Middle Yeywa Project
Project Location
Proposed Project Site
Steep valley, no geological / geotechnical restrictions

Myitnge (Nam Tu) river: Dry season rapids at proposed project site
Middle Yeywa Project

PREFEASIBILITY STUDY FINDINGS
PFS Report
Submitted to MOEP

- The draft PFS report was submitted to MOEP on 29 June 2015
- MOEP comments on the draft was received on 3 August 2015
- The comments were discussed in detailed on several occasions in meetings and letters since
Salient Features of the Project
Capacity of 700 MW, RCC dam

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
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<tbody>
<tr>
<td>Reservoir</td>
<td>Water Level: FSL at 320, MOL at 300 masl, Dead storage: 258 MCM, Live Storage 195 MCM</td>
</tr>
<tr>
<td>Dam</td>
<td>160 m high RCC dam with an upstream slope of 0.1:1 and a downstream slope of 0.85:1; crest length of 244 m, and dam volume of 1.65 MCM</td>
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<tr>
<td>Spillway</td>
<td>Gated crest spillway with 4 bays equipped with 15mx17m (width/height). With a steep chute on the downstream face and a &quot;ski jump&quot; dissipation structure. Safety check flood: PMF of 12,000 m³/s</td>
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<tr>
<td>River Diversion</td>
<td>Protection against 50 years Return Period flood during the season. 760 m long diversion tunnel on the right bank with an inner diameter of 10 m and overtoppable cofferdams made of RCC (u/s) and hardfill (d/s)</td>
</tr>
<tr>
<td>Power Waterways</td>
<td>Separate outdoor free standing power intake on the right bank with 440 m long (average) pressurized twin power tunnels (D=10 m and D=8.0/5.6m, respectively in concrete lined and steel lined sections) and 110 m long twin tailrace tunnels (D=11.2 m)</td>
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<tr>
<td>Power Cavern</td>
<td>180mx25mx47m (LxWxH) power cavern equipped with 4 Francis type units of 175 MW with the length orientated sub-parallel to the river axis. 284 m long access tunnel to powerhouse</td>
</tr>
<tr>
<td>Transformer Cavern</td>
<td>55.6mx16mx14m (LxWxH) transformer cavern with 2 30mx5mx6m busduct tunnels (LxWxH)</td>
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<tr>
<td>Transmission System</td>
<td>230 kV switchyard (dam site). 106 km long 2x230 kV double circuit transmission line and connection at 230 kV Belin substation</td>
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<tr>
<td>Access Roads</td>
<td>Upgrade of existing roads (L=13.0 km) new access road in easy morphology (1.8 km) and new access road in difficult morphology (around 10 km)</td>
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<tr>
<td>Nam Tu bridge</td>
<td>New conventional concrete bridge 300 km long</td>
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Expected Energy Generation
Good hydrology, to generate 3,287 GWh pa

Monthly Power Generation

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<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<tbody>
<tr>
<td>All</td>
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<tr>
<td>Peak (morning and evening)</td>
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<td>Non Peak</td>
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<tr>
<th>$Q_d$</th>
<th>Gross Head</th>
<th>Installed Capacity</th>
<th>Net Energy production</th>
<th>Load factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(m³/s)</td>
<td>(mCa)</td>
<td>(MW)</td>
<td>(GWh/y)</td>
<td></td>
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<tr>
<td>592</td>
<td>135</td>
<td>700</td>
<td>3,253</td>
<td>0.53</td>
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</table>
Early Environmental and Social Study
No “red flags”

Competent international consultants overseeing field work by local companies, and the analysis of results in the Initial Environmental and Social Impact Assessment

**Environmental**
- Baseline for all key environmental aspects established
- Reconnaissance of flora and fauna species
- Preliminary environmental management strategies identified

**Social**
- Initial consultations with local communities and socio-economic survey complete
- Good atmosphere, locals are generally positive
- Low social impacts, minimal loss of land and no resettlement
- River and inundated not a major source of food or resource
- Preliminary social approach for mitigation and development identified
Potential Project Structure
Public Private Partnership

Soft loans
WBG (IDA)

Grants
MFA?

Equity partner

PRI
MIGA

HoldCo

IFC
International Finance Corporation

ADB
Asian Development Bank

MEPE's payment obligations under the PPA to be backstopped by GoM

Counter indemnity
20%

14.5%

51%

14.5%

Middle Yeywa HPP

Loan 1A
IFC

Loan 2
ADB

Loan 3
DFIs

PRG
WBG (IDA)

Loan 1B
Commercial

Commercial lenders require support from PRG (Partial Risk Guarantee)
Feasibility Study Stage

Step 1
- Agreeing the Basic Commercial Terms with MOEP
- Status: Completed

Step 2
- Feasibility Study Phase I
- Feasibility Study Phase II

Step 2 Phase I
- New Administration, new Minister of Electric Power
- Commencement of geotechnical studies
- Commencement of Environmental and Social studies
- Commencement of all works required in this dry season

Step 2 Phase II
- Continuance of all works necessary for the completion of the Feasibility Study

- According to the MOU, the Feasibility Study Stage consist of a 2-year period expiring on 2 August 2017

- The Feasibility Study consists of:
  - Technical feasibility studies including but not limited to geotechnical studies, detailed topography, design and drawings
  - Environmental and Social Impact Assessment
  - Environmental and Social Mitigation Plan
  - Project Financial Assessment