy saving technologies, and renewable energy and efficiency programs are implementing in nation-wide
Other Assistance	Capacity building and Training of SMEs to be competitive with international SMEs

- MSME Agency Action Plans in State and regions (Directorate of Industrial Supervision and Inspection-DISI)-10 Action Plans Workshops (finished Aug 2019)

Myanmar Climate Change Policy, Strategy and Master Plan

A climate-resilient, low-carbon society that is sustainable, prosperous and inclusive, for the wellbeing of present and future generations

Goal: By 2030, Myanmar has achieved **climate-resilience and pursued a low-carbon growth pathway** to support inclusive and sustainable development.

STRATEGIC OBJECTIVES

Increase adaptive capacity and resilience of communities and sectors

Maximise opportunities for **low carbon development** in potential sectors



Source: MONREC

FOCUS AREAS (KEY ENTRY POINTS)

Climate smart agri, fisheries and livestock for food security

Sustainable management of NR for healthy ecosystem

Resilient and low-carbon energy, transport and industry

Resilient, inclusive and sustainable cities and towns

Climate risk management for health and wellbeing

Education, science and technology

STRATEGIC PRIORITIES (FOR EACH FOCUS AREAS)

Policy

Climate smart initiatives into policies and plans

Institution

Operational arrangement, coordination mechanism

Finance

Climate finance, climate smart investment

Capacity and technology

Climate-smart responses

Awareness

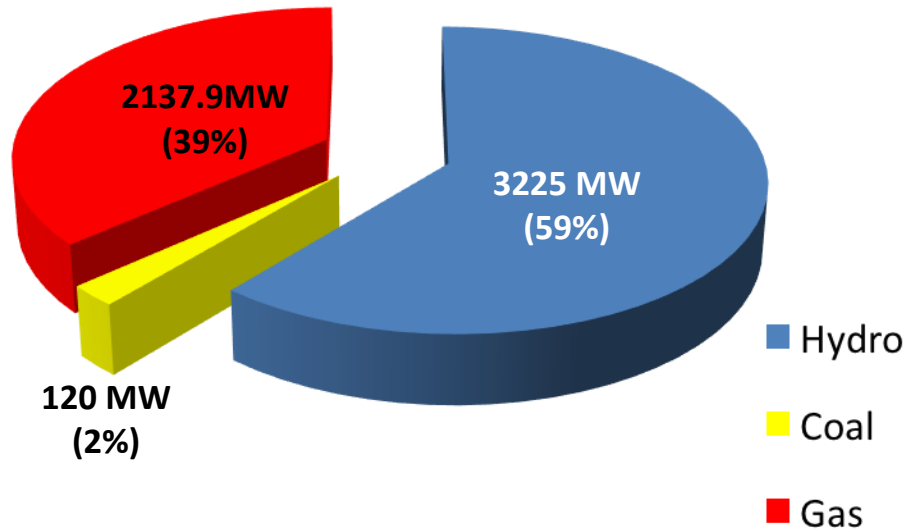
Capacity for climate-smart decision making

Partnership

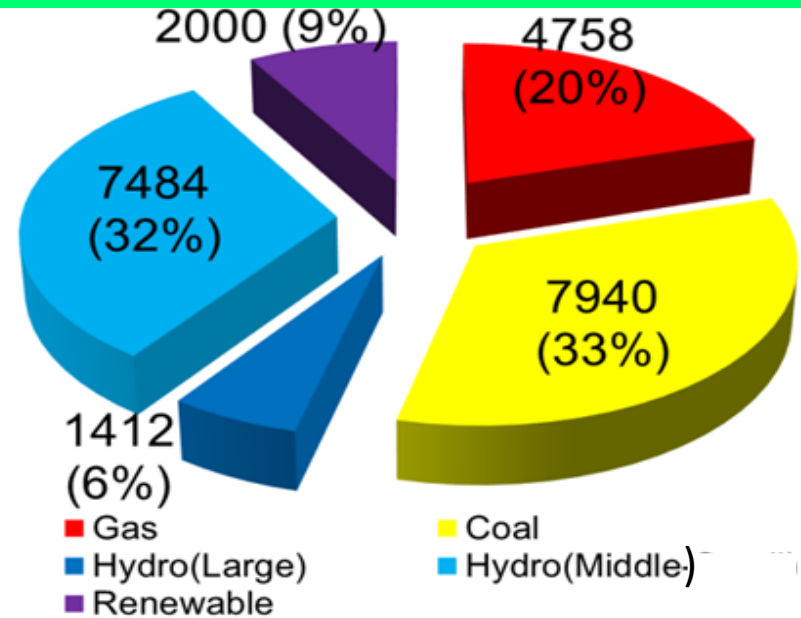
Multi-stakeholder partnership

Generation Mix of Myanmar Myanmar

Existing Generation Mix _ (Total 5489.9 MW)



2030 Generation Mix _ (Total 23,594 MW)



Hydro (large+medium) = 8896 MW

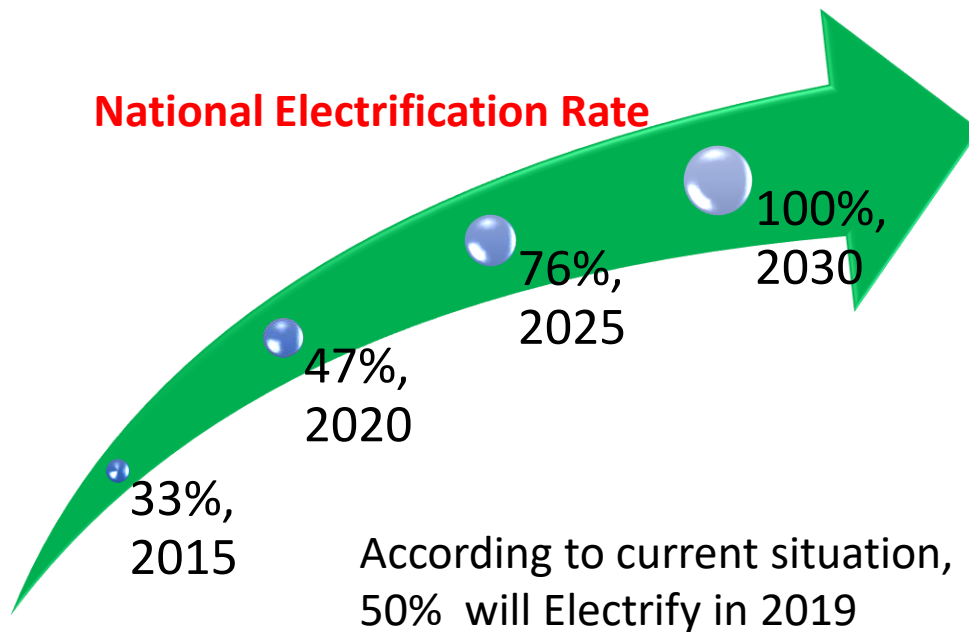
Approved by Parliament on 27th May ,2019

According to National Electricity Master Plan ,

Generation Mix for 2030 (Total Installed Capacity 23,594 MW)

National Electrification Plan (NEP) Myanmar

- Focal Dept: Ministry of Electricity and Energy(MoEE) (grid electrification)
Department of Rural Development (DRD), MoALI (off-grid rural electrification)
- Objective : to achieve universal access to electricity in Myanmar by 2030
- Implementation Cost: The total cost of National Electrification Program is estimated at US \$ 5.8 billion (grid and off-grid) till 2030. NEP aims to electrify 7.2 million households and achieve universal access to electricity by 2030



Source: DRD, MOALI

Total - 63277 Villages

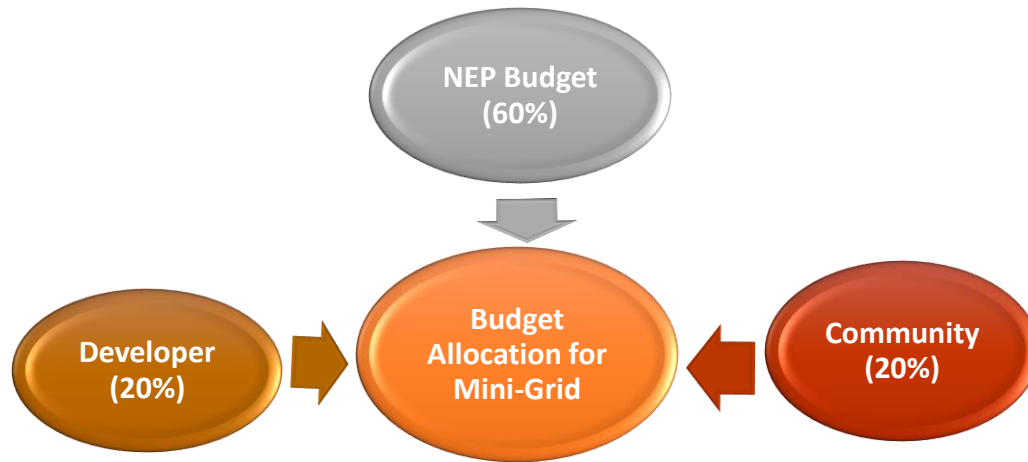
Power System -14293 Villages

SHS and Minigrid by Solar

2016-18 - 4350 Villages } Completed
- 236708 HH

2018-19 - 2534 Villages } Targeted
- 133649 HH

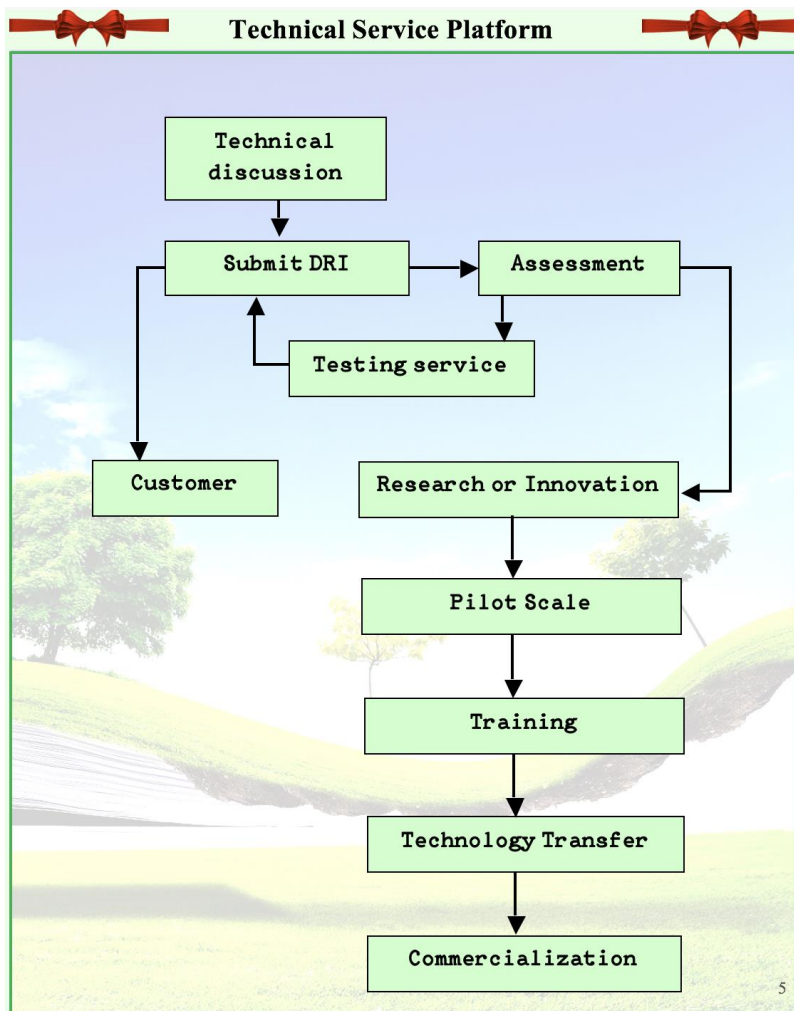
Financial Model and Ownership in Solar Home and Mini-Grid System



- Ownership
 - Villagers, Developers and DRD
- Developer's Operation Period - 6 ~ 10 years (based on Tariff)
- Tariff Rate
 - 250~500Kyat
- After Sales Service of Suppliers
 - to provide O & M Training
- After Commissioning (O & M)
 - Villagers
- DRD's Responsibilities
 - Commissioning, Monitoring & Evaluation



Technology Transfer to MSME in Department of Research & Innovation(DRI)



No.Technology	Company	Year
1.Light Weight Concrete	Tun Light Weight Concrete	2014
2.Dry Rice Noodle	Rice Noodle Enterprises	2014
3.Light Weight Concrete	Myanmar Industrial Valley	2017
4.Mango Candy	Thazin Nwe Co., Ltd	2017
5. Carrot Candy	Shwe Ma Shwe Co., Ltd	2017
6.Banana Pseudostem Value-added Products	Sea Pelican Co., Ltd	2018
7.Amber Health Care Value-added Products	Shwe Oak Saung Co., Ltd	2018
8. Mango Value Added Products	Fresh & Green International Manufacturing Co., Ltd	2018
9.Antiseptic Disinfectant	Bioluck Co., Ltd	2018
10.Bamboo Charcoal Soap	Lung Tsit Jade Finished Products Co., Ltd	2019
11.Coconut Shell Activated Carbon	Bioluck Co., Ltd	2019
12.Dried Dragon Fruit & Juice	Fresh & Green International Manufacturing Co., Ltd	2019



Energy Efficiency & Renewable Energy Applications for MSMEs Best Practices

Myanmar



Current Activities of Practical Training and Demonstration Project
under IEE Project with UNIDO

- Industrial Energy Efficiency-(IEE) Training (e.g Compress Air System)
- Resource Efficient & Cleaner Production (RECP) Training for various industries
- solar, solar dryer, wind, hydro, biomass, improved cook stoves ,LED Application, Battery., etc

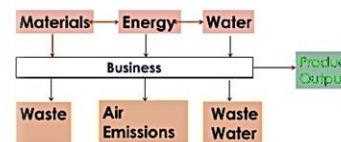


Recommended Actions for Compressed Air System

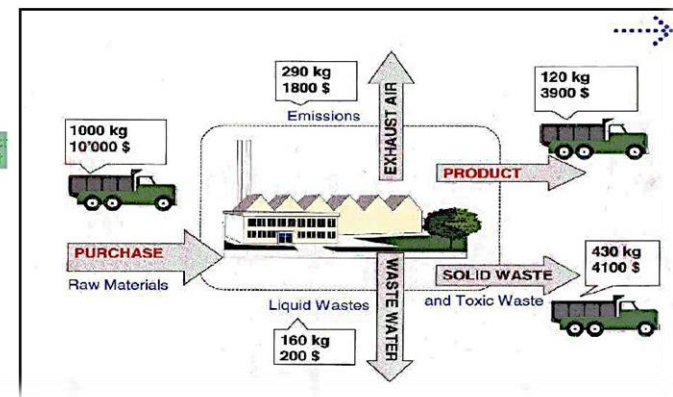
Flow reduction due to leakage repair	Use of thermal mass of cycling dryers
End use optimization	Better compressor control
Installation of larger receiver capacity	VSD or start/stop compressor operating
Reduction of plant pressure	
About 51% savings in compressed air operating costs	



Scope of RECP and its outcomes of RECP methods and techniques Adoption

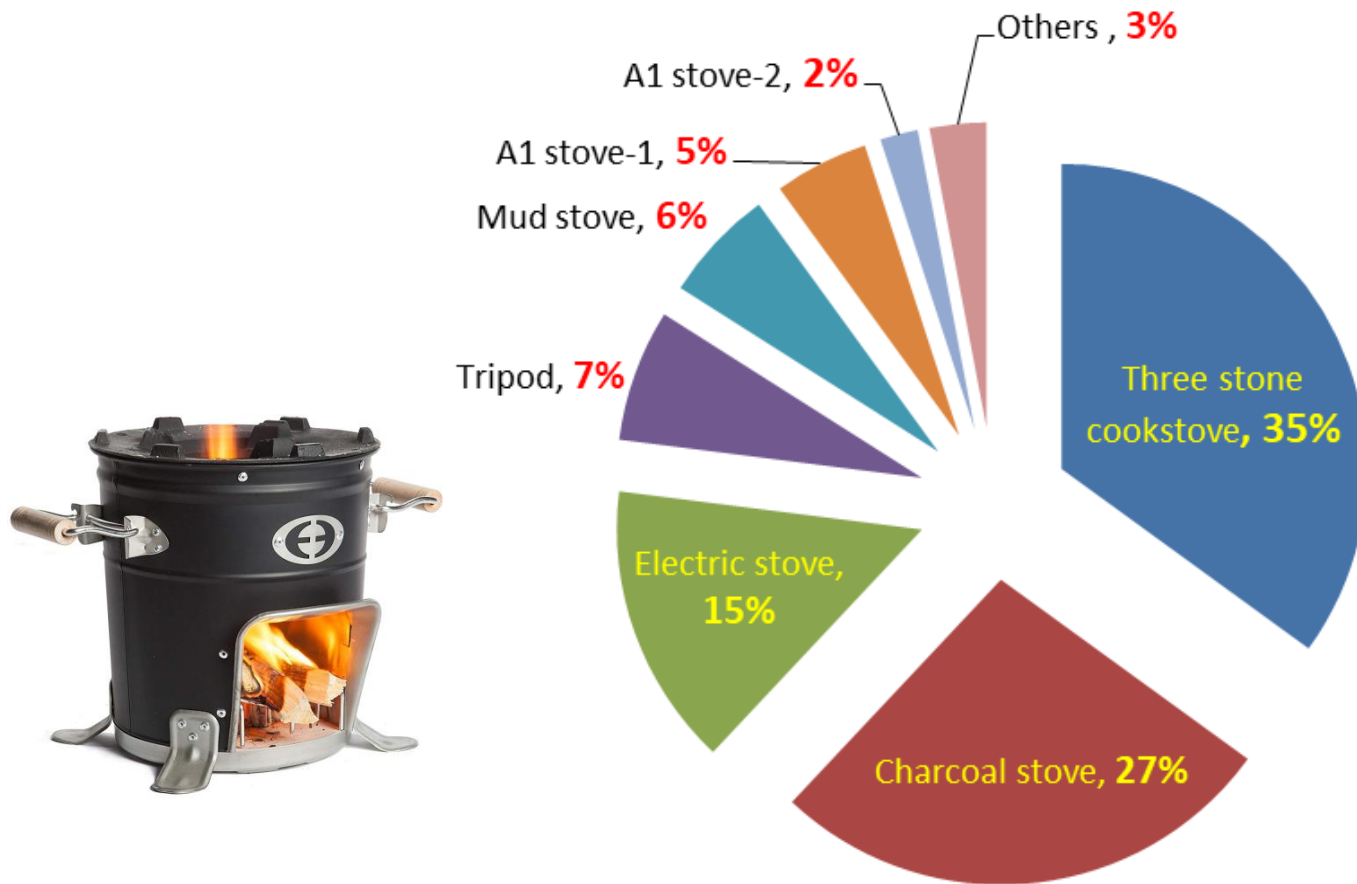


Est. 40 trainees have been trained for RECP Techniques in 2016.



Cookstove sector in Myanmar

Cookstove distribution mix



Source: Primary survey carried out in 2015

Source: FRD, MONREC

Implementing Power Projects Myanmar

On-going Solar Power Plant

- Minbu Solar Power Plant
- Green Earth Power (Myanmar) Co., Ltd.
- **170 MW**
 - 1st Phase 40 MW (July, 2019)
 - 2nd Phase 40 MW (2020)
 - 3rd Phase 40 MW (2021)
 - 4th Phase 50 MW (2022)

On-going Hybrid Solar Power Plant

- Manaung Project
- POSCO Daewoo Corporation
- **8.25 MW**

Investigating Wind Power Plant

- Chaung Tha Power Plant
- China Three Gorges International Corporation
- **30 MW**



On-going Hydropower Plant

- Shweli (3) HPP (671 MW)
- Deedoke HPP (66 MW)
- Upper Yeywa HPP (280 MW)
- Middle Paunglaung HPP (152 MW)
- Upper Keng Tawn HPP (51 MW)
- Upper Balu Chaung HPP (30.4 MW)
- Thahtay HPP (111 MW)

Total- 1355.4 MW

Solar Power Plant

- Thaton Project
- Energeia Asset Management Myanmar (EAM Myanmar)
- **28.5 MW**

Ongoing Solar Power Project (Minbu)



Project Data	
Installed Capacity	170 MW
Location	Magway Region, Minbu Tsp.
Phase	40 +40+40+50 MW
Developer	GEP(Myanmar) Co., Ltd.
System	BOT
PPA	20-3-2016
PPA Term	30 Years from Phase 1COD
Land Area	836 Acre
Solar	Jetion, China
Invertor	SMA, Germany
Power will be transmitted to Mann 230 kV Switchyard.	
ESIA approved by MONREC in (18.1.2018).	
Phase I connected to Power system in July 2019.	

MSME Best Practices

Finance Access for Energy Efficiency & Renewable Energy Program



Improvement for Industrial Energy Efficiency _IEE Project with UNIDO

o Main Objective

“To build up EE&C related Capacity and Promote sustained GHG emissions reduction in Myanmar industry.”

o Project Period: 2015-2019 (5 years)

o Main Stakeholders

- Ministry of Industry (Country Counterpart)
- Ministry of National Resources and Environmental Conservation
- Ministry of Electricity and Energy
- Myanmar Engineering Society (MES)
- Myanmar Industrial Association (MIA)

o Project Implementation Plan

- Demonstration and Up-scaling IEE Projects in factories and
- Energy Management System & Steam System and Compressed Air System Optimization trainings

o Budget

- GEF Grant USD 2.73 million + Co-financing USD 13.8 million



Pilot National Resource Efficient and Cleaner Production _RECP Project with UNIDO

o Main Objective

“Contribute to improvements of resource productivity and environmental performance of Myanmar enterprises, in particular SMEs”

o Project Period: 2016-2017 (2 years)

o Stakeholders

- Ministry of Industry (Country Counterpart)
- Ministry of National Resources and Environmental Conservation
- Ministry of Hotels and Tourism
- Ministry of Electricity and Energy
- City Development Committees

o Project Implementation Plan

- RECP Training and Pilot Projects

o Budget

- State Secretariat for Economic Affairs (SECO), Government of Switzerland Fund USD 0.565 million

Finance Access for Energy Efficiency & Renewable Energy Program

Authority-Ministry of planning and finance,Central Bank of Myanmar,DISI,MSME

Loan sources-MEB, MSME, JICA
Loan interest rate-8.5 to 13%

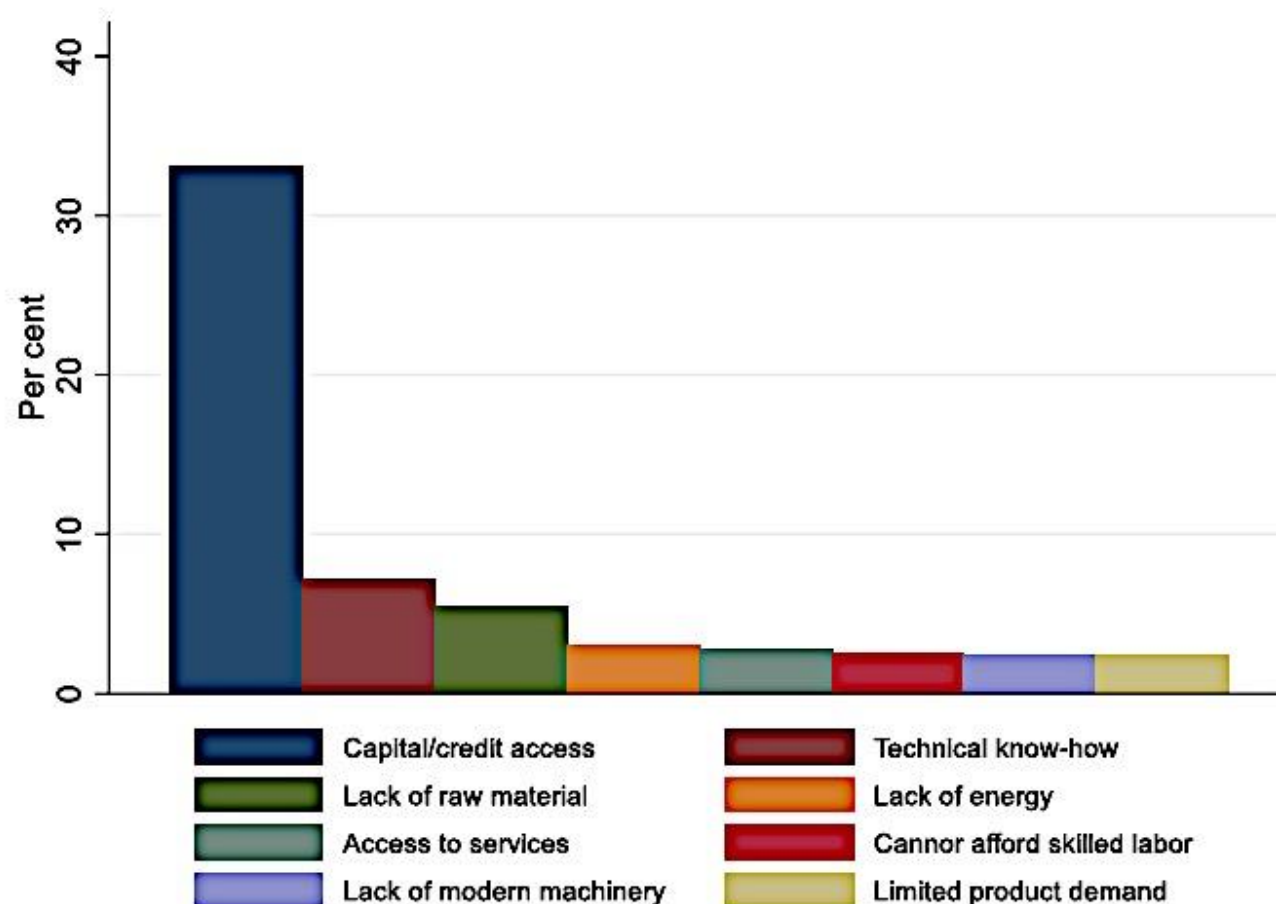
Progress	Loan proposal requirement	Time Duration (year)	Loan		Financial Statement for <1000 lakh kyats	Tax		license
			<200 lakh	<1000 lakh		<100 lakh income	<500 lakh income	
Previous	land/building	<1	DISI	MSME agency	External audit	Income tax	Commercial tax	Multi authorities
Now	Others/ CGI	3	MSME member	DISI	Bank	No income tax	No Commercial tax	Any relevant authority

Additional Loan sources-JICA MSME 2step loan-8.5%,3-5years-5000lakh(max) including Credit Guarantee Insurance (CGI)-9-13% depending on Credit Rating -200-lakh(max) by limiting 80% of loan on Fixed Capital(not for land) and 20% of loan on Operation

(September 2018, CBM)

Source: Pyithu Hluttaw - ပြည်သူ့လွှတ်တော်(27-8-2019)

Most important constraints to growth as perceived by the enterprises



Note: Sample percentages.

Source: Authors' illustration based on Myanmar MSME 2017 data

MSMEs Needs Analysis

Myanmar

Challenges/Needed to Improve	Recommendation!!!	Responsibilitiy
Regulatory environment is complex among several institutions	Reduce bureaucratic obstacles and improve coherence among different government authorities (procedures for business registration for different licensing and registration services on one or few government authorities, one-window offices	1 Municipal Offices
Only 1/3 of enterprises pay the corporate income tax		2 Directorate of Investment and Company Administration (DICA)
Certification based on international standards which could facilitate market access is very low		3 Directorate of Industrial Supervision and Inspection (DISI)
All firms challenges in terms of getting formal loans difficulties in assuring collateral, providing appropriate land titles and too-short loan maturity times.	Improve access to services (e.g loans, simplifying procedure, tax deduction, micro-credit institutiions, disseminating information, strengthen public goods & infrastructure (electricity and water, transport) and investment security	4 Government Administration Department (GAD)
Poor access to finance, infrasture, skill labour and technical knowledge		5 Small Scale Industrial Department (SSID)
Low competitiveness of firms		6 MSME/SMEs
Enterprises tend to rely on local trade opportunities	Adaptation of international best practices by Capacity building Training Systematic management and financial statement Bankable project	7 Banks (Central Bank of Myanmar, MEB, Private banks)
Labour market structure shows low level of education and skills of the labour force		8 Private sector (Firms, Enterpreses, Companies, etc)

Thank You!

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