RURAL ELECTRIFICATION PHASE II PROJECT (REPII)
(IDA grant No. H538-LA; GEF Grant No. TF098662)

AIDE MEMOIRE

Houaphanh Village Hydropower and Vientiane Biogas-power Sub-projects

March 8-13, 2015

1. A World Bank team\(^1\) visited Houaphanh and Vientiane provinces to provide implementation support to the two sub-projects under the MEM off-grid investment component of REPII, Houaphanh village hydro project and Vientiane province biogas project respectively, between March 8 and 13, 2015.

2. The objectives of the mission were: a) to review the implementation progress of the project; and b) to supervise the safeguards policy compliance status. The mission met with IREP officials, provincial and district officials and contractors at villages and construction sites. The mission visited the two village hydropower project sites in Houaphanh Province and the three villages (Pao Neua, Pao Tai and Ban Phien Pheu) to which electricity from the two power houses will be supplied. The mission also visited the site for the biogas power project at U.D. farm, Phonehong District, Vientiane Province.

3. As part of the World Bank’s Access to Information policy, the team sought guidance from the implementing agency as to whether the aide-memoire would be publicly disclosed. It was agreed that it would be disclosed.

Key findings:

A. Village Hydro Power in Houaphanh Province

4. There are two pico hydro power stations in Houaphanh province, Pao Neua and Pao Tai village, each of 25kW. The Pao Neua station will only provide electricity service to Pao Neua, with 63 households and 376 people. Each household will have 396W capacity of installation on average. The Pao Tai station can provide electricity service to two villages, Pao Tai and Ban Pheing Pheau, with 90 households (36+54) and 454 people (184+270). Each household will have 277W capacity on average.

5. **General implementation status of the two stations.** Some progress has been made for Pao Neua, including the construction of the structure of power house, holding post pit and ditch of penstock, and the intake and sand trap pool. However, no activities have been taken for Pao Tai besides the access road and the distribution post in the village of Pao Tai. The key pending activities are construction and installation of intake, penstock, power station (turbine, generator, and control system), and distribution lines.

6. The major concern of the implementation of the project is the timing, since the rainy season is coming and there are only 3.5 months left before the closing date. The mission learnt that key equipment import application is still pending with the Ministry of Planning and Investment (MPI) approval. Only when the MPI approve the import application, the equipment supplier in India can deliver the equipment.

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In addition, the oversea and inland transportation will all take time. This will leave limited time for equipment installation. The Lao New Year in mid-April may cause additional delay.

Safeguards issues

7. Environment: Environmental performance is moderately satisfactory. Contractor developed abbreviated Environmental Management Plan (EMP) for the project sites. Access roads to both project sites were constructed. KSC Construction Company received official approval from local authority to clear some bushes and cut some trees and branches for the construction of the roads. Construction site camp (including latrine and workers'camp) was prepared for Pao Neua project. Contractors were advised to clean construction waste and return the camp to its original condition. The contractors, the project supervision consultant (Chiang Mai University) and IREP agreed to incorporate safeguard progress performance in progress report.

8. Social: the team was notified that the original location proposed for powerhouse in Pao Tai project site is right next to a very old cemetery. IREP, contractors and supervision consultant (Chiang Mai University) were not aware until site preparation works were carried out. Village chief informed that this cemetery is hidden untouched since the French protectorate period. No one was able to provide clear answer on the history of the site. The contractors have discussed with local authority and decided to divert the location of the powerhouse to a nearby location (roughly 20-30m away from the original site).

Recommendation and requirement to IREP

9. To complete the construction and successfully close the grant in time, the Ministry has to work out an action plan accounting the milestones backward from June 30, 2015 (equipment production, delivery, installation, and commissioning) and take the following action immediately:
   - Coordinate with the MPI to facilitate the approval of the equipment import;
   - Require the contractor to move forward with those construction activities under its control and get ready for turbine and generator installation;
   - The supervision contractor should monitor the implementation progress and quality closely and report to IREP in a timely manner;
   - Supervision consultant and contractors have to include safeguard implementation progress in the progress report;
   - A careful assessment of location for powerhouse for Pao Tai project is needed to mitigate/avoid impacts to the existing cemetery; and
   - Consider dropping the addition of Ban Pheing Pheau and let the contractors focus on completing Pao Neau and Pao Tai.

B. Biogas project in Vientaine

10. The UD Farm biogas project is located in Phonehong District, Vientaine Province. It is invested by the pig farm owner to treat pig dung with anaerobic technology to reduce the pollution to the local environment and to generate electricity. There are currently about 4,000 pigs in the farm. The installed power generation capacity is 260kW. The project construction contract was signed in June 2014 and the construction started in October 2014.

11. General implementation status of the project. By the mission time, 70 percent of the civil works construction activities have been completed. The power generation equipment import application has been approved by MPI and the equipment will soon be delivered to the site. It is expected that the construction
activities of the project will be completed by end of May 2015.

12. IREP raised an issue during the mission that they missed to include the waste water holding pond component in the bidding document, which is in the technical design and supposed to be included to treat waste water to be used for irrigation at the farm. The construction cost is about US$10,000 to 15,000.

Environmental Safeguard issues

13. On November 27 2014, a Bank's safeguard mission visited the project site, accompanied by IREP officials. The team met and discussed with Deputy Director of Provincial DEM, Mr. Khamphout NAMVONGSACK to understand the role of the department in monitoring the local projects including UD farm biogas financed by the Bank. Meeting was also held with biogas farm owners and Assistant Professor of Khon Kaen University (who jointly with Chiang Mai University was providing technical support to the biogas design and supervision). A total of 11 persons attended the meeting. Field visit to the construction site was then carried out.

14. During the visit, there were 29 workers working on the ground with some heavy equipment were mobilized (2 backhoes, and 4 trucks). KSC, the local contractor, with the support of Khon Kaen University has conducted the Initial Environmental Examination and proposed mitigation measures for the construction and operation phase, including waste water treatment. IREP has drafted Safeguard Operation Manual (SOM) that includes mitigation measures for construction of biogas plants and operation. The SOM were shared with KSC and farm owners for safeguard implementation.

15. The overall safeguard implementation is moderately satisfactory. Because KSC is new to the biogas plants, it requires regular monitoring and reporting of the progress. The Bank recommended KSC to provide monthly progress report (includes safeguard monitoring results) to be submitted to IREP and the Bank for review.

16. During the March 13, 2015 visit, the mission found out that safeguards progresses were not included in the progress report, particularly the construction of waste treatment and workers’ safety issue was not properly reported.

Recommendation and requirement to the Ministry

17. Water treatment (aerobic) is one of the key part of the project to meet the discharge standard and reuse the waste water for plantation irrigation. Therefore, it is requested that IREP should work with the contractor to catch up with the design and construction of the water treatment component. IREP should submit a report on cost analysis and contract amendment to the Bank for No Objection by end of March.

18. Supervisor consultant and contractor have to include Safeguard implementation progress into the progress report
Annex 1. Pico Hydro projects in Pao Tai and Pao Neua, Huoaphanh Province

Provincial Department of Industry and Energy, Huaphan

Project sites in Xamtau district

Penstock

Water intake-upstream

Powerhouse

Official endorsement by Local Authority on road const.
Annex 2. Field visit to the Construction of Biogas Plant in Vientiane province

CMU-CD (Channel Digester)  CMU-CD (Channel Digester)

Camp Site  Biogas Plant

Future Reservoir (after treated)  Current waste water channel (untreated)