

# Ministry of Electricity and Energy



## Challenges and Opportunities for Renewable Energy Development in Myanmar

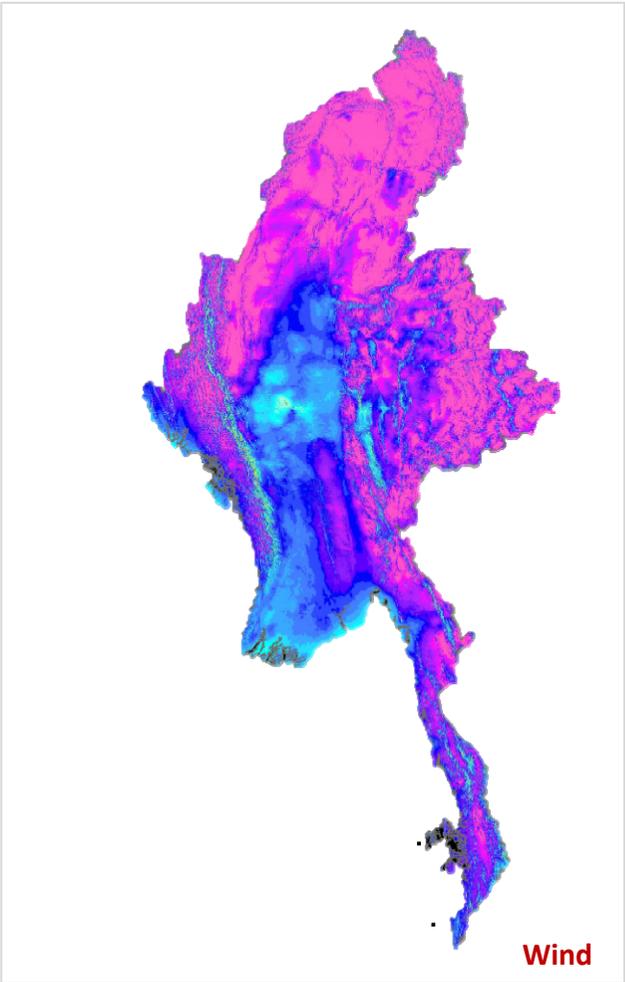
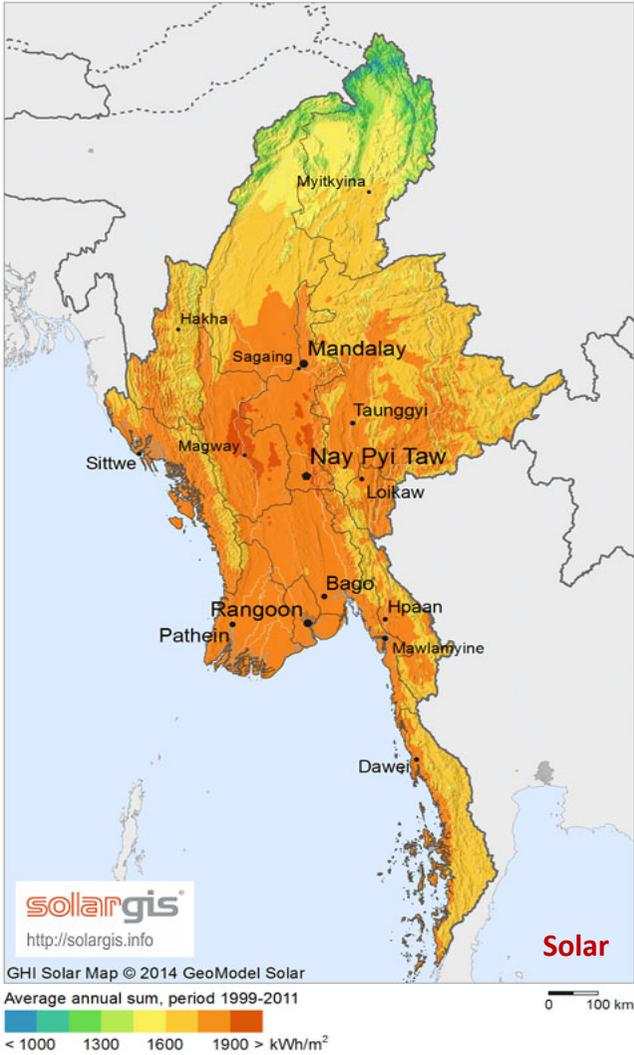
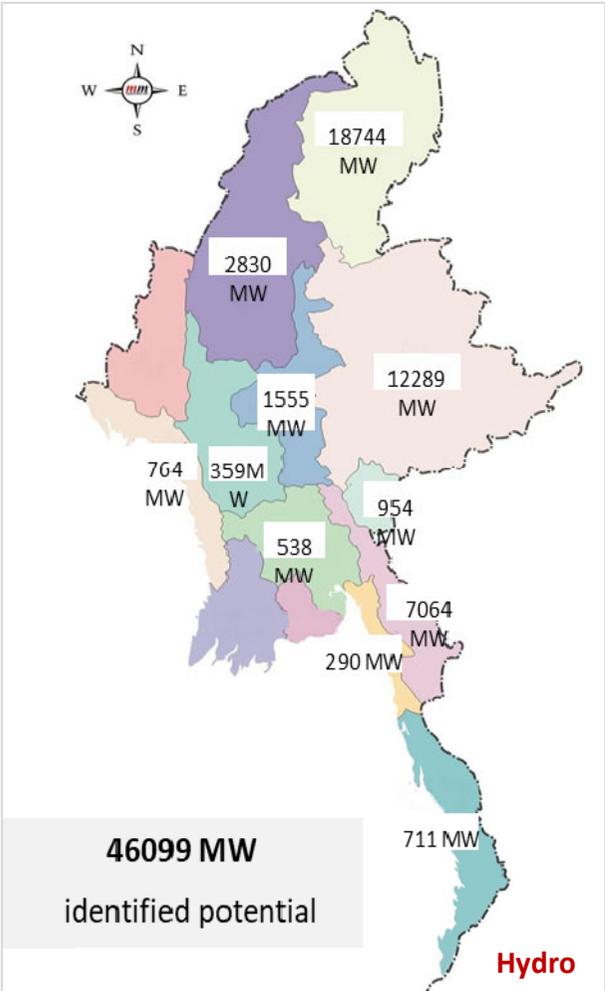
**Hein Htet**

**Deputy Director General**

**Department of Electric Power Planning**

**11.7.2019**

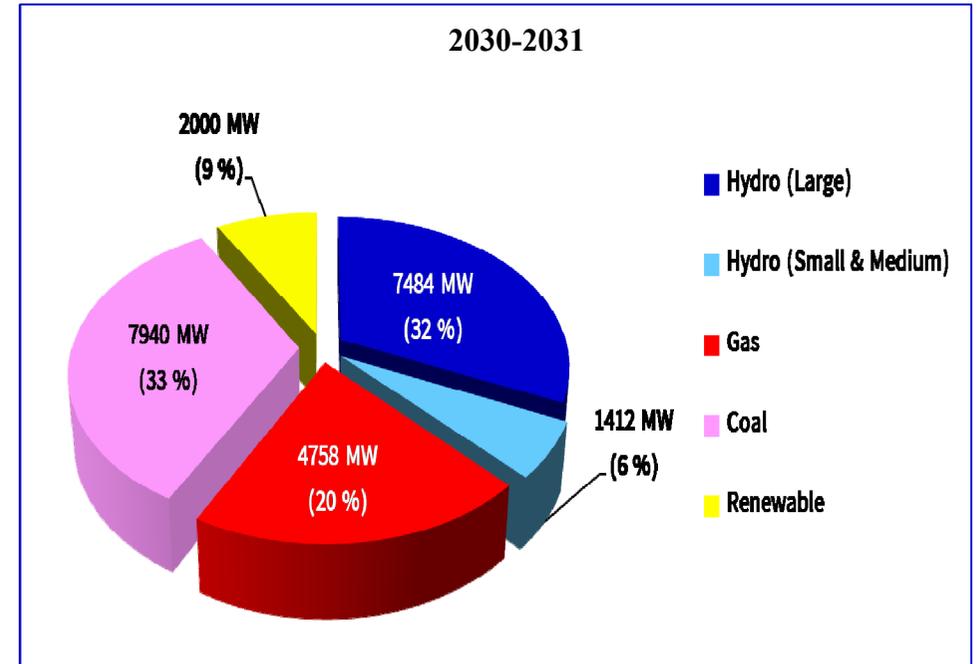
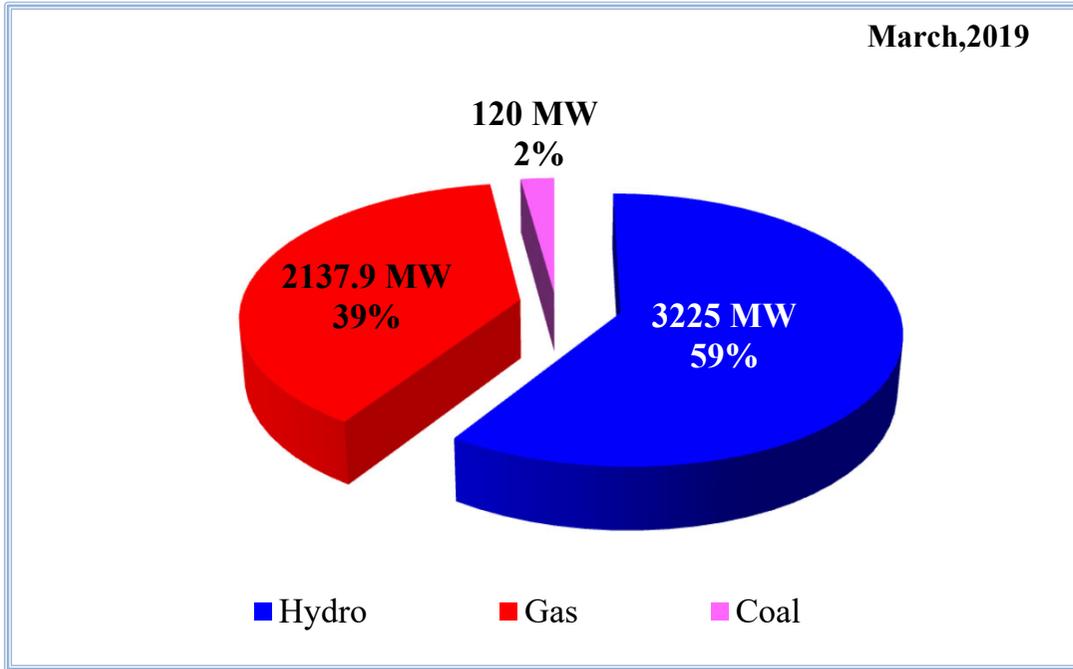
# Potential Renewable Energy Resources in Myanmar



Hydropower	108,000 MW ( Mega Watt )
Solar Power	51,973.8 TWh per year ( Terra Watt Hour / year )
Wind Power	365.1 TWh per year ( Terra Watt Hour/year )

(Source: Ministry of Energy 2013, ADB 2012 and JEPIC 2012)

# Current Generation Mix and Future Perspective



## Balanced Generation Mix Approach

National Electricity  
Master Plan (NEMP)

23594 MW

9% Renewable with the total installed capacity of 2000 MW by 2030

38% Hydro by 2030

# National Renewable Energy Committee (NREC)

Formed on 6<sup>th</sup> February 2019

Mandate to implement Renewable Energy Development Activities

Chaired by Minister of Ministry of Electricity and Energy

9 Ministries, 1 Regional Council, 2 City Development Committees, 5 Organizations included

15 Duties and Functions

8 Working Groups

First meeting on 1<sup>st</sup> March 2019

**Establishment of  
National Renewable  
Energy Committee**

## Working Groups under NREC

- 1 Technical Working Group
- 2 Legal and Commercial Working Group
- 3 Training and Research Working Group
- 4 Mini-Grid and Off-Grid Working Group
- 5 Energy Efficiency Working Group
- 6 Renewable Energy Law Formulation Working Group
- 7 International Relation Working Group
- 8 Climate Change and Environmental Working Group

# Collaboration with International Organizations

International Organizations



Framework Agreement signed on 19<sup>th</sup> July 2018



Joined on 30<sup>th</sup> October 2018

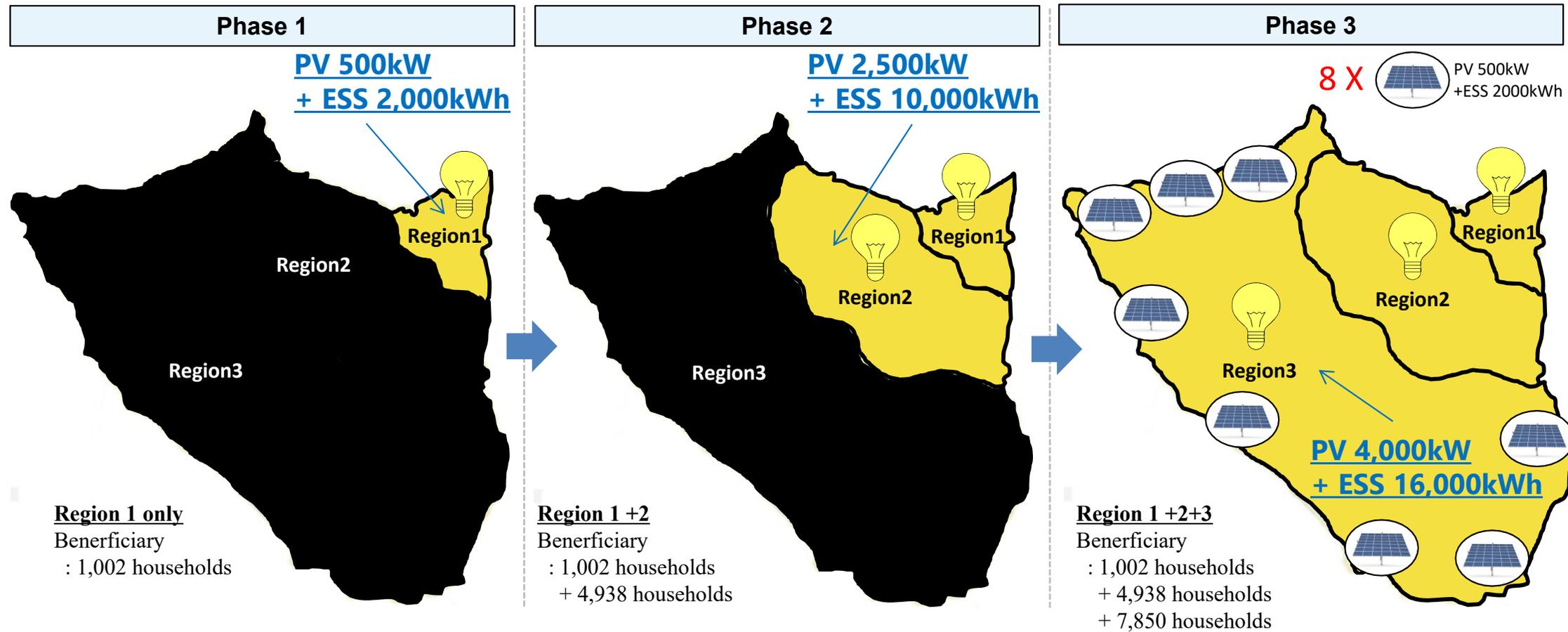
MOU

Ministry of Education, Myanmar + Ministry of New and Renewable Energy, India

DRI, Ministry of Education, Myanmar + Asia Air Survey (AAS), Japan

Ministry of Electricity and Energy, Myanmar + Embassy of Denmark

# Manaung Island 24 hours Electrification Plan



Item	At Present	Phase 1	Phase 2	Phase 3
Generation Method	Fuel Diesel	PV + ESS + Fuel Diesel		
Generation Time	6H	24H		
Generation Capacity	1,250kW	1,750kW	4,250kW	8,250kW
Power Consumption / day	1,500kWh	2,000kWh	12,000kWh	28,000kWh

## Solar Energy Utilization



- Sunlabob Renewable Energy Ltd
- 117 kWp Solar System at Junction City
- 92.6 kWp Solar System on Garment factory
- Located in Yangon

- Mandalay Yoma Energy
- 110 kWp Solar System
- 240 kWh ESS
- Located in Sei Taw Village, Yinmarbin, Sagaing



- SHS reached 2700 Villages in 95 townships
- Power supply to 186 schools and 524 health centers
- 8 pilot hybrid Solar Mini-grid in 2017

# Floating Solar Development

Technical and Financial Assessment y  
Assisted by **WORLD BANK** for  
Grid Connected **PV + Hydropower**

Three Hydropower Projects selected out of 29

1. **Lower Paung Laung** (Floating 30 MW+ Ground 30MW)
2. **Shwegyin** (Floating 75 MW + Ground 282.5 MW)
3. **Kun** (Floating 60 MW)

The World Bank shared  
feasibility study report of these 3  
projects



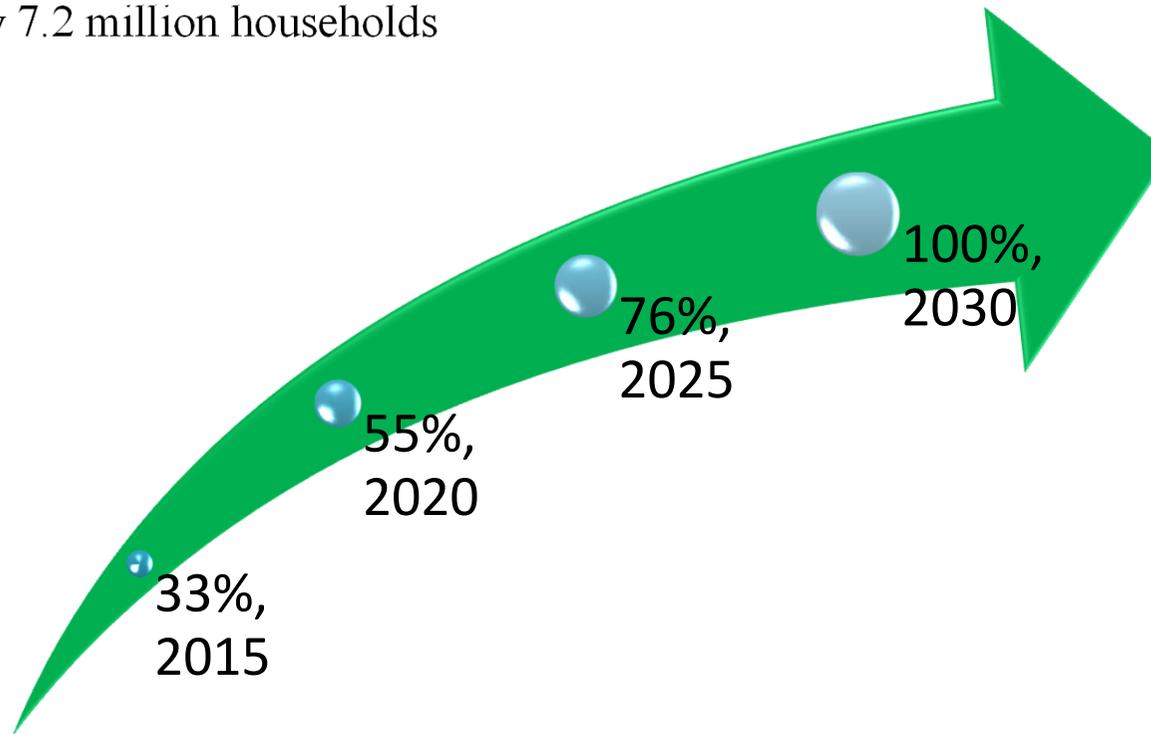
## Biomass Power Generation



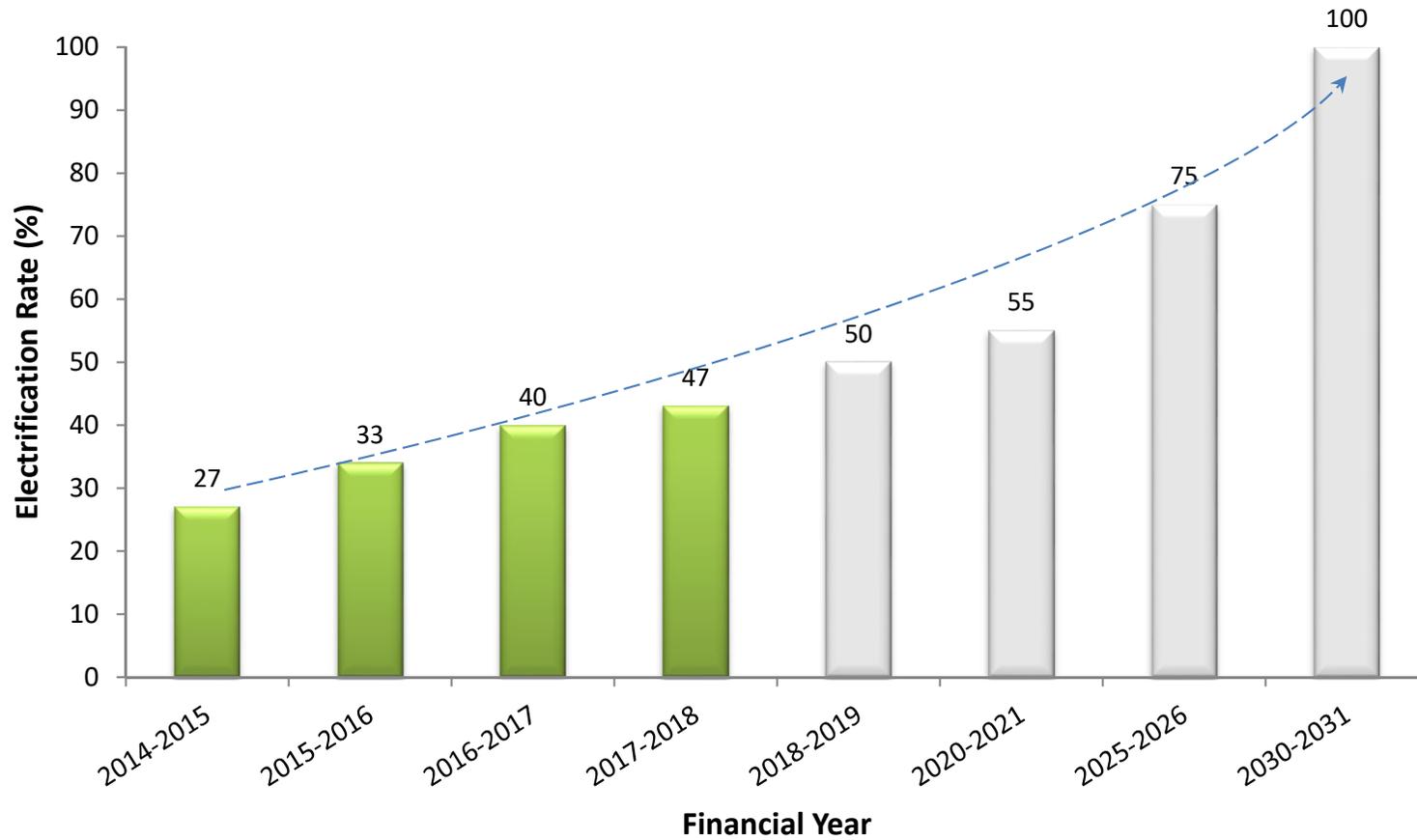
- Proposal made by Great Wall Group of Co., Ltd
- 60 + 60 MW Biomass Power Generation Systems
- Located in Katha, Sagaing Region
- 100,000 acres of farming land
- Using energy grass, straw and agricultural waste as a feedstock

## National Electrification Plan (NEP)

- Implementation Agencies
  - Ministry of Electricity and Energy (**On-Grid**)
  - Department of Rural Development, MoALI (**Off-grid**)
- Universal access to electricity in Myanmar by 2030
- Estimated cost **US \$ 5.8 billion** (grid and off-grid)
- Electrify 7.2 million households



## 2030 Electrification Target



**100 % Electricity Access** by 2030

**7.2 Millions**  
Households Coverage

# Current Implementation of Off-Grid Electrification Programme

Off- Grid Electrification Program for 5 Years Plan (2016~2021)

Sr, no	Fiscal Year	SHS		Mini-grid		Total		Remark
		Village	Household	Village	Household	Village	Household	
1	2016-2017	2708	141465	10	1503	2718	142968	Complete
2	2017-2018	1597	86870	35	6868	1632	93738	Complete
3	2018-2019	2434	125649	100	10000	2534	133649	On Going
4	2019-2020	1500	122950	100	9095	1600	132045	Plan
5	2020-2021	1500	128550	100	7380	1600	135930	Plan
Total		9739	605484	345	34846	10084	638330	

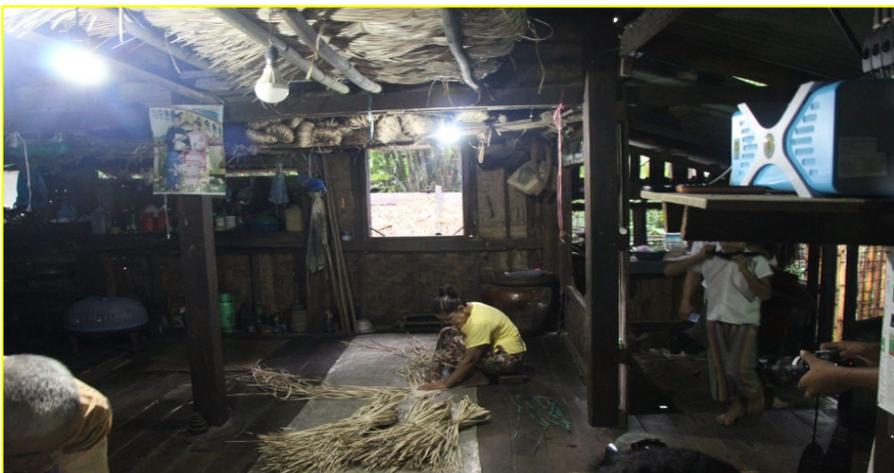
## Budget Allocation for SHS

DRD Budget + World Bank's IDA Loan +Public Contribution

## Budget Allocation for Mini-Grid System

NEP budget 60% + Developer 20% +Community 20%

# DRD- NEP's Solar Home Systems



## DRD- NEP's Mini-Grid Projects



63 kW Solar Mini-Grid System combined with 50 kW(Diesel Backup System)



110 kW Solar Mini-Grid System



30.72 kW Solar Mini-Grid System combined with 24 kW(Diesel Backup System)



Distribution Line and Streetlight

# DRI-Research Activities

## Green House Type Solar Dryer

(4 nos of projects , Boke Pyin, Ye Township, Magwe region and DRI campus)



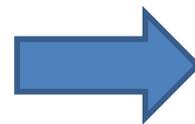
## 3.5 m<sup>3</sup> family type biogas plant

(5 nos of plants, in Bogalay Township, Ayeyarwaddy Delta Region)



## Cooperation with China

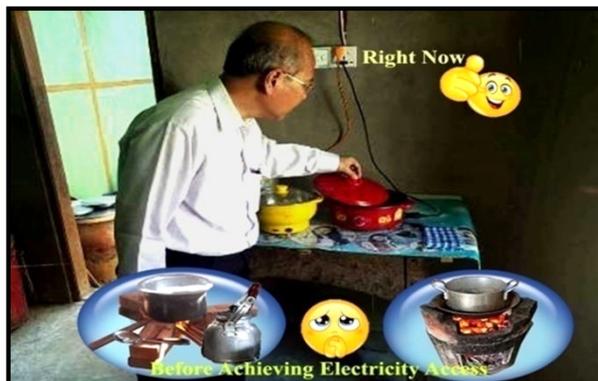
- 1.Global Environmental Institute (GEI),
- 2.Guangzhou Institute of Energy Conversion,
- 3.Chinese Academy of Science



Potential Assessment of Solar Energy Zones and Selection of Interested Area

# Positive Impacts on Local Communities

- ❖ Promote Education and Health (Public Facilities: School, Health Center, Religious Building, Streetlight, etc.)
- ❖ Utilizing More Electrical Appliances (Mobile Phone, TV, Refrigerator, Sound Box, etc.)
- ❖ Productive Uses (Water Pump, Forage Chopper, Mill, Welding and Lathe, etc.)
- ❖ Reducing the Expenditure and also Environmental Impacts



# Activities in Energy Efficiency and Conservation Sector

## Energy Efficiency and Conservation Policy, Strategy and Roadmap

- Undertaken by Ministry of Industry
- focuses on four main sectors: industrial, commercial, residential and public
- targets are 12% energy consumption reduction by 2020, 16% by 2025 and 20% by 2030

## Energy Efficiency and Conservation law, regulation and guideline

- Aiming to boost effective use of energy in all round sectors
- Already drafted Energy efficiency and conservation law
- Developing the Energy efficiency and conservation legal framework is in progress
- Drafting of Industrial energy conservation guideline is in progress

## EE&C activities by MOI

- Improvement of Industrial Energy Efficiency (IEE) Project (2015-19) is being implemented by cooperating with UNIDO
  - Technical assistance is being provided to implement EE&C activities in Public and Private factories
  
- ASEAN-Standard Harmonization Initiative for Energy Efficiency (ASEAN-SHINE) Programs by cooperating with UNEP
  - Energy Efficiency and Green Building Codes will be developed
  - Minimum Energy Performance Standard (MEPS) and labeling program will be implemented.

## RE Opportunity in Myanmar

- Clear renewable energy target
- High potential of renewable energy resources
- Potential market in the region
- Investment opportunities in both generation, transmission and distribution areas
- Potential market due to rapidly growing electricity demand
- Tax Incentives
- Require huge investment in offgrid areas
- Skilled workforce availability

**Thank You.**