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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Kyi Phyo
Myanmar Coordinator of Mekong Energy and Ecology Network (MEE Net-Myanmar)
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 electricity as export commodity.
   – Must seriously consider high costs of tradeoffs: electricity vs. fish, destruction of local livelihoods, etc.
Typical centralized planners’ mindset

- Big Dams
- Build
- Build
- Build
- Gas
- Coal
## Power Projects for Cross-border Power Interconnection

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Project</th>
<th>Installed Capacity (MW)</th>
<th>Annual Energy (GWh)</th>
<th>Current Status and Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yenam</td>
<td>1,200</td>
<td>6,650</td>
<td>Negotiation for Joint Venture Agreement with China Power Investment Corp:</td>
</tr>
<tr>
<td>2.</td>
<td>Kawnglangphu</td>
<td>2,700</td>
<td>14,730</td>
<td>(16,500 MW)</td>
</tr>
<tr>
<td>3.</td>
<td>Pisa</td>
<td>2,000</td>
<td>11,080</td>
<td>MOA with DUHD</td>
</tr>
<tr>
<td>4.</td>
<td>Wutsok</td>
<td>1,800</td>
<td>10,140</td>
<td>Submitting Joint Venture Agreement to Cabinet.</td>
</tr>
<tr>
<td>5.</td>
<td>Chipwi</td>
<td>2,800</td>
<td>15,210</td>
<td>Commissioning in 2008 by DHPI &amp; YUPD.</td>
</tr>
<tr>
<td>7.</td>
<td>Myitsone</td>
<td>4,100</td>
<td>18,320</td>
<td>Will be implemented by DHPI.</td>
</tr>
<tr>
<td>8.</td>
<td>Dapein (1)</td>
<td>240</td>
<td>1,065</td>
<td>MOA with DUHD</td>
</tr>
<tr>
<td>9.</td>
<td>Dapein (2)</td>
<td>140</td>
<td>633</td>
<td>MOU with DUHD in (25.9.08)</td>
</tr>
<tr>
<td>10.</td>
<td>Shweli (1)</td>
<td>600</td>
<td>4,022</td>
<td>MOU with DUHD in (25.9.08)</td>
</tr>
<tr>
<td>12.</td>
<td>Shweli (3)</td>
<td>800</td>
<td>3,995.5</td>
<td>Will be implemented by DHPI.</td>
</tr>
<tr>
<td>14.</td>
<td>Ta Sang</td>
<td>7110</td>
<td>35446</td>
<td>JV Basis with MDX Group, Thailand, But project is delayed.</td>
</tr>
<tr>
<td>15.</td>
<td>Hutgyi</td>
<td>1,360</td>
<td>7,325</td>
<td>Negotiation for MOA with EGAT</td>
</tr>
<tr>
<td>16.</td>
<td>Tanintharyi</td>
<td>600</td>
<td>3,476</td>
<td>MOU with Italian-Thai.</td>
</tr>
<tr>
<td>17.</td>
<td>Mong Khot</td>
<td>3x123</td>
<td>-</td>
<td>MOU with Italian-Thai.</td>
</tr>
<tr>
<td>18.</td>
<td>Tamanthi</td>
<td>200x6</td>
<td>6688</td>
<td>Agreement signed NHPC (India)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>31,059</strong></td>
<td><strong>6688</strong></td>
<td></td>
</tr>
</tbody>
</table>
The total install capacity is 15,970 MW which most of electricity will be sold to Thailand and China.
Conceptual Map of Power Generation Development Plan

### Table 9.1-12  Development Cost of Revised Scenario 3

<table>
<thead>
<tr>
<th>Item</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Generation</td>
<td>13.8</td>
<td>55.2</td>
</tr>
<tr>
<td>Power System</td>
<td>2.7</td>
<td>5.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16.5</strong></td>
<td><strong>60.8</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Type of Energy</th>
<th>Number of Plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minihydro (0-1 MW)</td>
<td>5840</td>
</tr>
<tr>
<td>Minihydro (1-10 MW)</td>
<td>17</td>
</tr>
<tr>
<td>Diesel</td>
<td>11740</td>
</tr>
<tr>
<td>Biomass</td>
<td>574</td>
</tr>
<tr>
<td>Bio Gas</td>
<td>153</td>
</tr>
<tr>
<td>Wind Turbines</td>
<td>25</td>
</tr>
<tr>
<td>Solar</td>
<td>94</td>
</tr>
<tr>
<td>Steam Turbines</td>
<td>1</td>
</tr>
<tr>
<td>Cogeneration plants</td>
<td>4</td>
</tr>
<tr>
<td>Natural gas</td>
<td>9</td>
</tr>
<tr>
<td>Hydropower</td>
<td>18</td>
</tr>
</tbody>
</table>
Naung Pein Project, Northern Shan State
Many mini & micro hydro projects running more than 10 years 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’
- Alternative 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!!!