Energy Politics and Conflict , Green Energy Advocacy in Shan State: A case of decentralized energy and resource practices in Danu, self-administrative area

Conflicts and resource politics in Myanmar
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Introduction and background

- Rich in resources; mining, water-related energy projects,
- Forests, unique ethnic diversity & ecosystem
- Conflicts and civil wars, peace and federal
- Rich in renewable energy sources…

Myanmar's power sector reality

A) National grid: about 35% of the country area, have been developed under the centralization National grid.

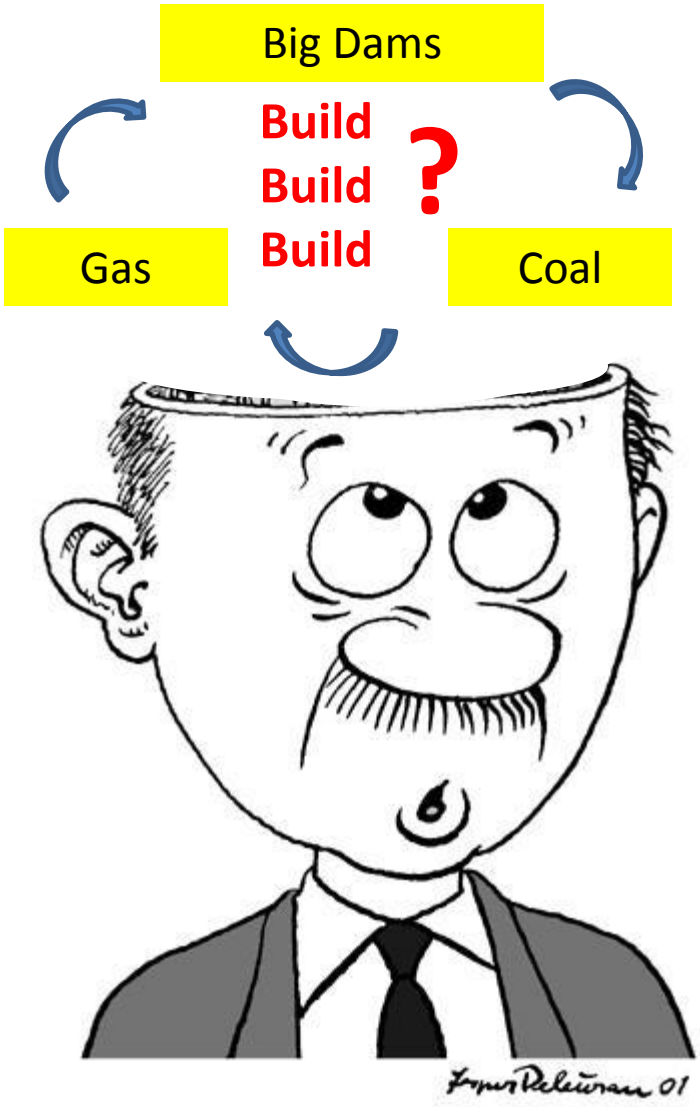
B) Off grid: thousands of decentralized isolated mini-grids operated by local entrepreneurs, but most people remain without electricity, Shan state is a leading for off-grid energy development in Myanmar.

C) IPP for export: about 46,000 MW of hydro power projects have been targeted for export .

What kind of development framework is appropriate for each area?

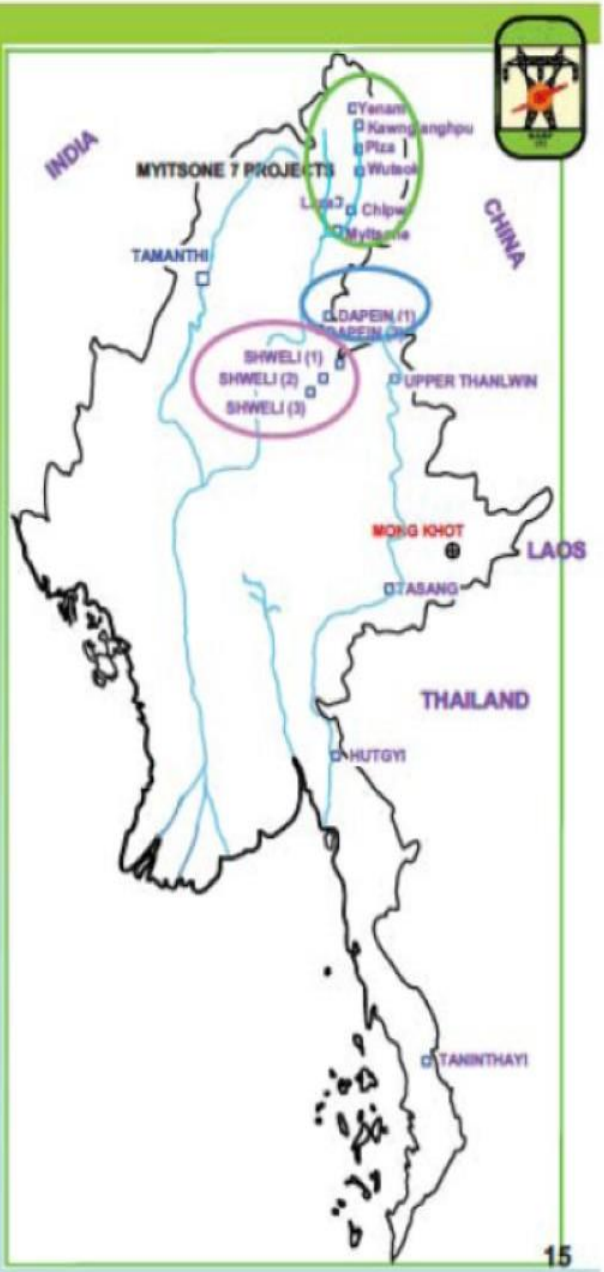
A. **National Grid**: infrastructure development for the country's economic and social welfare.
B. **Off Grid**: cannot wait for grid expansion. Electricity is a basic right for people.
C. **IPP for export**: investment to exploit local resources to produce the electricity as export commodity.
   - Must seriously consider high costs of tradeoffs: electricity vs. fish, destruction of local livelihoods, etc.

Typical centralized planners' mindset



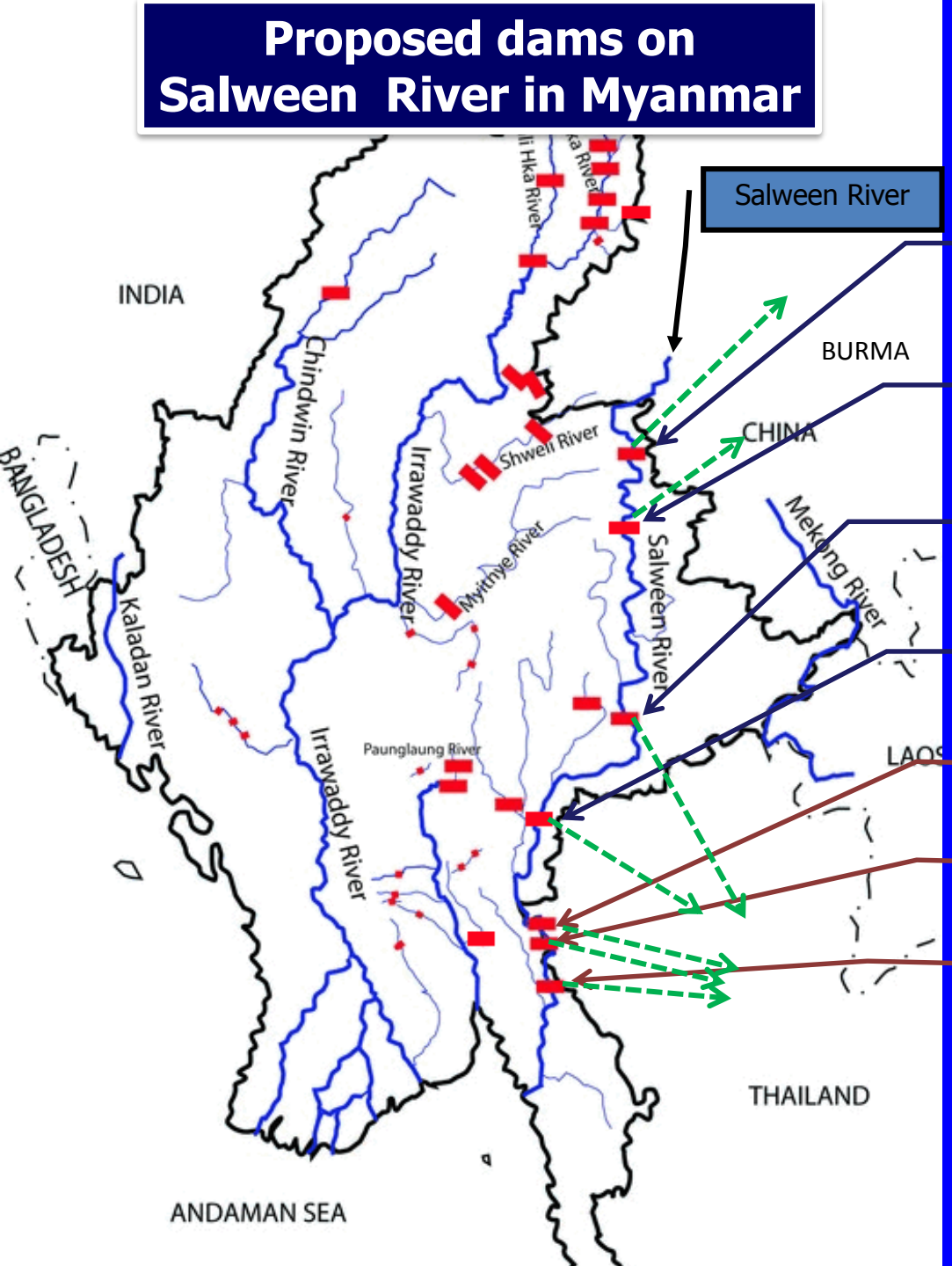
Power Projects for Cross-border Power Interconnection

Sr. No.	Name of Project	Installed Capacity (MW)	Annual Energy (GWh)	Current Status and Progress
1.	Yenam	1,200	6,650	Negotiation for Joint Venture Agreement with China Power Investment Corp: (16,500 MW)
2.	Kawnglangphu	2,700	14,730	
3.	Pisa	2,000	11,080	
4.	Wutsok	1,800	10,140	
5.	Chipwi	2,800	15,210	
6.	Laza	1,900	10,440	
7.	Myitsone	4,100	18,320	
8.	Dapein (1)	240	1,065	MOA with DUHD Submitting Joint Venture Agreement to Cabinet.
9.	Dapein (2)	140	633	MOU with DUHD in (25.9.08)
10.	Shweli (1)	600	4,022	Commissioning in 2008 by DHPI & YUPD.
11.	Shweli (2)	640	3,310	MOU signed with Huaneng Lancang River Hydro Power Co. Ltd in 14th Nov 2009.
12.	Shweli (3)	800	3,995.5	Will be implemented by DHPI.
13.	Upper Thanlwin	1400	7,338	MOA with Hanergy Holding Group Ltd.
14.	Ta Sang	7110	35446	JV Basis with MDX Group, Thailand, But project is delayed.
15.	Hutgyi	1,360	7,325	Negotiation for MOA with EGAT
16.	Tanintharyi	600	3,476	MOU with Italian-Thai.
17.	Mong Khot	3x123	-	Thailand
18.	Tamanthi	200x6	6688	Agreement signed NHPC (India)
Total		31,059		



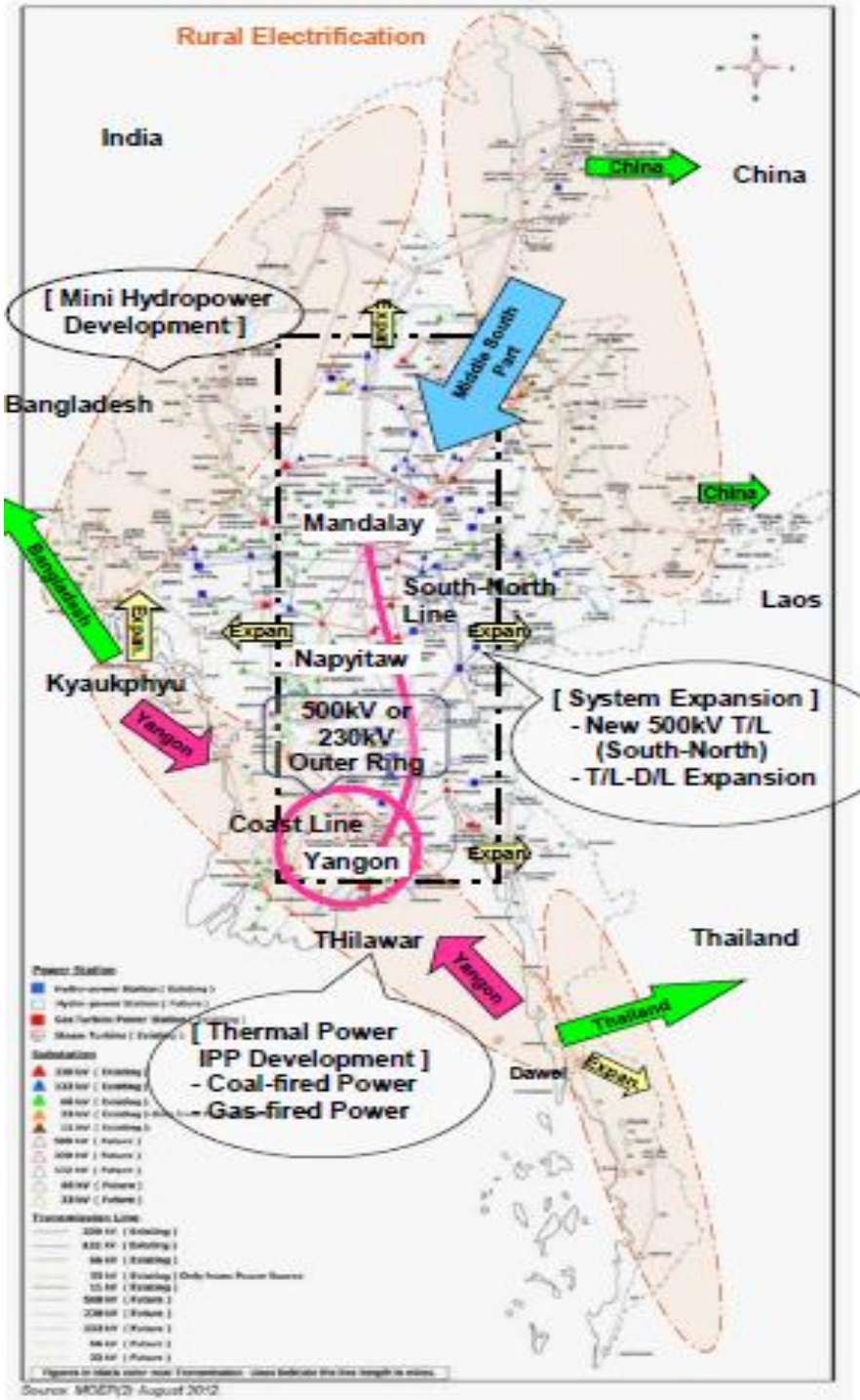
Proposed dams on Salween River in Myanmar

The total install capacity is 15,970 MW which most of electricity will be sold to Thailand and China.



- **Kung Long Dam, 1,400 MW**
  (Hanergy Holding Group Company, Gold Water Resources Company)
- **Nong Pha Dam, 1,000 MW**
  (Hanergy Holding Group Company, Gold Water Resources Company)
- **Tasang / Mine Ton Dam, 7,110 MW**
  (EGAT Inter. - China Three Gorges Corporation - IGOEC/IGE)
- **YWATHIT Dam, 4000 MW**
  (China Datang Overseas Investment Company)
- **Weigyi Dam, 4,000 MW**
  (EGAT)
- **Dagwin Dam, 500 MW**
  (EGAT)
- **Hutgyi Dam, 1,360 MW**
  (EGAT Inter. – Shinohydro Corporation Co. - IGOEC/IGE)
  น้ำท่วม 700 ตารางกิโลเมตร

Conceptual Map of Power Generation Development Plan



Source: JICA, *Final Report: The Project for Formulation of the National Electricity Master Plan in the Republic of the Union of Myanmar,* December 2014..

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Table 9.1-12 Development Cost of Revised Scenario 3

Billion $

Item	2020	2030
Power Generation	13.8	55.2
Power System	2.7	5.6
Total	**16.5**	60.8

Note 1 : Cost is not calculated from present value.
Note 2 : O&M cost and Fuel cost is included.
Note 3 : Transmission and Substation is included.

Energy needs

Who need what energy?

Development ?
Who gain, Who lose?

- How many crimes are committed in the name of development.
- Who will pay the cost and who will shoulder to burden.
- Issues of Inequality.
- Social and Environmental Justice.

Off-grid development and initiative green energy policy/law: Decentralized energy solutions already practiced for many years in Shan State

Green Energy Law for Shan State

Assumptions of the draft law

- State-level law based on **the federal system of government**
  - Shan State has sovereignty to manage and control activities that take place within its territory
  - Activities whose primary purpose is to deliver electricity across the state and country boundaries are subject to regulation by the Union government (MOEE) but still need Shan State's permission

3 Levels & 3 systems of governance

Small-scale

1 MW or smaller

Generation & Distribution

Self-regulation by Communities

Subject to "Grid-interconnection Permit" if wants to connect to the grid

State "**Ministry**" = Shan State Ministry of Electricity and Energy

Three levels & three systems of governance

State Level

- > 1 MW
- All Distribution
- Generation for consumption in Shan State
- Licensing by State Ministry
- Subject to “Grid-interconnection Permit”

Union Level

- All Transmission
- Generation mainly to deliver electricity across state/country boundaries

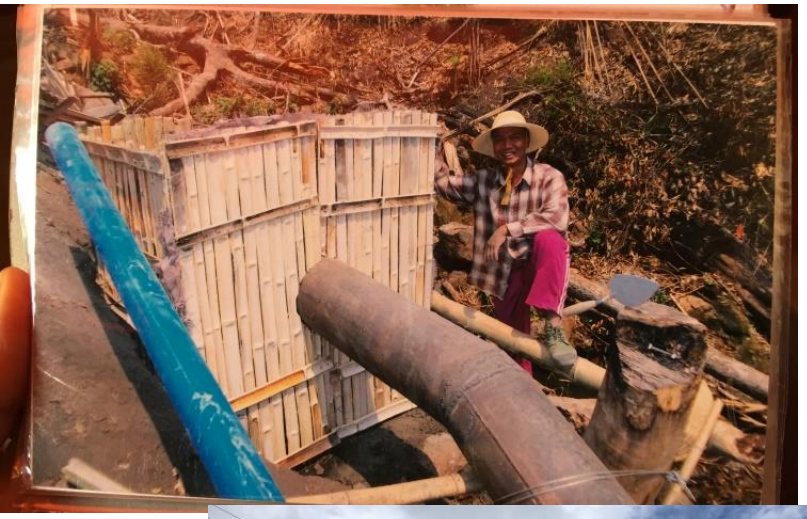
Licensing by Union MOEE

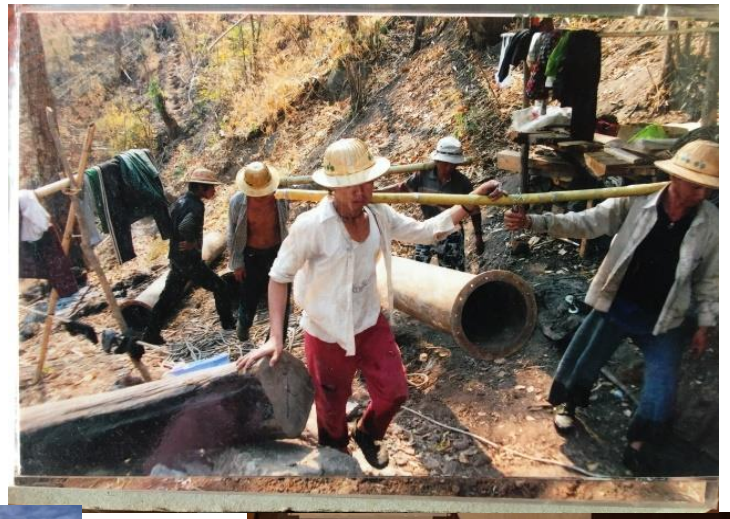
- Subject to “State Administrative Permit”

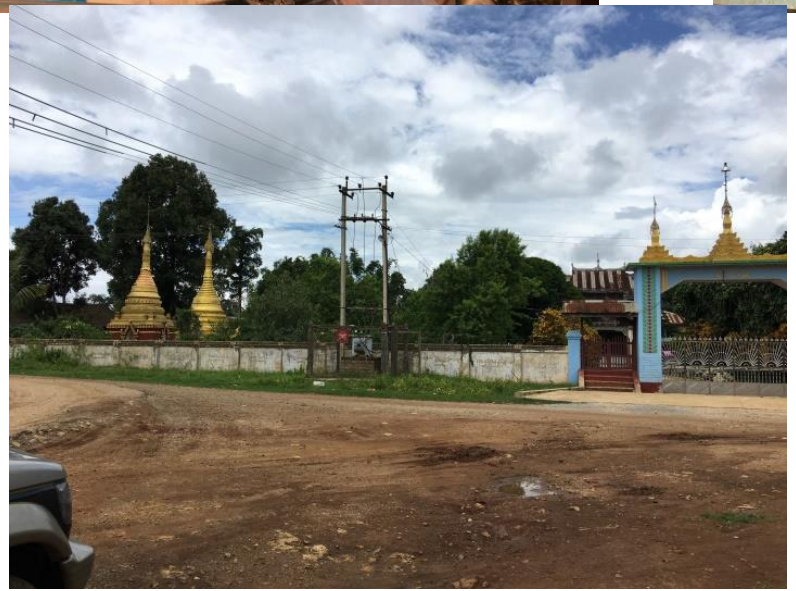
Myanmar Off-grid generation capacity

Type of Energy	Number of Plants
Minihydro (0-1 MW)	5840
Minihydro (1-10 MW)	17
Diesel	11740
Biomass	574
Bio Gas	153
Wind Turbines	25
Solar	94
Steam Turbines	1
Cogeneration plants	4
Natural gas	9
Hydropower	18

Naung Pein Project, Northern Shan State
Many mini & micro hydro projects running more than 10years ago by local developers







Micro hydro and energy uses managed by community in Danu area

Community-led Integrated resource planning and management

Local made small business

Local made workshop by small hydro system

When the grid arrives at Community – owned energy system

Community-centered research: mapping for integrated resources management

Community-owned resource mapping

Shan State: Key provider of natural sources; water, energy and forest to mainland

Pressure of centralization and militarization in Danu Autonomy Area

- Sovereign rights and related issues are potential to be happened in Danu autonomy areas soon…
- On Land
- Water
- Forest
- Electricity
- More critical issue; plan for setting up military camps in Danu area…

We still need to demand for…

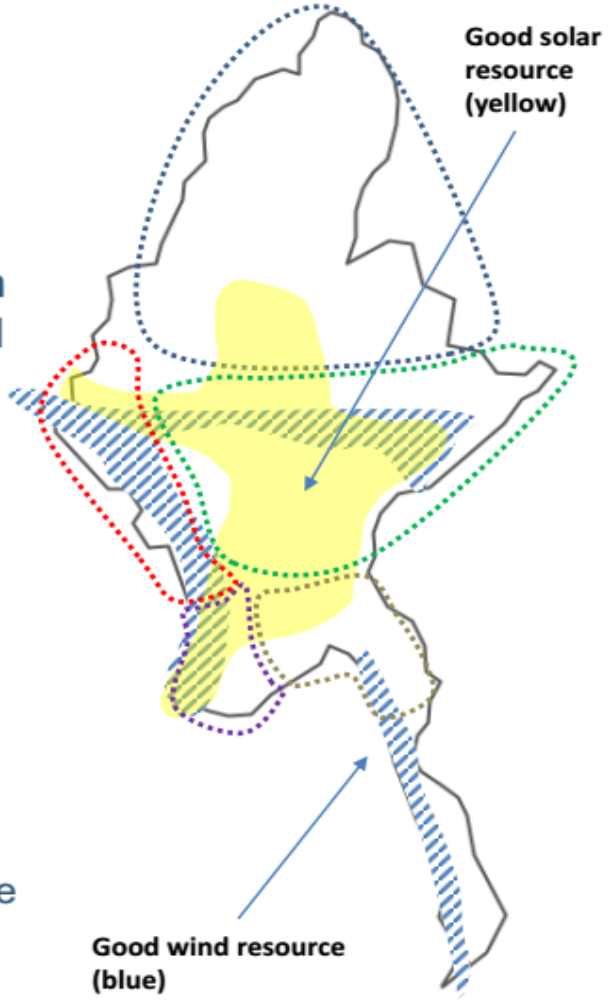
- Fair and equitable decision making
- Effective participation
- Right to say ‘no’
- Alterative development and greening energy options; wind, solar, mini and micro hydro, biomass

Is there a better Way???

Yes…

Potential of renewable energy sources; the best in SE Asia

- **Solar PV resources are concentrated in the central "dry zone" of Myanmar**
- **Attractive wind resources are located in coastal areas of Rakhine, Ayeryarwaddy, Mon and Tanintyari, the western portion of Central Region and scattered areas of eastern Shan**
- **Renewable projects to model include**
  - "Scheduled" new entry: several advanced solar PV projects that already have PPAs, as well as promising solar PV and wind projects
  - "Candidate" new entry: hypothetical wind and solar projects entering on plausible parts of the grid, given underlying resource locations and other factors
  - wind projects were deemed to be a year or two behind solar PV, given need to collect and analyze meteorological tower data; therefore, not much wind enters by the target year of analysis (2020)

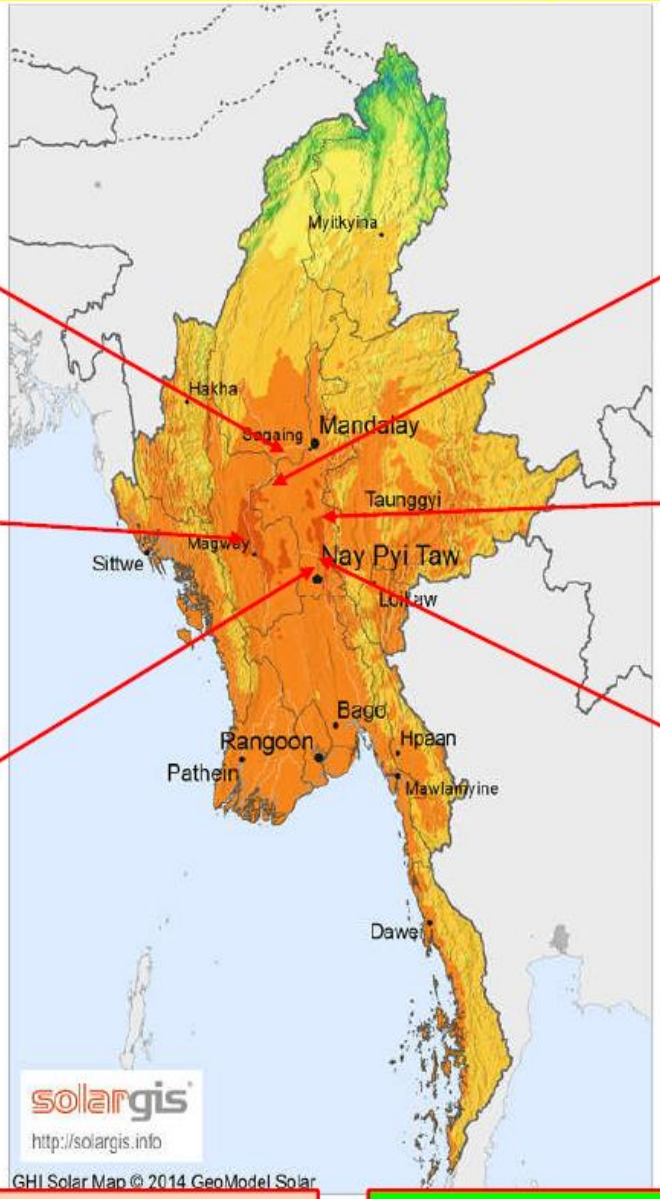


Solar Power Projects in Myanmar

Sagaing, Mandalay
880 MW
Asia Ecoenergy Development, Primus

Min Bu
170 MW
Green Earth Power (Myanmar) Co., Ltd.

Thapyaysan
100 MW
Jewoo Lightech + Investconsult Group & New Energy GmbH



Nabuaing (Myingyan)
150 MW
Convalt Energy Myanmar Co., Ltd.

Wundwin(Meikgtila)
150 MW
Convalt Energy Myanmar Co., Ltd.

Shwemyo
10 MW
Thinkhaypa Energy Service+ JADE IT

Total: 1460 MW

MoU finished (990 MW)

PPA finished (470 MW)


Thank for your attention!!!