

Nepal SREP-Supported Extended Biogas Project (TF16552)
Implementation Review and Support Mission
August 5–19, 2015

AIDE MEMOIRE

I. INTRODUCTION

1. This aide memoire summarizes the results of the implementation review and support mission of the Nepal SREP-Supported Extended Biogas Project (NSEBP), carried out from August 5 to 19, 2015. Several rounds of meetings with officials of the Alternative Energy Promotion Centre (AEPD) and relevant stakeholders were held. A half-day field visit to a 35 m³ biogas plant constructed by Global Green Energy Pvt. Ltd. in Bhaktapur District was carried out on August 14, 2015. A list of the people met is attached in Annex A.
2. The World Bank team¹ expresses its appreciation for the time taken by all participants collaborating on this mission. As agreed at the wrap-up meeting chaired by the Secretary of the Ministry of Science, Technology and Environment Dr. Krishna Chandra Paudel held on August 19, 2015, this Aide Memoire will be classified as a public document under the Bank's Access to Information Policy.
3. The NSEBP was approved by the Bank on August 27, 2014, and became effective on November 24, 2014, as one of projects supported by the Scaling-up Renewable Energy Program (SREP) in low-income countries of the Strategic Climate Fund (SCF). The project development objective (PDO) is to promote large off-grid biogas energy generation in Nepal. The project has two components: (1) technical assistance (US\$1.0 million) and (2) financing of investments (US\$6.9 million). The public launch of the project was held on February 3, 2015.

II. KEY PROJECT DATA

Project Data		Project Performance Rating		
		Summary Ratings	Previous	Current
Trust Fund Approval	August 27, 2014			
Effective Date	November 24, 2014	Achievement of PDO	S	MS
Closing Date	December 31, 2019	Implementation Progress	MS	MS
Midterm Review Date (Planned)	February 1, 2017	<i>Financial Management</i>	S	MS
Grant Amount	US\$7,900,000	<i>Project Management</i>	MS	MS
		<i>Counterpart Funding</i>	S	S
		<i>Procurement</i>	MS	MS
		<i>Safeguards</i>	S	S
Amount Disbursed (as of August 31, 2015)	0	<i>Monitoring & Evaluation</i>	S	MS

Note: Rating: HS = Highly Satisfactory; S = Satisfactory; MS = Moderately Satisfactory; MU = Moderately Unsatisfactory; U = Unsatisfactory; HU = Highly Unsatisfactory; NA = Not Applicable; NR = Not Rated.

¹ The team consisted of Mr. Tomoyuki Yamashita (Sr. Energy Specialist and TTL); Mr. Federico Qüerio (Energy Specialist and co-TTL); Mr. Ashish Shrestha (Consultant and SREP Focal Point); Ms. Barsha Pandey (Consultant for Renewable Energy); Mr. V.K. Jain (Consultant for Biogas Technology); Mr. Drona Raj Ghimire (Environmental Specialist); Mr. Parthapriya Ghosh (Sr. Social Development Specialist); Mr. Shambhu Prasad Uprety (Sr. Procurement Specialist); Mr. Ramesh Raj Bista (Consultant for Procurement); Ms. Timila Shrestha (Financial Management Specialist); and Ms. Alina Thapa (Program Assistant).

III. ACHIEVEMENT OF PROJECT DEVELOPMENT OBJECTIVE (PDO)

4. There are two PDO indicators: (1) off-grid biogas generated for thermal application from large-scale projects ($>12.5 \text{ m}^3$) and (2) off-grid biogas-based electricity generated. Neither has shown any progress since none of the biogas projects have been commissioned so far. However, an assessment of the intermediate result indicator for the technical assistance component, namely the number of large biogas proposals submitted for investment evaluation, reveals that 34 subproject proposals (or 85 percent of the targeted 40 proposals for the first year of implementation) have been submitted since the project launch in February 2015. Among the 34 subproject proposals submitted, six subprojects are in the detailed feasibility study (DFS) stage and 16 projects are in the feasibility study (FS) stage. Therefore, with the target value of 500 m^3 in total for the first year, there is a high probability of achieving the first PDO indicator, by commissioning more than 15 biogas plants with an average size of 35 m^3 within 10 months. In view of slow implementation progress, the overall rating for achievement of the PDO has been downgraded to “Moderately Satisfactory”.

IV. CURRENT IMPLEMENTATION STATUS

5. The current implementation status of the NSEBP is retained as “Moderately Satisfactory”. This is based on the mission’s assessments of the progress of AEPC project team staffing, the subproject pipeline status, and the identified issues and agreed counter actions for exploring business models and enhancing promotion activities, foreign technology acquisition strategy, and establishing a monitoring and evaluation (M&E) system, as described below. Agreed actions and time lines during the mission are summarized in Annex G.

AEPC Project Team Staffing

6. The AEPC project team currently consists of seven officers: (1) project manager, (2) biogas advisor, (3) biogas program expert, (4) environment and social safeguard expert, (5) business development expert, (6) financial management (FM) expert, and (7) procurement expert. While the project manager is a regular AEPC officer hired by the AEPC, other project team staff members are consultants hired on contract basis. The biogas advisor and biogas program expert are funded by the National Rural and Renewable Energy Programme (NRREP), as a part of the joint implementation for the biogas program in Nepal with the SREP. The environment and social safeguard expert, business development expert, FM expert, and procurement expert are funded by the SREP (or the NSEBP).

7. **Issues:** Following the NRREP contract rule, all consultants, except the procurement expert who was recently contracted by the SREP, have been hired on short-term contracts. These consultant contracts need to be renewed every three to six months. In addition, the NRREP is scheduled to end in 2017 while the SREP will continue until 2019. Therefore, the current consultant contracts are neither effective nor suitable to secure the continuity of team members working on the NSEBP till the project ends in December 2019.

8. **Agreed actions:** Based on the discussion with the NRREP international advisor to the AEPC during this mission, the NRREP, the Bank team, and the AEPC agreed to change the funding source for all NRREP contracted project members from the NRREP to the SREP, except for the biogas advisor who has multiple roles in the AEPC other than the SREP. The newly contracted team members will be selected on a competitive basis. These contracts will be renewable on a yearly basis until 2019.

9. The Bank team agreed with the AEPC project team to add three new positions funded by the SREP to (a) shorten the time taken by the AEPC to clear the documents submitted by the stakeholders (such as applications, FS, and DFS); (b) enhance the project’s promotion activities; and (c) establish a stable subproject M&E system in the AEPC. These new positions are for a senior biogas program expert, a business development expert, and a biogas project M&E expert.

10. The process of recruitment for the existing and new positions will start in September 2015 after obtaining the Bank’s clearance on the revised Procurement Plan. It is expected that all newly hired team members will be on board by the end of December 2015. As of January 2016, the AEPC team will consist of

the following persons (the funding source is specified in parenthesis): (1) project manager (AEPC); (2) biogas advisor (NRREP); (3) senior biogas program officer (SREP/new position); (4) program officer (SREP); (5) environment and social safeguard officer (SREP); (6) business development officer for commercial subprojects (SREP); (7) business development expert for municipality subprojects (SREP/new position); (8) biogas project M&E officer (SREP/new position); (9) FM officer (SREP); and (10) procurement officer (SREP).

11. Due to this incremental cost for the AEPC team members from Component 1 of the NSEBP (technical assistance), there could be insufficient budget for some activities that were originally planned. In view of this, the NRREP international advisor agreed to provide supplemental support to the NSEBP, such as capacity-development activities and newly requested AEPC goods procurement (such as measurement equipment for project supervision and monitoring and computers for new team members), if it is necessary. The AEPC will consider making provisions for these NRREP-funded goods and activities in the annual working plan.

Pipeline Subproject Status

12. Since February 2015, from the original 36 subproject applications submitted to the AEPC for commercial and municipal subprojects, eight applications were withdrawn and six new applications were submitted. Therefore, the current pipeline includes 34 subprojects: 19 subprojects with less than 35 m³ digester capacity, 10 subprojects with less than 100 m³ capacity, and five subprojects with more than 100 m³ capacity.

13. Among the 34 subprojects in the pipeline, 18 applications are incomplete and thus, the FS for these subprojects have not started. The AEPC project team approved 16 subprojects to execute the FS: the FS is in progress for three subprojects, the FS report was submitted and is under review for five subprojects, the technical review committee (TRC) discussed but is yet to approve the DFS for two projects, and the TRC approved execution of the DFS for six projects. DFS is in progress for three subprojects; DFS report was submitted and is under review for one subproject, and TRC discussed but is yet to approve the construction for two subprojects. TRC has not given approval for the construction of any subproject, and thus, no project is under construction so far.

Stage		Application		Feasibility Study (FS)				Detailed Feasibility Study (DFS)				Construction Approval
		Incomplete	Approval	Ongoing (yet to be submitted)	Submitted and under review	TRC discussed but pending	TRC Approval	Ongoing (yet to be submitted)	Submitted and under review	TRC discussed but pending	TRC Approval	
No. of projects	CMC	18	16	3	5	2	6	3	1	2	0	0
	MSW	0	0	0	0	0	0	0	0	0	0	0
Subtotal		18	16	3	5	2	6	3	1	2	0	0
Total		34		16				6				0

14. **Issues:** The AEPC project team were informed the reasons for dropping eight subprojects from the pipeline: (1) commercial developer finds the business model financially unsound; (2) biogas technology is too costly (both for local and foreign technologies); (3) developers do not consider the investment in biogas plants as a good opportunity; and (4) investment in biogas is no longer a priority after the April 2015 earthquake. However, these commercial developers who withdrew their applications did not understand the biogas project precisely, such as benefit and cost recovery period. Currently required long period for providing the project approval by the AEPC is also one of the reasons for delay in submitting the withdrawn applications.

15. **Agreed actions:** Therefore, providing the precise information to the stakeholders (including developers) and shortening the project approval process will be solutions. The commercial developers who withdrew their applications still have opportunities to be included in the subproject pipeline again.

Necessity for Exploring Business Models and Enhancing Promotion Activities

16. **Issues:** The AEPC project team and the Bank team recognized the importance of exploring different types of business models, which could potentially benefit under the NSEBP, including waste sources, scale, biogas usage modes, and produced biogas/electricity supply targets. The delivery of pros and cons evaluations and detailed financial (or cash flow) analysis will help identify business models that can be financed under the NSEBP. This exercise will also help determine the most appropriate promotional strategy and activities for attracting commercial developers. These include the preparation of brochures with infographics for each business model, which would facilitate targeting of commercial developers and financing sources (such as investors and private banks) and help understand the various benefits (including financial advantages) of biogas projects. The brochure will also lay out the procedure from application to implementation, with the required duration for each step. It is expected that these evaluations and analysis will contribute logical background data that will inform the preparation of the new subsidy policy, which is currently being prepared.

17. Current promotional activities are inefficient - including individual contact with commercial associations and individual developers - and rely on the prequalified (PQ) consultant and construction companies who will usually operate with imprecise information. The aforementioned approach has resulted in suboptimal number of sub-project applications. In view of this, it will be necessary to develop and execute a targeted and well planned promotional activities in order to achieve the PDO.

18. **Agreed actions:** The AEPC project team and the Bank team agreed to hold promotional workshops in Kathmandu and each regional center (about six locations). These workshops are planned to be held in February and March 2016 and will be attended by local stakeholders such as commercial developers; commercial associations; potential investors; funding agencies; PQ consultant and construction companies; government officers; the AEPC officers/consultants in the District Energy, Environment, and Climate Change Section (DEECCS); and media in each region. The AEPC project team will also establish a one-stop window to receive questions from all interested stakeholders and provide answers (also functions as the grievance channel) in the AEPC headquarters (HQ) and each DEECCS by February 2016.

19. The AEPC project team will prepare a proposal for conducting the regional workshops as part of the outreach and dissemination strategy. The proposal shall be prepared by September 15, 2015, and will include the workshop schedule and target audience; workshop preparations (for example, necessary financial analysis for different business models); workshop material (for example, brochures); and budget.

20. The AEPC will recruit a media consultant or firm to assist with the preparation of the material for the outreach and dissemination workshops. The procurement process will start in September 2015. Hiring an individual consultant or selecting a firm by the consultants' qualification method could be the fastest way for this procurement.

21. The AEPC has already collected information about commercial farms participating in the Bank-financed Project for Agriculture Commercialization and Trade (PACT) through the Ministry of Agriculture Development. The AEPC project team is planning to promote the biogas projects to these commercial farms participating the PACT.

Foreign Technology Acquisition Strategy

22. **Issues:** Although it is currently mandatory to use local PQ construction companies to execute projects involving foreign technologies, the roles of local PQ construction companies in projects involving sophisticated foreign technologies seem to be limited. According to the current subsidy scheme, the subsidy will be channeled through the local PQ construction companies to the foreign technology providers (the maximum subsidy for large-scale biogas plants will be US\$300,000 for commercial projects and US\$500,000 for municipal projects). The vast majority of local PQ construction companies do not have enough expertise to execute the full construction of projects involving foreign technologies. In most cases, local PQ construction companies may even be unable to execute civil works for very large projects. Additionally, foreign technology suppliers would prefer maintaining control of construction by bringing in an international contractor or installer.

23. Developers and foreign technology suppliers would also like to undertake the DFS by themselves (in other words, they want to make an Engineering, Procurement, and Construction (EPC) contract to the project). Under the current project operation scheme, the local PQ consulting companies have to be involved during the preparation of the DFS and the subsidy for the DFS will be channeled through them.

24. **Potential solutions:** Given the significantly higher risks faced by foreign technology providers (for example, investing their own capital and technological know-how), subsidy payments may need to be paid directly to them rather than through local PQ construction companies. Hence, the subsidy scheme in which the funds are channeled through the local PQ construction companies may need to be amended. To acquire foreign technology (with high-efficiency biogas production), international procurement rules according to the International Federation of Consulting Engineers (FIDIC) may need to be introduced. For example, basic design and bid documents for an EPC contract will be prepared by an international consultant during the FS.

25. **Agreed actions:** Taking into account the aforementioned arguments, The AEPC project team will continuously analyze the pros and cons to amend the current Project Operational Manual (POM) to facilitate the foreign technology acquisition (will be discussed in the next NSEBP mission scheduled in February 2016), and amend the POM by April 2016, if necessary.

26. According to the AEPC project team's request, the Bank team provided fact sheets with opportunities for biogas production for every type of industry, and prepare a draft template agreement between the foreign technology supplier and the local PQ construction company by September 20, 2015.

Establishing M&E System

27. **Issues:** The M&E unit is not fully established in The AEPC. Six officers in the unit have been covering all projects and programs at the AEPC. Positions for the M&E advisor and program officer are vacant. The biogas project M&E officer to be hired by the NSEBP will also work in parallel as the M&E advisor to the unit.

28. Data collection for M&E is undertaken by the AEPC engineer in the DEECCS (only one engineer per DEECCS), the Monitoring and Quality Assurance unit, and a third party. Data are submitted to the M&E unit in the AEPC HQ, which reports directly to the AEPC executive director. The M&E unit is detached from the Compliance unit. In view of delay in recruitment of the M&E positions and weak integration of M&E activities, M&E has been downgraded to "Moderately Satisfactory"

29. **Agreed actions:** For the subprojects under the NSEBP, a third-party consultant or consulting firm will undertake data collection on biogas production. Random monitoring will be conducted on a continuous basis by the engineer in the DEECCS as a part of existing monitoring procedures. Random sampled monitoring data will be submitted to the M&E unit in the AEPC HQ.

30. **Issues:** The main challenges are (1) weak integration of M&E activities in projects or programs, (2) inadequately prepared baseline for large-scale biogas production, (3) monitoring and information system not yet established, and (4) lack of M&E guidelines.

31. **Agreed actions:** Revising the POM, as well as establishing the monitoring and information system will be carried out in January 2016 (upon recruitment of the new M&E officer) to (1) change the mechanism for payment of liquidated damages and the AEPC's arbitration role to decide whether the PQ construction company has to pay for liquidated damages; (2) penalize badly performing PQ construction companies and recognize well-performing companies; and (3) enhance transparency of technical and commissioning (T&C) performance tests. In addition, to facilitate decentralization of M&E-related activities, a training program for trainers to the AEPC engineer in the DEECCS also needs to be prepared after January 2016.

Consultation with PQ Consulting Companies

32. **Issues:** Six PQ consulting companies participated to the consultation meeting on August 13, 2015 informed that current subsidy levels may not provide enough incentive to use the NSEBP scheme for

developing a biogas plant compared with the time it takes to get the subproject proposals approved at the FS and DFS stages. Delays with on-time approval of the FS and DFS deter commercial developers. In fact, although the TRC meetings are planned twice a month, they were held only four times since the public launch of the NSEBP in February 2015. The AEPC project team informed that the quality of documents submitted by the PQ consulting companies has been low and the documents need to be revised before they are ready for TRC consideration. Thus, it has been not necessary to hold the TRC meetings according to the planned frequency. For the commercial developers, the duration from submission of their application to the commissioning of the biogas plants is one year.

33. The PQ consulting companies have not been effective in promoting biogas projects. The PQ consulting companies are supposed to play an important role in promoting biogas projects, for example, (1) the PQ construction company approaches the PQ consulting company (most popular outreach approach); (2) the PQ consulting company approaches the commercial developer (individually or through business associations); and (3) the commercial developer approaches the PQ consulting company. However, due to misunderstandings over the subsidy scheme and processes, as well as insufficient financial skills, the PQ consulting companies were unable to provide accurate information and, in some instances, even discouraged the commercial developers from investing in biogas plants; for example, they informed that the payback period for biogas plants is 10 years while, in reality, it is less than 5 years for most cases.

34. **Agreed actions:** Therefore, it is important to provide training programs to the PQ consulting companies to enhance their capacity to produce higher-quality reports by clarifying the required level (or preciseness) of information/data and to execute appropriate financial analysis on the biogas projects. In addition, the AEPC project team needs to assist the PQ consulting companies in promotion activities by providing promotion tools (such as brochures) and precise information through the one-stop window established in the AEPC HQ and each DEECCS to receive questions from the stakeholders and provide answers.

Consultation with PQ Construction Companies

35. **Issues:** Seven PQ construction companies participated to the consultation meeting on August 13, 2015 informed that there is no incentive to introduce high-efficiency foreign technologies since the current subsidy policy is based on the size of the installed biogas plant but not on the amount of biogas produced or production efficiency. The PQ construction companies are also not sure of the types of waste that are eligible for the subsidy (for example, waste from water treatment systems) and whether the cost for establishing a waste segregation system is subsidized. **Agreed actions:** Analysis and evaluation need to be executed by the AEPC project team and the subsidy policy should be amended based on these results, if necessary.

36. **Issues:** A PQ construction company shared the story about its failed attempt to work with a foreign technology provider. When this PQ construction company tried to acquire a foreign technology based on the previous quote, the foreign technology supplier revised the price after starting the FS. The quote was valid for six months, but the foreign supplier submitted a new quote with a 20 percent increase in price. The foreign supplier was unwilling to transfer intellectual property; they wanted the local PQ construction company to work as a contractor. **Recommendations:** The mission recommended to establish the partnership between the foreign technology supplier and the PQ construction company supported by the NSEBP.

37. **Issues:** The PQ construction companies argued that the T&C performance tests do not distinguish variations in biogas production in warmer and colder temperatures. Gas production is lower in winter. Variation in temperature needs to be factored in as the current performance threshold of 20 percent decreased production does not seem to be enough (threshold 80 percent). It is necessary to make provision for adjusted biogas production threshold (lower than 80 percent) if the T&C test takes place in winter. **Agreed actions:** The AEPC will consider these observations and amend the threshold for T&C tests accordingly (if it is needed).

38. **Issues:** The PQ construction companies insisted that securing the financial sources for the commercial developers is the key to succeed in the biogas sector in Nepal. **Agreed actions:** As a part of the

project promotion activities, the AEPC project team and the Bank team agreed to provide support to establish strategic partnerships between the developer and the local banks for increasing access to the credit channel.

39. **Issues:** The PQ construction companies and the PQ consulting companies stressed the importance of having a demonstrational pilot project that serves as a model for promoting technology. Commercial developers need to understand if the technology works before they invest. Technology performance is clear to the PQ construction companies but not to the developers. **Agreed actions:** Developing a pilot project will enhance confidence in the technology. The AEPC project team will select a prioritized public biogas project and facilitate the process for it to be developed as a pilot plant and used as a showcase.

Field Visit

40. The Bank project team and the AEPC project team conducted a field visit to a 35 m³ biogas plant constructed by Global Green Energy Pvt. Ltd. in Bhaktapur District, to confirm the scale and environment of the project. The plant owner operates a cow farm, having approximately 30 head of cattle. About 400 liters of milk is produced daily. The biogas produced from cattle excrement is used for heating in processing milk products (such as yogurt) and for cooking in the owner's house. The current production of biogas is not sufficient for these purposes and thus, the project owner is considering adding one more 35 m³ biogas digester (or a smaller one with high biogas production efficiency) to fully meet the demand.

V. PROCUREMENT AND FINANCIAL MANAGEMENT

Procurement

41. The Bank team reviewed the implementation progress of the Procurement Plan. After a long delay, an FM expert was hired for the AEPC project team, and the project slowly started to progress in its implementation, including initiation of procurement processes. The procurement expert has only recently been hired. However, it was found that the contract with the FM expert was only for three months (due to the NRREP's contract rules). Now, the project needs to reinstate the hiring of the FM officer through a competitive process. Meanwhile, the current FM expert has been hired through the single source selection method as an interim measure for a period not exceeding six months until the new FM officer is in place through the competitive process. It was agreed that the contract with experts would be made for the entire period for which the expert's inputs are envisaged. Such activities would be shown in the Procurement Plan. The project is revising the Procurement Plan in alignment with the AEPC's Annual Work Plan, which was discussed at length during the review period and suggestions were provided for improvement of the plan. The AEPC project team will submit the revised Procurement Plan through the online Procurement Plan Management System (SEPA) by September 20, 2015, at the latest. The AEPC is required to submit the terms of reference (TOR) and cost estimates by September 30, 2015, for consulting services irrespective of prior or post review contracts. In view of slow progress in procurement, the rating has been retained as "Moderately Satisfactory".

42. The Bank team clarified the procurement procedures applicable to the selection of developers for municipal biogas subprojects. According to the SREP Grant Agreement, procurement of non-consulting services - in this case, the selection of subproject developer by the municipality - may follow "well-established Private Sector Procurement Methods or Commercial Practices, which have been found acceptable to the World Bank." The AEPC project team will share the guidelines for selection of developers for municipal subprojects, which were prepared for the Bank team to review and assess for compliance with the requirements of the Grant Agreement. Upon endorsement of these guidelines by the Bank, municipalities may prepare Requests for Proposals (RFPs) according to these guidelines, and the AEPC will review any such RFPs before they are publically issued by the municipality. It was agreed that the first RFP will be submitted to the Bank for review and clearance, as a model RFP document.

43. One current bottleneck in project implementation is the absence of international independent technical experts to advise the TRC. International independent technical experts are required to review the DFS for subprojects larger than 100 m³ in size and for subprojects where the proposed design is other than

the GGC 2047 model already prevalent in Nepal, as stipulated in the POM. However, procurement of such experts is yet to be initiated. The AEPC has agreed with the Bank team that two international independent technical experts with specialized expertise in certain types of biogas (for example, poultry waste based, municipal, and so on) will be recruited on a competitive basis to support the AEPC on an as-needed basis over the duration of the project. To avoid delaying the appraisal of very large or non-GGC 2047 model projects in the pipeline, one international independent expert will be hired on a single source basis for a period of not more than six months while competitive selection of the two long-term appointments is carried out.

44. The Bank team observed that the Project Description in Schedule 1 and the Withdrawal of Grant Proceeds in Section IV in Schedule 2 on the Grant Agreement of the NSEBP does not explicitly cover all the required AEPC project consultants and the planned knowledge management activities and training programs. The Bank team and the AEPC project team will discuss further whether a restructuring of the project is warranted.

Financial Management

45. The Bank team noted that the experience of the AEPC finance team with other Bank-funded projects as well as recruitment of an FM expert from March 2015 have helped in setting up the required FM system for the NSEBP. As agreed during project appraisal, revision of the Financial Management Manual for the AEPC has been completed. The mechanism for monitoring and verification of usage of funds has also been set up in the POM, as agreed. There are no outstanding financial reports for the NSEBP. The Bank team advised the AEPC project team to emphasize the timeliness of the financial reports. The external audit for the NSEBP for FY2014/15 is planned to start in October 2015. The Bank team urged the AEPC project team for timely completion of audit and submission of audit report by January 15, 2016. The review team also advised the AEPC team to ensure internal audit of the NSEBP is conducted every trimester according to government policy. Some improvements that are required have been agreed with the AEPC project team, for example, developing suitable subcategories in the accounting software based on the nature of expenditures and maintaining adequate supporting documents.

46. The NSEBP contributes to the government's NRREP, which includes contributions from the government and various donors in addition to the Bank. Accordingly, the budget has been provided to the AEPC as one program, in which IDA is one of the financing sources. The total expenditure for IDA for FY2014/15 was NPR 2.19 million, which is only about 10.1 percent of the annual IDA budget. The low expenditure rate is due to delay in hiring of technical and commercial experts as well as FM and procurement consultants and postponement of planned activities such as waste-to-energy mapping, training and capacity building, media strategy/website development, and DFS. The devastating earthquakes of April and May also affected project implementation (reviews to the FS and the DFS for the subprojects submitted by the commercial developers were suspended for more than three months until the AEPC returned to normal operation after the earthquakes, and thus, no biogas plant construction has been started so far). The annual budget of NPR 46.45 million under IDA for the current fiscal year are considered to be adequate by the NSEBP. The NSEBP has not yet received any IDA disbursement mainly due to the delays mentioned above. As some expenditures have been incurred, it has been agreed with the AEPC project team to submit a withdrawal application for advance in the Designated Account (DA) by September 30, 2015.

47. Based on the above assessment, the FM performance of the project is downgraded to "Moderately Satisfactory" (please refer to details in Annex E).

VI. SOCIAL AND ENVIRONMENTAL SAFEGUARDS

48. The AEPC project team has recruited the environmental and social safeguard expert who is providing overall oversight and guidance on social and environmental management. The Environmental Management Framework (EMF) and Social Management Framework (SMF) have already been disclosed. The AEPC project team had organized two orientation sessions and trainings/clinics on the Environmental and Social Management Framework (ESMF) for PQ consulting firms. No subproject is under construction so far (six subprojects are under DFS, two of which are at an advanced stage).

49. The Social and Environmental Screening submitted by the developers for 13 subprojects so far indicates that none has highly significant social and/or environmental issues or concerns (none requires Environmental Impact Assessment [EIA], Social Impact Assessment [SIA], or Resettlement Action Plan [RAP]). The potential environmental impact of one subproject, namely the proposal from EnviPower Energy and Fertilizer Pvt. Ltd., Rupandehi, is assessed as Moderate, and hence, it requires preparation of an Initial Environmental Examination (IEE). The mission discussed social and environmental safeguard requirements and emphasized that the AEPC will (i) validate the screening through field visits; (ii) review and clear the TOR as well as the report for the Environmental and Social Management Plan (ESMP) for Category C subprojects; (iii) prepare, building on provisions in the EMF and SMF, a detailed supervision and monitoring framework to assess compliance with social and environmental safeguards; and (iv) review the DFS or Detailed Project Report (DPR) of each subproject and certify that environmental and social mitigation measures are incorporated in the respective DFS or DPR, as recommended in the screening, Environmental Management Plan (EMP), IEE, EIA, RAP, and SIA.

50. To facilitate the safeguards-related activities, it is important to decentralize tasks to officers or consultants in the DEECCS. The AEPC described the difficulties associated with the high turnover of trained officers and consultants dealing with environmental and social safeguards in the PQ consulting companies. Conducting trainings for trainers may be more cost-effective than training individual officers or consultants on a continuous basis, funded by the NSEBP. Going forward, the AEPC project team will propose, by September 30, 2015, a training program for trainers, who will train individual officers or consultants on a continuous basis. The training program will consist of (i) general environmental and social management and (ii) biogas-specific environmental and social management.

51. Social and environmental performance has been rated “Satisfactory” considering that no subproject is under implementation and the AEPC’s readiness at present is acceptable for social and environmental management of the project (please refer to details in Annex F).

VII. KEY ISSUES IN IMPLEMENTATION

52. Two urgent issues need to be executed by the AEPC project team collaborating with the Bank team: (1) revising the NSEBP Procurement Plan and (2) preparation and implementation of promotion activities and a pilot plant construction.

Revising Procurement Plan

53. To facilitate the urgent procurements - such as changing the funding source to the AEPC project members from the NRREP to the SREP (or the NSEBP)—the AEPC project team will submit a temporarily revised Procurement Plan and the Bank team will provide the clearance by September 10, 2015. By September 20, 2015, the AEPC project team will submit a fully revised Procurement Plan, taking into account all agreed actions with and instructions from the Bank team during this mission and the Bank team will provide the clearance by September 30, 2015.

Promotion Activities and Pilot Project

54. Execution of the appropriate promotion activities is urgently needed to increase the number of subprojects in the pipeline by convincing the commercial developers to invest in the biogas project, making the PQ consultant and construction companies correctly understand the project, and creating the credit channel to the developers. To enhance confidence in the new (foreign) technology among the stakeholders, successful implementation of the pilot project(s) is also essential.

55. The AEPC project team needs to prioritize these activities. Execution of the central and regional promotion workshops and establishment of a one-stop window in the AEPC HQ and each DEECCS, to provide answers to questions received from all interested stakeholders, have to be accomplished by February 2016. The pilot project also has to be commissioned by June 2016.

VIII. TIMING AND FOCUS OF NEXT MISSION

56. The next implementation review and support mission is scheduled for February 2016. Its objectives will be to confirm the progress and achievement of the agreed actions and the latest project implementation status toward achieving the PDO.

ANNEX A: LIST OF PEOPLE MET

Ministry of Science, Technology and Environment (MoSTE)

Dr. Krishna Chandra Paudel Secretary

Alternative Energy Promotion Centre (AEPC)

Mr. Ram Prasad Dhital Executive Director
Mr. Michael Heine Tilma International Senior Compliance Advisor

SREP-Supported Extended Biogas Project Team

Mr. Prakash Aryal Biogas Sub-component Manager
Mr. Uttam Jha National Advisor, NRREP
Mr. Sushim Amatya Biogas Program Expert, NRREP
Mr. Sujesh Shrestha Environmental & Social Safeguards Expert, NRREP
Ms. Swasti Aryal Business Development Expert, NRREP
Mr. Kiran Paudel Financial Management Expert, SREP
Mr. Keshab Babu Aryal Procurement Expert, SREP

Monitoring and Evaluation Unit

Mr. Kundan Pokhrel Monitoring Officer
Mr. Gyanendra Malla Monitoring and Evaluation Officer
Mr. Anupam Bhusal Program Consultant

Prequalified Consultants (August 13, 2015)

Mr. Sumiran Badgami Clean & Green Nepal
Ms. Swastika Acharya Clean & Green Nepal
Mr. Ranjay Agrahari Clean & Green Nepal
Mr. Paribesh Koirala Go Green Nepal Pvt. Ltd.
Mr. Suman Shah Smart Paani
Ms. Sweachha Rajlehandari One Planet Solution
Mr. Pradip Gyawali Minergy
Mr. Mahaboob Siddiki Executive Director, Global Green Energy Pvt. Ltd.

Prequalified Contractors (August 13, 2015)

Mr. Prashun Bajracharya Executive Director, Motherland Energy Group Pvt. Ltd.
Mr. KR Kharal Chairman, Ultra Renewable Energy
Mr. Prasic Paudel Manager, NEDCO
Mr. Himalaya Bir Shresthae Engineer, NEDCO
Mr. Mahaboob Siddiki Executive Director, Global Green Energy Pvt. Ltd.
Mr. Sudesh Yadav Company Representative, SGG
Mr. Narayan B. Pradhan General Manager, GGC Nepal Ltd.
Mr. Dilip Acharya Managing Director, Everest Biogas

Private Developer (August 13, 2015)

Mr. Abhirat Agrawal EnviPower Energy & Fertilizer Pvt. Ltd.
Mr. Praveen Badiger Envitec Biogas Pvt. Ltd.

Developer for Municipal Project (August 14, 2015)

Mr. Siddharth Kedia Director, Green Field Inc. Ltd.

Annex B: Results Framework and Monitoring
Nepal: SREP-Supported Extended Biogas Project (NSEBP)

Project Development Objective (PDO): To promote large off-grid biogas energy generation in Nepal.													
PDO Level Results Indicators	Core	D=Dropped C=Continue N= New R=Revised	Unit of Measure	Baseline	Achievements						Target	Data Source/ Methodology	Responsibility for Data Collection
					2015	2016*	2017	2018	2019	2020			
Off-grid biogas generated for thermal application from large-scale projects (>12 m ³)	☐	C	m ³ /year (Cumulative)	0	– (–)	0 (0)					53,000	Meter Reading Report	AEPC
Off-grid biogas-based electricity generated**	☐	C	GWh/year	0	–	0.0					30.0	Meter Reading Report	AEPC
INTERMEDIATE RESULTS													
Intermediate Result (Component 1): Technical Assistance													
No. of large biogas proposals submitted for investment evaluation	☐	C	Proposals/year (Cumulative)	3	– (–)	34 (34)					400	Monitoring Report	AEPC
No. of companies trained to evaluate and appraise large biogas subprojects	☐	C	Companies/year (Cumulative)	0	– (–)	0 (0)					8	Monitoring Report	AEPC
Intermediate Result (Component 2): Financing of Investments													
No. of off-grid generation plants created and operational by the project - Commercial	☐	C	Plants/year (Cumulative)	3	– (–)	0 (0)					400	Monitoring Report	AEPC
No. of off-grid generation plants created and operational by the project - Municipalities	☐	C	Plants/year (Cumulative)	0	– (–)	0 (0)					8	Monitoring Report	AEPC

Note: * Data as of August 19, 2015.

** A reference conversion rate of 1.4 kWh per m³ of biogas is used.

Annex C: Summary of Kick-off Meeting

SREP-Supported Extended Biogas Project

August 5, 2015

Venue: Sagarmatha Conference Room, World Bank Nepal Country Office

Time: 14:30 - 16:00

Meeting Attendees

AEPC

1. Prakash Aryal (Biogas Subcomponent Manager)
2. Uttam Jha (National Advisor)
3. Sushim Amatya (Biogas Program Officer)
4. Sujesh Shrestha (Environmental & Social Safeguards Consultant)
5. Swasti Aryal (Business Development Consultant)
6. Kiran Paudel (Financial Management Consultant)
7. Keshab Babu Aryal (Procurement Consultant)

World Bank

1. Tomoyuki Yamashita (Senior Energy Specialist)
2. Federico Querio (Energy Specialist)
3. Ashish Shrestha (SREP Focal Point)
4. Barsha Pandey (Coordinator)
5. Drona Ghimire (Environmental Specialist)
6. Ramesh Raj Bista (Procurement Specialist)
7. Timila Shrestha (Financial Management Specialist)
8. Alina Thapa (Team Assistant)

Minutes

- Formal introduction between the AEPC and Bank teams took place, including identification of direct counterparts.
- Following the opening remarks by Tomoyuki Yamashita and Prakash Aryal, the mission objectives, activities, and schedule were presented and discussed.
- Meeting to discuss progress on implementation of environmental and social safeguards is missing from the mission schedule.
 - The AEPC to provide the Bank team with safeguards checklist applicable to the project.
 - A parallel meeting on safeguards to be convened during the mission, if necessary.
- Safeguards screening will be done by the subproject proponent or consultant, but this has to be reviewed and validated by the AEPC.
 - Potential safeguards issues should be flagged during the screening stage.
 - Validation by the AEPC entails field verification before approval for the subproject to proceed to the DFS stage.
 - It may be logistically difficult for the AEPC to visit each and every subproject site before the DFS stage, but if this is a requirement of the ESMF for the project, then it will be followed.

- Should this obligation become impossible to fulfill, then revision of the ESMF at a later date further into implementation can be considered.
- Another option to consider is capacity development of staff at the AEPC's Regional Service Centers so that safeguards screening can be delegated to them.
 - This can be carried out as an eligible activity of the technical assistance budget.
- EIA, IEE, or EMP, as appropriate according to the risk classification for the subproject, needs to be carried out in parallel with the DFS for the subproject.
 - All projects will require an EMP at the very minimum.
 - Field visit by the AEPC environmental and social specialist is necessary before preparation of any site-specific safeguards document (EMP, RAP, and so on), if required.
 - A second field visit to the same site should be kept flexible; in some cases, it may be necessary. As field verification of the developer's proposed screening is to be done by the AEPC environmental and social specialist, a field visit during the DFS may be carried out if necessary (on a case-by-case basis, based on the review of the DFS, screening information, and so on).
 - Mitigation measures have to be incorporated into the final project design and costing.
- Periodic compliance check is required as part of M&E.

Annex D: Summary of Project Implementation Workshop

SREP-Supported Extended Biogas Project

August 6, 2015

Venue: World Bank Nepal Country Office

Time: 9:30 - 16:00

Meeting Attendees

AEPC

1. Prakash Aryal (Biogas Sub-component Manager)
2. Uttam Jha (National Advisor)
3. Sushim Amatya (Biogas Program Officer)
4. Sujesh Shrestha (Environmental & Social Safeguards Consultant)
5. Swasti Aryal (Business Development Consultant)

World Bank

1. Tomoyuki Yamashita (Senior Energy Specialist)
2. Federico Querio (Energy Specialist)
3. Ashish Shrestha (SREP Focal Point)
4. Drona Ghimire (Environmental Specialist)

Summary of Discussion and Actions

Financing Scheme and Business Models		Deadline
1	The Bank introduced 15 different business models for commercial biogas, including alternatives for the following schemes: (i) stand-alone commercial biogas, (ii) commercial biogas with local supply, (iii) commercial biogas with national grid, (iv) multiple factories biogas, and (v) multiple business with utility services.	n.a.
2	The AEPC indicated that the current SREP pipeline of 13 subprojects comprises mainly stand-alone commercial biogas business models, except one subproject that will produce and sell liquid natural gas to hospitals/hotels. Average size per plant is 35 m ³ and average production per plant is 6 m ³ /day or 7 kWh/day. It seems that only a large-scale biogas project is suitable for power generation.	n.a.
3	The AEPC indicated that selling power to the national grid may not be feasible for the SREP subprojects due to (i) high transmission cost borne by developers and (ii) low power purchase agreement prices compared with the cost of biogas-based power generation. Current PPA prices are 8 NPR/kWh (dry season) and 4 NPR/kWh (rainy season). Average cost of biogas-based power generation is approximately 25 NPR/kWh while that of diesel generation is about 35 NPR/kWh.	n.a.
4	Action - The AEPC to prepare a comprehensive list of business models, including any other model not captured in the presentation given by the Bank.	August 14, 2015
Challenges and Opportunities		
5	The AEPC provided a summary of challenges, including the following: (i) level of subsidy is relatively small to attract interest from developers, noting that subsidy for commercial plants represents 20% of the total cost of the plant - proxy cost for GGC 2047 is NPR 20,000 per m ³ , subsidy for commercial plants is NPR 4,000 per m ³ according to national subsidy policy; (ii) developers cannot realize the value of investing in biogas plants; (iii) difficulties to acquire foreign technologies; (iv) application process is too rigorous for smaller plants with sizes between 12 m ³ and 35 m ³ ; (v) difficulties to develop pipeline of municipality solid waste subprojects for various reasons, including existence of multiple stakeholders with vested interests; (vi) limited budget support for DFS; (vii) project end dates for the NRREP in 2017 and the SREP in 2019 may put at risk the availability of funding for upfront subsidy payments; (viii) inadequate contract length of the AEPC staff jeopardizes project implementation;	n.a.

	(ix) insufficient human resources for outreach activities and market development; and (x) provision of goods - laptops for consultants, monitoring equipment for T&C - is not eligible under the SREP.	
6	The AEPC provided a summary of opportunities, including the following: (i) market for large-scale biogas plants does not exist in Nepal; (ii) CDM opportunities for large-scale biogas plants; and (iii) alleviation of load shedding and support electrification.	n.a.
7	Action - The AEPC will propose the recruitment of a new business development officer who will be fully dedicated to outreach activities and market development.	August 14, 2015
8	Action - The AEPC will propose simplified procedures for smaller plants (12 - 35m ³) without deviating from the SREP Grant Agreement.	August 30, 2015
9	Action - The AEPC will explore the possibility of procuring goods for the project using NRREP resources.	September 15, 2015
Environmental and Social Safeguards		
10	The AEPC clarified that screening is performed by the consulting firm on behalf of the developer. The AEPC confirms the risk category of subprojects based on inputs, outputs, and the end process. The Bank and AEPC agreed that the AEPC will verify the risk category by visiting every subproject site. It was also agreed that visiting a sample of subprojects will be considered at a later stage once the number of subprojects in the pipeline increases. The AEPC described the difficulties associated with the high turnover of trained consultants dealing with environmental and social safeguards. Conducting trainings for trainers may be more cost effective than training individual consultants on a continuous basis.	n.a.
11	The AEPC and the Bank discussed specific procedures related to ensuring compliance of social and environmental safeguards under the SREP.	n.a.
12	Action - The AEPC will propose a training program for trainers, who will train individual consultants on a continuous basis. Consider two types of programs: (i) general environmental and social management and (ii) biogas-specific environmental and social management.	September 15, 2015
13	Action - The AEPC will share a draft TOR for the EMP.	August 10, 2015
14	Action - The AEPC will share a draft project supervision framework to assess compliance with social and environmental safeguards during construction and operation of subprojects.	August 30, 2015
15	Action - The AEPC will share a summary table providing the following information for every subproject: (i) description of social and environmental risks and (ii) risk category. This information will also be provided on a continuous basis in the future.	August 30, 2015
Outreach Strategy and Market Development		
16	The AEPC summarized the direct outreach approach as follows: (i) introduce the project to commercial associations - poultry, sugar mill, and so on; (ii) follow up directly with people within these associations; (iii) prepare waste-to-energy market potential mapping study, which is underway; (iv) follow up with municipalities that have already expressed interest; (v) conduct regional outreach programs with potential municipalities; and (vi) run media campaigns. The AEPC and the Bank agreed on the importance of tailoring the outreach approach based on the characteristics of each association, acknowledging that opportunities and challenges vary among them.	n.a.
17	Action - The AEPC will make a proposal for conducting regional workshops as part of the outreach and dissemination strategy. The proposal shall include the workshop schedule and target audience (including associations); workshop preparations (for example, necessary financial analysis for different business models); workshop material (for example, brochures); and budget.	August 30, 2015
18	Action - AEPC will recruit a media consultant/firm to assist with the preparation of the outreach and dissemination workshops material.	September 15, 2015
19	Action - AEPC will receive information about commercial farms participating in the World Bank-financed PACT project. The AEPC will request for such information from the Ministry of Agriculture.	August 30, 2015

Priority Activities for FY16		
20	The AEPC summarized the priority activities for FY16, including the following: (i) training of PQ construction companies on modified GGC 2047 - training conducted on a continuous basis; (ii) training of PQ consulting firms on FS and DFS - training conducted on a continuous basis; (iii) training on electrification from biogas, including training for technicians on biogas generators; and (iv) advertisement and outreach activities for commercial and MSW plants.	n.a.
Other Issues		
21	Target numbers for the subprojects are different between the SREP and the AEPC (including the NRREP projects). The target is 400 commercial and 8 municipal projects by the SREP while the target is 570 commercial and 30 municipal projects by the AEPC.	n.a.
22	The AEPC is considering the introduction of different subsidy amounts for <i>tarai</i> and hilly areas. The temperature in <i>tarai</i> areas is higher than hilly areas and it is possible to produce more gas. Material transportation cost is higher in hilly areas. Therefore, it could be reasonable to provide more subsidy for projects in hilly areas than in <i>tarai</i> areas.	n.a.
23	The AEPC estimates that disbursements for the period July 2015 - December 2015 will be around US\$167,000. Actual disbursements for the period November 2014 - July 2015 were around US\$23,000.	n.a.
24	The AEPC presented its FY16 Annual Work Plan, which includes budget allocations for consultant services, advertisement and outreach activities, [detailed] feasibility studies, and monitoring.	n.a.
25	Action - The AEPC will consider revising the FY16 Annual Work Plan to reflect higher budget needs for advertisement and outreach activities.	September 30, 2015

Annex E: Financial Management

Budget and Expenditure

1. The status of budget and expenditures for FY2014/15 for IDA are provided in this table.

Budget Line	Budgeted Amount for IDA (In NPR millions)	Total Expenditures for IDA (in NPR millions)	Percentage of Expenditure
Capital Grants under 'Recurrent'	21.68	2.19	10.1 %

2. The amount budgeted under IDA for FY2014/15 was NPR 21.679 million and the total expenditure was NPR 2.19 million, which is only about 10.1 percent of the annual budget. The low expenditure rate is due to implementation delays, mainly because of the delay in hiring technical and commercial experts. The planned activities, such as waste-to-energy mapping, training and capacity building, media strategy or website development, detailed feasibility studies, and so on, were postponed to the current fiscal year. There was also a delay in hiring FM and procurement consultants. The devastating earthquakes of April and May also had an impact on project implementation (reviews to the FS and the DFS for the subprojects that were submitted by the commercial developers were suspended for more than 3 months until the AEPC returned to normal operation after the earthquakes, and thus no biogas plant construction has been started so far). Expenditure rates are expected to improve in the current FY with implementation of the planned activities.

3. The approved IDA budget for FY2015/16 is NPR 46.45 million. However, as the budget has been provided only under the 'Reimbursable' mode of payment, the AEPC project team were advised to confirm if the budget may be required under the 'Direct Payment' mode and accordingly request the MOF for budget adjustment.

Budget Line	Budgeted Amount for IDA (In NPR millions)
Capital Grants under 'Recurrent'	46.45

Disbursement

4. The project has not yet disbursed. A DA has been opened at Nepal Rastra Bank and the project is in the process of setting up the DA in the Bank's online system. It has been agreed with the project team to submit a withdrawal application for advance in the DA by September 30, 2015.

Financial Management

5. The review team noted that the project is benefitting from the experience of the AEPC finance team with other Bank-funded projects. The recruitment of an FM consultant from March 2015 has also helped in setting up the required FM system for the project. As agreed during project appraisal, revision of the Financial Management Manual for the AEPC has been completed. The mechanism for monitoring and verification of usage of funds has also been set up in the POM, as agreed. As the budget has been provided under the 'Capital Grants' budget line, all the expenditures were being accounted under the same category without further dividing into subcategories based on nature of expenditures. In the Interim Unaudited Financial Reports, the expenditures were reported based on project categories but due to lack of accounting in the same manner, the total amounts reported in various categories could not be verified. To ensure accounting and financial reporting based on the nature of expenditures, the project agreed to develop subcategories in the software by September 30, 2015. The project has also agreed to maintain ledgers or registers for the DA, IDA Grant, statement of expenditures, and so on, as required. The review findings on other aspects of FM are provided below.

6. **Transaction review.** Various vouchers were sampled for expenditures booked, beginning from December 1, 2014 (financing agreement dated November 24, 2014) till the review date. The review team noted that the expenditures related to the project till June 2015 were being incurred and accounted by the NRREP and reimbursed from the project. Since July 2015, expenditures are directly being incurred and accounted by the project. The project plans to continue this practice except for subsidy payments which will be incurred by the NRREP and reimbursed from the project. Based on the vouchers sampled, the review team advised on required improvements in maintenance of supporting documents (examples of which are provided in the table). The project has agreed to maintain adequate supporting documents, including for the transactions sampled by September 30, 2015.

Voucher No.	Description	Amount (NPR)	Observation
21	Remuneration of FM consultant for June and July 2015	56,290	Attendance sheet indicates 10 days attendance in July, based on which remuneration should have been NPR 25,000 (NPR 75,000 per month) whereas NPR 36,290 has been charged. Attendance sheet for June was not attached. The project responded that apparently attendance for June and July have been interchanged.
26	Remuneration of business development consultant, environment consultant, and FM consultant for May, June, and July 2015	371,249.50	No supporting documents attached apart from bank transfer request of a different amount (NPR 1,539,480.50).

7. **Internal controls.** In addition to advising the project on required supporting documents, the project was also advised on improvements required in some other areas of internal controls. The review team advised that procurement should be done only upon inclusion of the concerned contract in the Procurement Plan. It was found that the expenditure for the environment and social safeguards consultant was not included in the Procurement Plan but charged to the project based on verbal agreement with the Bank's task team. The project was advised to include the expenditure in the Procurement Plan and obtain endorsement for the same. The review team noted that an outstanding payment of NPR 4,000, as meeting allowance to the independent observer, was kept as cash with the AEPC. The project was advised to make payments only through checks to avoid risks involved with cash payments. The project was also advised to stamp the vouchers as 'Paid' when payment was made, to avoid the risk of double payments.

8. **Interim Unaudited Financial Reports.** There are no outstanding financial reports for the project. The review team advised the project to emphasize the timeliness of the financial reports. The quality of the financial reports was found satisfactory.

9. **Audit.** As agreed during project appraisal, the project has been coordinating with the Office of the Auditor General for timely external audit. The external audit of the project for FY2014/15 is planned to start in October 2015. The review team urged the project for timely completion of audit and submission of the audit report by January 15, 2016. The internal audit for the project has not yet been conducted. The review team advised the project to ensure that the internal audit is conducted every trimester according to government policy.

Agreed Action Plan for Strengthening FM

Action	Agreed Completion Date
Development of subcategories in the software for categorizing expenditures	September 30, 2015
Submission of withdrawal application for advance in the DA	September 30, 2015
Maintaining adequate supporting documents including for the transactions sampled by the review team	September 30, 2015
Submission of audited project accounts	January 15, 2016

Annex F: Social and Environmental Safeguard

1. The AEPC has received, till date, a total of 13 FS reports for subprojects, out of which 6 have been selected by the TRC for DFS. This table summarizes the subproject types and the environmental and social screening results (potential environmental and social concerns and environmental and social category).

No.	Subproject Description	Potential Environmental and Social Issues/Concerns	Category	Remarks
1.	Divya Integrated Agriculture Production Center Pvt. Ltd., Lalitpur Capacity: 15 m ³ Biogas Design; Construction Process: Modified GGC 2047 Model; Civil Works Type of Waste Input: Pig Waste	Land required: 130 m ² (4 Ana), fallow Land (leased); no land acquisition/displacement issue Estimated cost: NPR 300,000 Construction phase • Construction-related accidents (health and safety issue) Operation phase • Handling of slurry (with pathogens) • Accidents associated with firing and explosion • Spreading of diseases due to increased disease vectors, flies, and mosquitoes	C Field not verified by AEPC/EFP	TRC meeting held (but not approved yet)
2.	Khanal Poultry Pvt. Ltd., Chitwan Capacity: 900 m ³ Biogas Design; Construction Process: Modified GGC 2047 Model; Civil Works Type of Waste Input: Poultry	Land required: 1,350 m ² (0.4 ha), fallow Land (within premises of poultry) owned by developer; no land acquisition/displacement issue Estimated cost: NPR 12,800,000 Construction phase • Construction-related accidents Operation phase • Slurry management issue • Issues related to foul odor in nearby settlement • Accidents related to firing and explosions	C Field not verified by AEPC/EFP*	Cleared and approved by TRC (promoted to DFS stage)
3.	Annapurna Poultry Breeders Farm, Chitwan Capacity: 900 m ³ Biogas Design; Construction Process: Modified GGC 2047 Model; Civil Works Type of Waste Input: Poultry	Land required: 1,350 m ² (0.4 ha), fallow Land (within premises of poultry) owned by developer; no land acquisition/displacement issue Estimated cost: NPR 12,800,000 Construction phase • Construction-related accidents Operation phase • Slurry management issue • Issues related to foul odor in nearby settlement • Accidents related to firing and explosions • Possible leakage of slurry	C Field not verified by AEPC/EFP*	Not approved yet
4.	Prakash Feed Product, Kathmandu Capacity: 12.5 m ³ Biogas Design; Construction Process:	Land required: 156 m ² (approx. 5 Ana), fallow Land owned by developer; no land acquisition/displacement issue Estimated cost: NPR 250,000 Construction phase	C Field not verified by AEPC/EFP	Cleared and approved by TRC (promoted to DFS stage)

No.	Subproject Description	Potential Environmental and Social Issues/Concerns	Category	Remarks
	Modified GGC 2047 Model; Civil Works Type of Waste Input: Poultry	• Construction-related accidents • Respiratory problems due to dusty environment/vehicular emission Operation phase • Handling of slurry (with pathogens) • Intrusion of slurry into water source, thereby affecting community health (pathogen contamination) • Accidents associated with firing and explosion • Spreading of diseases due to increased disease vectors, flies, and mosquitoes • Foul odor		
5.	Malika Kishani Pvt. Ltd., Banke Capacity: 20 m ³ Biogas Design; Construction Process: Modified GGC 2047 Model; Civil Works Type of Waste Input: Cow/buffalo dung	Land required: 156 m ² (approx. 5 Ana), agricultural land Estimated cost: NPR 400, 000 <i>Not properly filled Environmental Screening Report</i> <i>Not properly filled Social Screening Report</i>	C Field not verified by AEPC/EPF	Not approved yet (communicated for correction)
6.	Halin Newa English School, Kathmandu Capacity: 12.5 m ³ Biogas Design; Construction Process: Modified GGC 2047 Model; Civil Works Type of Waste Input: Pig farm and kitchen waste/toilet waste	Land required: 83 m ² (approx. 2.6 Ana), fallow Land owned by developer; no land acquisition/displacement issue Estimated cost: NPR 2,50,000 Construction phase • Construction-related accidents (health and safety issues) • Respiratory problem due to dusty environment Operation phase • Handling of slurry with pathogens • Possible intrusion of slurry into water source • Accidents associated with firing and explosion • Increased mosquito and other disease vectors	C Field not verified by AEPC/EPF	Cleared and approved by TRC (promoted to DFS stage)
7.	Dallakoti Poultry Farm, Chitwan Capacity: 12.5m ³ Biogas Design; Construction Process: Modified GGC 2047 Model; Civil Works Type of Waste Input: Poultry and kitchen waste/toilet waste	Land required: 95 m ² (approx. 3 Ana), fallow Land owned by developer; no land acquisition/displacement issue Estimated cost: NPR 250,000 Construction phase • Construction-related accidents (health and safety issues) • Respiratory problem due to dusty environment Operation phase • Handling of slurry with pathogens	C Field not verified by AEPC/EPF	Cleared and approved by TRC (promoted to DFS stage)

No.	Subproject Description	Potential Environmental and Social Issues/Concerns	Category	Remarks
		• Possible intrusion of slurry into water source (hand pump) • Accidents associated with firing and explosion • Increased mosquito and other disease vectors		
8.	Tinkanya Sanakishan Organic Krishi & Pashu Palan Sahakari Sanstha Ltd., Dhading Capacity: 35 m³ Biogas Design; Construction Process: Modified GGC 2047 Model; Civil Works Type of Waste Input: Pig/buffalo dung and kitchen waste/toilet waste	Land required: 156 m² (approx. 5 Ana), agricultural land Land owned by developer; no land acquisition/displacement issue Estimated cost: NPR 1,115, 000 (including generator) Construction phase • Construction-related accidents • Respiratory problem due to dusty environment/vehicular emission Operation phase • Handling of slurry (with pathogens) • Intrusion of slurry into water source (Trishuli River) • Accidents associated with firing and explosion • Spreading of diseases due to increased disease vectors, flies, and mosquitoes	C Field not verified by AEPC/EFP	Cleared and approved by TRC (promoted to DFS stage)
9.	Kasis Poultry Farm, Chitwan Capacity: 12.5 m³ Biogas Design; Construction Process: Modified GGC 2047 Model; Civil Works Type of Waste Input: Poultry and kitchen/toilet waste	Land required: 95 m² (approx. 3 Ana), fallow Land (within premises of poultry) owned by developer; no land acquisition/displacement issue Estimated cost: NPR 250,000 Construction phase • Construction-related accidents (health and safety issues) • Respiratory problem due to dusty environment Operation phase • Handling of slurry with pathogens • Possible intrusion of slurry into water source (hand pump) • Accidents associated with firing and explosion • Increased mosquito and other disease vectors	C Field not verified by AEPC/EFP	Cleared and approved by TRC (promoted to DFS stage)
10	KK Livestock & Agriculture Research Center Pvt. Ltd., Sunsari Capacity: 140 m³ Biogas Design; Construction Process: Floating Drum Model; Fabrication and Civil Works	Land required: approx. 4 Ana, uncultivated Land owned by developer; no land acquisition/displacement issue Estimated cost: NPR 5,633,276 Construction phase • Construction-related accidents • Respiratory problem due to dusty environment/vehicular emission Operation phase	C Field not verified by AEPC/EFP	Not approved yet

No.	Subproject Description	Potential Environmental and Social Issues/Concerns	Category	Remarks
	Type of Waste Input: Cow/pig farm and poultry and toilet waste	• Handling of slurry (with pathogens) • Intrusion of slurry into water source and thereby affecting community health (pathogen contamination) • Spreading of diseases due to increased disease vectors, flies, and mosquitoes		
11.	Dajubhai Suppliers & Rambha Fresh House Pvt. Ltd., Palpa Capacity: 15 m ³ Biogas Design; Construction Process: Modified GGC 2047 Model; Civil Works Type of Waste Input: Slaughter house and toilet waste	Land required: 93 m ² (approx. 3 Ana), fallow Land owned by developer; no land acquisition/displacement issue Estimated cost: NPR 300,000 <u>Construction phase</u> • Construction-related accidents (health and safety issues) <u>Operation phase</u> • Handling of slurry with pathogens • Accidents associated with firing and explosion • Increased mosquito and other disease vectors	C Field not verified by AEPC/EFP	Not approved yet
12.	EnviPower Energy and Fertilizer Pvt. Ltd., Rupandehi Capacity: 5,666 m ³ Biogas Design; Construction Process: Continuous Stirred Tank Reactor Model; Prefabricated; Installation Type of Waste Input: Various (pressed mud, dung, poultry, and flour mill waste)	Land required: 1.5 <i>Bigha</i> (1.01 ha), fallow. Land owned by one of the developer (ownership transfer); no land acquisition/displacement issue Estimated cost: NPR 125,000,000 <u>Construction phase</u> • Construction-related accidents • Respiratory problem due to dusty environment/vehicular emission <u>Operation phase</u> • Effluent from substrate storage • Vehicle emission during transporting slurry and substrate • Intrusion of slurry into water source, thereby affecting community health • Accidents associated with firing and explosion • Increased disease vectors due to improper storage • Foul odor in surrounding area	B Field not verified by AEPC/EFP	TRC meeting held (but not approved) Total project cost is within NPR 50,000,000–250,000,000 of set threshold of EPR Schedule 1, requiring IEE. Transporting about 67 MT of organic waste per day to project location from other location.
13.	CG Brewery Pvt. Ltd., Nawalparasi Capacity: 100 m ³ Biogas Design; Construction Process: Modified GGC 2047 Model; Civil Works Type of Waste Input: Various (toilet waste, kitchen waste, and food processing waste)	Land required: about 500 m ² (approx 1 <i>Ropani</i>), uncultivated Land (within premises of industry) owned by developer; no land acquisition/displacement issue Estimated cost: NPR 2,400,000 <u>Construction phase</u> • Construction-related accidents <u>Operation phase</u> • Effluent from sludge thickening (fecal sludge contaminated)	C Field not verified by AEPC/EFP	Not approved yet (under review process)

No.	Subproject Description	Potential Environmental and Social Issues/Concerns	Category	Remarks
		• Accidents associated with firing and explosion • Increased disease vectors due to improper storage • Handling of slurry with pathogens and slurry management		

Note: * Environmental screening was carried out by the EFP and screening was done on November 29, 2013 with a different modality: single energy project from the waste of three poultries (Subis, Khanal, and Annapurna Poultry as 'SUKHA' but later, the project modality was changed as single individual.)

2. **Screening.** According to the ESMF, environmental and social screenings of the 13 subprojects were proposed by the respective developers or proponents, with support from consultants, based on the checklist and guidance provided in the ESMF. The AEPC environmental and social specialist's desk review of the 13 screening reports indicate that out of the 13 feasibility-completed subprojects,

- (a) none is Category A (or none has highly significant environmental and social impact/risk);
- (b) one subproject is Category B (or has moderate risk/impact and hence requires preparation of an IEE); and
- (c) 12 subprojects are Category C (or have minor environmental and social impacts/risks and hence require preparation of EMPs).

3. The mission noted that the AEPC environmental and social specialist has completed desk reviews of the 13 subprojects screening reports but has not verified them in the field. The mission advised that, for now, in the initial stage of SREP implementation, all subprojects' screening reports should be verified by the AEPC environmental and social specialist by conducting a site visit and confirming the potential issues and category based on inputs, outputs, and the end process; condition of the site and neighborhood; and regulatory requirements. The mission discussed that, in future if the number of subprojects becomes large, field verification may be done for a sample of subprojects.

4. **ESMP.** Three ESMPs have been prepared so far. There are 6 subprojects which are under the DFS stage - two of them at an advanced stage. The ESMP needs to be prepared in parallel with the DFS, and the detailed plan and design as well as costs need to incorporate the environmental and social recommendations and mitigation measures. To facilitate the ESMP process, the AEPC has prepared a draft model ESMP TOR for preparing the ESMP, which will be customized to each subproject. The draft model TOR has been reviewed by the Bank during the mission. The proponent will prepare the ESMP based on the customized TOR that is cleared or issued by the AEPC. The ESMP will be reviewed and cleared by the AEPC environmental and social specialist. The Bank will review the first few ESMPs and at a later stage, the sample EMPs.

5. **EIA/IEE.** The TOR and report of either the IEE or the EIA will be reviewed by the AEPC as well as by the Bank. Clearance for the TOR and report of the EIA and IEE will be given by the MoSTE.

6. **Review of the DFS/DPR.** The AEPC environmental and social specialist will review the DFS/DPR of each subproject and certify that environmental and social mitigations, which are recommended in screening, EMP/ IEE/ EIA/ RAP/SIA, are incorporated in the respective DFS/DPR.

7. **Monitoring.** The proponent or developer will regularly (monthly) monitor and report the progress in environmental and social mitigations and compliance to the AEPC. The AEPC reviews these reports, and the AEPC environmental and social specialist will carry out central-level supervision or monitoring (every three month) to check compliance and verify progress in mitigation works and advice timely corrections of any shortcomings. Monitoring by the AEPC should be done as follows:

(a) **Category C subproject.** Every three months for now as the number of subprojects is small. Later, about 10 percent samples will be monitored.

(b) **Category B and A subproject.** Every three months in each subproject.

(c) The AEPC may use the services of a consultant for monitoring, if necessary.

8. Building on provisions in the EMF and SMF, the AEPC will prepare, by August 30, 2015, a detailed supervision and monitoring framework to assess compliance with social and environmental safeguards during the construction and operation of subprojects.

9. **Translation and disclosure.** The EMF and SMF have already been disclosed on December 13, 2013 to the public through these websites: www.aepc.gov.np and www.w2ebazaar.org.np. The EMF and SMF documents are in English, with the executive summary both in English and Nepali. Subproject-specific safeguard documents for Category A and Category B, for example, EIA, IEE, SIA, RAP, and Vulnerable Community Development Plan, need to be disclosed in-country and in the Bank's InfoShop. No such document has been prepared so far. One subproject is Category B, for which IEE needs to be prepared.

10. **Orientation and trainings.** According to the AEPC, the following orientation and training sessions have been organized so far: (i) January 27 and 28, 2014 - the ESMF Clinic for PQ consulting firms and (ii) March 24 and 25, 2015 - ESMF part covered in the FS/DFS training for new PQ consulting firms. The AEPC described the difficulties associated with the high turnover of trained officers or consultants dealing with environmental and social safeguards. Conducting trainings for trainers may be more cost-effective than training individual officers or consultants on a continuous basis. Going forward, the AEPC will propose a training program for trainers, who will train individual officers or consultants on a continuous basis by September 15, 2015. Consider two types of programs: (i) general environmental and social management and (ii) biogas-specific environmental and social management.

11. **Environmental and social specialist at the AECP.** The environmental and social safeguard consultant is currently on board as the environmental/social focal person.

Annex G: Agreed Actions

Action	Due Date	Responsibility
1. Procurement Plan		
1-1 Submission of temporally revised Procurement Plan	August 25, 2015 (Done)	AEPC
1-2 Providing the clearance to the temporally revised Procurement Plan	September 10, 2015	IDA
1-3 Submission of fully revised Procurement Plan with Annual Work Plan and disbursement plan	September 20, 2015	AEPC
1-4 Providing clearance to the fully revised Procurement Plan	September 30, 2015	IDA
2. AEPC Project Team Staffing		
2-1 Starting the process to change the funding source to all NRREP-contracted project members from the NRREP to SREP, except to the biogas advisor and to add three new positions in the AEPC project team	September 30, 2015	AEPC
2-2 Submission of TORs and cost estimations for all consulting services	September 30, 2015	AEPC
2-3 Recruitment completion for AEPC project team members (10 officers)	December 31, 2015	AEPC
3. Project Promotion Activities		
3-1 Collecting information about commercial farms participating in the Bank-financed PAT project through the Ministry of Agriculture	August 30, 2015 (Done)	AEPC
3-2 Preparing a proposal for conducting the regional workshops	September 15, 2015	AEPC
3-3 Completion of detailed financial analysis on different business model (by AEPC Officers)	December 31, 2015	AEPC
3-4 Start the recruiting process for a media consultant or firm to assist with the preparation of the outreach and dissemination workshops material.	September 30, 2015	AEPC
3-5 Completion of recruitment for a media consultant or firm	December 31, 2015	AEPC
3-6 Preparation of the outreach and dissemination workshops material	February 15, 2016	AEPC
3-7 Establishing one stop window to receive questions and provide answers from all interested stakeholders in the AEPC HQ and each DEECCS	February 15, 2016	AEPC
3-8 Completion of regional promotion workshops	March 15, 2016	AEPC
3-9 Selection of a pilot project site	September 30, 2015	AEPC
3-10 Execution of FS and DFS and getting construction approval	December 31, 2015	AEPC
3-11 Commissioning of a pilot project	June 30, 2016	AEPC
4. Foreign Technology Acquisition		
4-1 Providing fact sheets with opportunities for biogas production for every type of industry	September 20, 2015	IDA
4-2 Preparing a draft template agreement between the foreign technology supplier and the local PQ construction company	September 20, 2015	IDA
4-3 Analyzing the pros and cons to amend the current POM to facilitate the foreign technology acquisition	April 30, 2016	AEPC
5. Monitoring and Evaluation System		
5-1 Amendment of POM including adjustment for the biogas production threshold to the T&C performance tests in winter	January 31, 2016	AEPC
5-2 Preparation of proposal for a training program for the M&E trainers to the AEPC engineer in the DEECCS	January 31, 2016	AEPC
6. Training Programs for the PQ Consulting and Construction Companies		
6-1 Preparation of proposal for training programs for the PQ consulting companies	February 15, 2016	AEPC
6-2 Preparation of proposal for training programs to the PQ construction companies	February 15, 2016	AEPC
6-3 Execution of training programs for the PQ consulting companies	March 15, 2016	AEPC
6-4 Execution of training programs for the PQ construction companies	March 15, 2016	AEPC

Action	Due Date	Responsibility
7. Financial Management		
7-1 Development of subcategories in the software for categorizing expenditures	September 30, 2015	AEPC
7-2 Submission of withdrawal application for advance in the Designated Account	September 30, 2015	AEPC
7-3 Maintaining adequate supporting documents including for the transactions sampled by the review team	September 30, 2015	AEPC
7-4 Submission of audited project accounts	January 15, 2016	AEPC
8. Safeguards		
8-1 Finalization of the model/standard TOR for preparing the ESMP for Category C subproject	August 30, 2015 (Done)	AEPC
8-2 Preparing a detailed supervision and monitoring framework to assess compliance with social and environmental safeguards during construction and operation of subprojects	September 15, 2015	AEPC
8-3 Preparation of proposal for a training program on environmental and social safeguards, including training of trainers	September 30, 2015	AEPC
8-4 Validation of the 13 subprojects' screening reports submitted so far by the developers and confirmation of the potential issues and category through field visits by the AEPC social and environmental specialist	September 30, 2015	AEPC
9. Subsidy Policy for Biogas Projects		
9-1 Amendment of subsidy policy based on analysis and evaluation results (if necessary)	April 30, 2016	AEPC

Annex H: Gantt Chart for Agreed Actions

S.N	Responsibility	Task	2015					2016					
			Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1		Procurement Plan											
1.1	AEPC	Submission of temporally revised Procurement Plan		25									
1.2	IDA	Providing the clearance to the temporally revised Procurement Plan		10									
1.3	AEPC	Submission of fully revised Procurement Plan with Annual Work Plan and disbursement plan			20								
1.4	IDA	Providing clearance to the fully revised Procurement Plan			30								
2		AEPC Project Team Staffing											
2.1	AEPC	Starting the process to change the funding source to all NRREP-contracted project members from the NRREP to SREP, except to the biogas advisor and to add three new positions in the AEPC project team			30								
2.1	AEPC	Submission of TORs and cost estimations for all consulting services			30								
2.3	AEPC	Recruitment completion for AEPC project team members (10 officers)					31						
3		Promotion Activities											
3.1	AEPC	Co-ordination meeting with PACT project		30									
3.2	AEPC	Preparing a proposal for conducting the regional workshops		15									
3.3	AEPC	Detailed financial analysis on different business model (by AEPC Officers)					31						
3.4	AEPC	Start the recruiting process for a media consultant or firm to assist with the preparation of the outreach and dissemination workshops material			30								
3.5	AEPC	Recruitment completion for a media consultant or firm					31						
3.6	AEPC	Preparation of the outreach and dissemination workshops material							15				
3.7	AEPC	Establishing one stop window to receive questions and provide answers from all interested stakeholders in the AEPC HQ and each DEECCS							15				
3.8	AEPC	Holding regional promotion workshops								15			
3.9	AEPC	Selection of a pilot project site			30								
3.10	AEPC	Execution of FS and DFS and getting construction approval					31						
3.11	AEPC	Construction and Commissioning of a pilot project											30
4		Foreign Technology Acquisition											
4.1	IDA	Providing fact sheets with opportunities for biogas production for every type of industry			20								
4.2	IDA	Preparing a draft template agreement between the foreign technology supplier and the local PQ construction company			20								
4.3	AEPC	Analyzing the pros and cons to amend the current POM to facilitate the foreign technology acquisition										30	
5		Monitoring and Evaluation System											
5.1	AEPC	Amendment of POM including adjustment for the biogas production threshold to the T&C performance tests in winter						31					
5.2	AEPC	Preparation of proposal for a training program for the M&E trainers to the AEPC engineer in the DEECCS						31					
6		Training Programs for the PQ Consulting and Construction Companies											
6.1	AEPC	Preparation of proposal for training programs for the PQ consulting companies							15				
6.2	AEPC	Preparation of proposal for training programs for the PQ construction companies							15				
6.3	AEPC	Execution of training programs for the PQ consulting companies										30	
6.4	AEPC	Execution of training programs for the PQ construction companies										30	
7		Financial Management											
7.1	AEPC	Development of subcategories in the software for categorizing expenditures			30								
7.2	AEPC	Submission of withdrawal application for advance in the Designated Account			30								
7.3	AEPC	Maintaining adequate supporting documents including for the transactions sampled by the review team			30								
7.4	AEPC	Submission of audited project accounts						15					
8		Safeguards											
8.1	AEPC	Finalization of the model/standard TOR for preparing the ESMP for Category C subproject		30									
8.2	AEPC	Preparing a detailed supervision and monitoring framework to assess compliance with social and environmental safeguards during construction and operation of subprojects			15								
8.3	AEPC	Preparation of proposal for a training program on environmental and social safeguards, including training of trainers			30								
8.4	AEPC	Validation of the 13 subprojects' screening reports submitted so far by the developers and confirmation of the potential issues and category through field visits by the AEPC social and environmental specialist			30								
9		Subsidy Policy for Biogas Projects											
9.1	AEPC	Amendment of subsidy policy based on analysis and evaluation results (if necessary).										30	