

Environmental Compliance Monitoring Document

Semiannual Report no: 01

Loan/Grant number: L3139 NEP/G0397 NEP/ G0398 NEP
JULY -DECEMBER 2016

Nepal: South Asia Sub Regional Economic
Cooperation (SASEC) Power System Expansion
Project

Prepared by the Government of Nepal

The Environmental Assessment is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

CURRENCY EQUIVALENTS

30 December 2016

| | | |
|---------------|---|----------------------|
| Currency unit | – | Nepalese Rupee (NRs) |
| NRs. 1.00 | = | \$ 0.009150805 |
| US \$ 1.00 | = | NRs. 109.28 |

ABBREVIATIONS

| | |
|-------|--|
| ADB | Asian Development Bank |
| AEPC | Alternative Energy Promotion Centre |
| BoQ | Bill of Quantity |
| BS | Bikram Sambat (Nepali Calendar) |
| CFUG | Community Forest Users Group |
| DDR | Due Diligence Report |
| DFO | District Forest Officer |
| EARF | Environmental Assessment Review Framework |
| EIA | Environmental Impact Assessment |
| EIB | European Investment Bank |
| EMP | Environmental Management Plan |
| GoN | Government of Nepal |
| GRC | Grievance Redress Committee |
| IEE | Initial Environmental Examination |
| kV | Kilo volt |
| MoFSC | Ministry of Forest and Soil Conservation |
| MoPE | Ministry of Population and Environment |
| NEA | Nepal Electricity Authority |
| NORAD | Norwegian Agency for Development Cooperation |
| OHS | Occupational Health and Safety |
| PAM | Project Administration Manual |
| PSEP | Power System Expansion Project |
| RIPP | Resettlement and Indigenous Peoples Plan |
| SCF | Strategic Climate Fund |
| SASEC | South Asia Sub Regional Economic Cooperation |
| SREP | Scaling Up Renewable Energy Program |

NOTES

- (i) The fiscal year (FY) of the Government of Nepal and its agencies ends on 16 July. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY 2016 ends on 16 July 2017.
- (ii) In this report, "\$" refers to US dollars.

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Environmental Monitoring Report

**First Semiannual Report
July-December, 2016**

**NEPAL: South Asia Sub Regional Economic Cooperation
(SASEC) Power System Expansion Project**

Loan 3139/Grant 0397/ Grant 0398

**Prepared by South Asia Sub regional Economic Cooperation Power System
Expansion Project/Nepal Electricity Authority**

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1. INTRODUCTION

Background

1. In line with the Government of Nepal targets for energy sector ADB approved Loan 3139 (\$180.5 million from special fund), administration of the Grant 0397 (\$22 million from Government of Norway) and Grant 0398 (\$11.2 million from Strategic Climate Fund-Scaling Up Renewable Energy Project (SREP) for South Asia Sub regional Economic Cooperation Power System Expansion Project. The loan/grant project agreements for Loan 3139 and Grant 0398 were signed on 11 July 2014, and the agreement for Grant 0397 was signed on 14 November 2014. The loan and grants became effective on 15 January 2015. EIB provided EUR 95 million parallel co-financing to support specific project components and the financing agreement was signed in March 2015.

2. The project will contribute to Nepal's energy development objectives by (i) scaling up the on-grid and off-grid renewable energy supply, (ii) facilitating cross-border power exchange, (iii) increasing access to renewable energy in rural areas, and (iv) building capacity for on-grid and off-grid power sector development. The Project targets the strengthening and expansion of transmission and distribution systems that will enable Nepal to further benefit from power trading and development of its abundant hydropower resources. Transmission network strengthening and expansion, in conjunction with current hydropower generation development, is a precondition to reducing load shedding and increased cross border electricity trade.

Project Outputs

3. The Project has following four outputs:

(A) Power transmission capacity expansion. This comprises of:

A-1-1: Dana-Kusma 220kV Transmission Line and Associated Substations at Dana and Kusma

A-1-2: Kusma-New Butwal 220kV Transmission Line and New Butwal Substation

A-1-3: New Butwal-Bardaghat 220kV Transmission Line and Bardaghat Substation

A-3: Marsyangdi-Kathmandu 220kV Transmission Line and Associated Substation at Markichowk and Matatirtha

A-5: Grid Substations Reinforcement

4. In addition, European Investment Bank (EIB) provided parallel co-financing for:

A-2-1: Khudi- Markichowk- Bharatpur 220kV Transmission Line and Associated Substations

A-2-2: Manang-Khudi 220kV Transmission Line and Associated Substations

A-4: Samundratar -Trishuli 3B Hub 132kV Transmission Line and Samundratar Substation

5. NEA has subsequently modified the project description of A-2-1 and A-2-2 above as follows:

A-2-1: Udipur-Markichowk-Bharatpur 220kV Transmission Line and Associated Substations

A-2-2: Manang-Khudi-Udipur 220kV Transmission Line and Associated Substations

(B) Power distribution network augmentation:

Lot 1: Expansion of Distribution Network in the Eastern and Central Region of Nepal

Lot 2: Expansion of Distribution Network in the Western Region of Nepal

Lot 3: Distribution Network Improvement

(C) Mini-grid based renewable energy systems in off-grid areas. This included installation of up to total 4.3 MW of mini hydro-electric power plants and up to total 0.5 MW of mini-grid based solar or solar/wind hybrid systems, in selected rural communities.

(D) Capacity development support to NEA and AEPC. This included project management support, preparation support for distribution system/rural electrification master plan, and livelihood development activities in the project area.

6. NEA is the executing agency (EA) for Output A and B (on-grid components). AEPC is the EA for Output C (off-grid component). Both NEA and AEPC are EAs for Output D (capacity development component). The Project will be completed on 31 December 2021. The loan and grants closing date is 30 June 2022.

Implementation Status

7. Eight contracts have been awarded in the components implemented by NEA. In addition, a procurement package (package A-1-2-1 and A-3-2) and a consulting service package are under in procurement process.

8. For off-grid components implemented by AEPC, 15 contracts have been awarded among which four contracts were for individual project implementation consultants, nine contracts for regional service centers (RSCs), one contract for wind met mast system supply and installation, and one contract for earthquake solar lighting/mobile/radio charging systems.

2. COMPLIANCE STATUS WITH ENVIRONMENTAL COVENANTS

9. Environmental safeguard related project activities are in compliance with covenants as given in **Annex 1**.

3. ENVIRONMENTAL SAFEGUARDS IN SASEC POWER SYSTEM EXPANSION PROJECT

3.1. Environmental Safeguards

10. According to Environmental Protection Act 1997 and Environmental Protection Rules 1997 of Government of Nepal (GoN) and ADB Safeguard Policy Statement, 2009, initial environmental examination (IEE) is mandatory for the electricity transmission line projects. However, if the Transmission line passes from protected areas (national park, wildlife reserves, conservation areas), environmental impact assessment (EIA) is mandatory according to schedule 2 of EPA 1997. There is confusion about the level of environmental assessment (IEE or EIA) for the projects passing from Chure conservation area. Recently, government has clarified that IEE study is sufficient for the projects passing through Chure conservation area. Moreover,

considering National Energy Crisis Alleviation and Electricity Development Decade concept note, Ministry of Energy (MoE) has issued "IEE and EIA Working Procedures for Hydropower and Transmission Line Project, 2073 BS" effective from 2073 Kartik 4 (20 October 2016) to simplify and expedite environmental assessment approval process by assigning authority to Department of Electricity Development (DoED).

3.2. Planning Status of Projects

11. Following is the planning status of environmental assessment reports under SASEC PEP (refer **Annex 2** for details):

- 1. Kaligandaki Corridor (Dana-Kushma) 220 kV Transmission Line Project** – IEE report has already been approved by the Ministry of Energy (MoE).
- 2. Kaligandaki corridor (Kushma-New Butwal) 220 kV Transmission Line Project** – Draft IEE report has been submitted. ESSD is incorporating comments for final IEE report submission to DoED.
- 3. Marsyangdi-Kathmandu 220 kV Transmission Line Project** - IEE report has already been approved by the Ministry of Energy (MoE).
- 4. Marsyangdi Corridor (Bharatpur-Markichok-Udipur) 220 kV Transmission Line Project** - IEE report is under preparation as terms of reference (ToR) for IEE has been approved by MoE. Public notice (15 days) in national daily newspaper has been published by NEA.
- 5. Marsyangdi Corridor (Udipur-Khudi-Manang) 220 kV Transmission Line Project** - Since Udipur-Khudi-Manang 220 kV Transmission Line Project passes from conservation area, Scoping and ToR for EIA has been prepared and submitted by ESSD to the Ministry of Population and Environment (MoPE).

3.3. Tree cutting plan preparation

12. Based on legal provisions as stipulated in Forest Act, 2049 BS, Forest Regulations, 2051 BS, Government of Nepal Work Procedure for Providing Forest Land for Other Use, 2063 BS and Government Tree Cutting Standard, 2071 BS, forestry clearance has to be obtained from the GoN through Ministry of Forest and Soil Conservation (MoFSC).

13. For preparing tree cutting plan, total enumeration (counting & measurement) of vegetation in each angle point (15mx15m) and under transmission line passing from the forest (30m right of way (RoW)) was done to assess the number and types of plants likely to be affected by the project. This was done by the concerned District Forest Office (DFO) staff and forest users' group representative.

3.4. Status of Tree Cutting Plan Preparation

14. Following is the status of tree cutting plan preparation:

1. Kaligandaki corridor (Dana-Kushma) 220 kV Transmission Line Project (Myagdi & Parbat districts) – Forest inventory for tree counting and measurement along with data entry completed. There is change in AP location and TL alignment in the whole route of Myagdi district and few APs in Parbat district, so re-survey has been done by the project.
2. Kaligandaki corridor (Kushma-New Butwal) 220 kV Transmission Line Project (Parbat, Baglung, Syangja, Palpa, Rupendehi & Nawalparshi districts) – Orientation training for the forest inventory has been done in all six districts. However, tree cutting plan has been completed only for Nawalparashi district as TL alignment in Baglung, Parbat, Syngja, Palpa and Rupendehi districts has yet to be finalized. Forest inventory will be done after the finalization of TL alignment by the Project.
3. Marsyangdi-Kathmandu 220 kV Transmission Line Project (Gorkha, Chitawan, Dhading & Kathmandu districts) – Forest inventory for tree counting and measurement along with data entry completed for all districts. Due to change in TL alignment, re-survey was done in Dhading, Gorkha and Chitawan districts by the project.
4. Marsyangdi corridor (Bharatpur-Markichowk-Udipur) 220 kV Transmission Line Project (Lamajung, Tanahu, Gorkha & Chitwan districts) – Forest inventory for tree counting and measurement along with data entry completed.

Project involvement by mobilizing contractors for resurvey of forest inventory

15. Since Project has already awarded contract, re-survey for the tree cutting plan preparation has been done by the concerned contractors in Kaligandaki corridor (Dana-Kushma) and Marsyangdi-Kathmandu 220 kV 220 kV Transmission Line Project.

4. COMPLIANCE WITH ENVIRONMENTAL SAFEGUARD MEASURES

4.1. Establishment of Safeguard Unit and Grievance Redress Mechanism

16. NEA has agreed to establish dedicated safeguard unit for each subproject under SASEC PEP and signed MOU with ESSD on 29 November 2016. ESSD has already deputed two Environmental experts one each for Dana-Kushma and Marsyangdi-Kathmandu 220 kV Transmission Line Project and they have already joined the project offices at Kushma and Dharke respectively. Deputation of Social experts has already been done and they will join the project offices soon. Grievance redress committee in each project has to be established for addressing grievances on timely and satisfactory manner.

4.2. EMP Implementation, Monitoring and Reporting

17. Implementation of project has just started in Kaligandaki corridor (Dana-Kushma) Transmission Line Project with the construction of sub stations at Dana (Myagdi) and Khurkot (Parbat). ICB with contractor Tata JV has already been mobilized for the construction of both substations. Safety officers and stewards in both sites have been employed by contractor along with safety plan which has been submitted for project approval. Contractor demonstrated safety

preparation at Dana substation, but same in Khurkot substation was lacking. Monitoring mechanism in each project will be established for regular compliance monitoring. Reporting will be done on quarterly and biannual basis. Following are the safeguard compliance status and issues along with corrective actions (refer **Annex 3** also):

a) Dana Substation, Myagdi District

Status and Issues

Construction site safety:

18. Proper fencing and guarding of work site and workers are allowed to enter only after wearing safety gears. Safety briefing to workers has been done daily before starting work in the form of "tool box talk". Fuel storage requires improvement.

Occupational health and safety:

19. Limited use of safety gears. OHS needs improvement with strict enforcement.

Camp site management:

20. Labors camp is temporary built which needs improvement by contractor in more semi-permanent structure. There is open defecation by workers since toilet has not been constructed yet. Firewood is used for cooking purpose.

b) Khurkot Substation, Parbat District

Construction site safety:

21. No fencing and anybody has access in the work area- highly hazardous and should immediately secure the area by temporary fencing. No safety steward overlooking the activities

Safety gears:

22. Workers are not using any kind of safety gears in the construction site.

Safety signboards and cautionary barricades:

23. No safety signboards and cautionary barricades placed around construction site.

Irrigation canal:

24. Irrigation canal is passing through the construction site will be affected.

Corrective actions

Environmental Specialist:

25. Environmental Specialist should increase frequency to monitor environmental compliance in the construction site.

Cautionary barricades and safety signboards:

26. Cautionary barricades and safety signboards should be placed around work sites to avoid accidents.

Safety gears:

27. Use of safety gears should be made mandatory to enter construction site.

Camp site management:

28. Camp site management plan should be prepared with provision of cooking gas, electricity, water supply, waste management, sanitation and medical facilities.

Reinstatement of irrigation canal:

29. Irrigation canal passing through the construction area should be reinstated in consultation with concerned stakeholders.

5. ISSUES AND FOLLOW UP ACTIONS

29. Following **Table 1** shows main environmental issues and follow up actions for the effective implementation of environmental safeguard measures.

Table 1: Issues and Follow up Actions

| SN | Issues | Follow up Actions |
|----|--|---|
| 1 | Alignment change in Kaligandaki corridor (Dana-Kushma) and Marsyangdi-Kathmandu 220 kV 220 kV Transmission Line Project. | Supplementary IEE reports may be needed due to alignment change as IEE has already been approved for these projects. |
| 2 | Establishment of Safeguard Unit in each project under SASEC PSEP | Expediting the establishment of Environmental Unit with related staff in each project and making it fully operational |
| 3 | Environmental safeguard measures are partially complied | Compliance of environmental safeguard measures according to EMP |
| 4 | IEE approval of Marsyangdi Corridor | Fast-tracking IEE preparation and approval process |
| 5 | Obtaining tree cutting clearance from GoN | Continuous follow up with Department of Forest and MoFSC for speedy approval of tree cutting plan |
| 6 | Tree cutting plan for Udipur-Khudi-Manang | Preparation of tree cutting plan simultaneously with EIA preparation to speed up obtaining tree clearance and avoid the possibility of preparing supplementary EIA. |
| 7 | Grievance redress committee (GRC) in the project office | Formation of GRC at project level for addressing grievances on timely and satisfactory manner. |

Annexes

Annex 1: Status of Compliance with Loan and Grant Covenants

| Schedule | Para no. | Description | Current Status | Responsibility | Remarks |
|----------|----------|--|----------------|----------------|--|
| 4 | 7 | <p><u>Conditions for Award of Contract</u> The Borrower shall ensure that no Works contract for Parts 1 and 2, which involves environmental impacts is award until:</p> <p>a) Ministry of Energy or the Ministry of Population and Environment, as appropriate, has granted the final approval of the IEE, or EIA, as applicable, for Parts 1 and 2; and</p> <p>b) NEA has incorporated the relevant provisions from the EMP into the Works contract.</p> | Complied | NEA | |
| 4 | 8 | <p>The Borrower shall ensure that no Works contract for Part 3, which involves environmental impacts is award until:</p> <p>a) Ministry of Energy or the Ministry of Population and Environment, as appropriate, has granted the final approval of the IEE, or EIA, as applicable, for Part 3: and</p> <p>b) APEC has incorporated the relevant provisions from the EMP into the Works contract</p> | Being complied | AEPC | As per GoN Environment Act, only hydropower plants > 1 MW has to endorse IEE. Currently, no works contract has been awarded. |
| 5 | 11 | The Borrower shall ensure, or cause NEA or APEC, as applicable, to ensure, that the preparation, design, construction, implementation, operation and decommissioning of the Project, each Sub-project, and all Project facilities comply with (a) all applicable laws and regulations of the Borrowers relating to environment, health, and safety; (b) the Environmental Safeguards; (c) the EARF (for subprojects); and (d) all measures and requirements set forth in the respective IEE and EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report. | Being complied | NEA/ AEPC | |
| 5 | 16 | The Borrower shall make available, or cause NEA and APEC to make available necessary budgetary and human resources to fully implement the EMP and the RIPP. | Being complied | NEA/ AEPC | |
| 5 | 17 | <p>Safeguards – Related Provisions in Bidding Documents and Works Contracts :</p> <p>The Borrower shall ensure, or cause NEA and APEC to ensure, that all bidding documents and contracts for Works contain provisions that</p> | Complied | NEA/ AEPC | |

| Schedule | Para no. | Description | Current Status | Responsibility | Remarks |
|----------|----------|---|----------------|----------------|---------|
| | | <p>require contractors to:</p> <p>(a) comply with the measures and requirements relevant to the contractor set forth in the IEE, the EMP, the RIPP and the IPP (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set out in a Safeguards Monitoring Report;</p> <p>(b) make available a budget for all such environmental and social measures; and</p> <p>(c) provide the Borrower with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the RIPP,</p> <p>(d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and</p> <p>(e) reinstate pathways, other local infrastructure and agricultural land atleast their pre-project condition upon the completion of construction.</p> | | | |
| 5 | 18 | <p>Safeguards Monitoring and Reporting</p> <p>The Borrower shall do the following or shall cause NEA and APEC to do the following:</p> <p>(a) submit semiannual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission;</p> <p>(b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, or the RIPP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and</p> <p>(c) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP, or the RIPP promptly after becoming aware of the breach.</p> | Being complied | NEA/APEC | |

Annex 2: Environmental Safeguard Planning Status for SASEC PSEP

| S. N. | Name of Project or Subproject | Environmental screening is carried out? (Yes or No) | Environment category of the project / subproject (A/B/C/FI) | EIA/IEE/DDR with EMP is prepared (Yes/No) | ADB approved EIA/IEE with EMP (Yes / Under Review / Not Yet Due/Over Due) | Government approved EIA/IEE with EMP (Yes / Under Review / Not Yet Submitted) | Safeguard monitoring and coordination mechanism established (Yes/No) | GRC is established (Yes/No) | Automated safeguard monitoring system customized (Yes/No) | EMP cost in approved document is included in BOQ as an individual item (Yes/No) | Remarks |
|-------|---|---|---|---|---|---|--|-----------------------------|---|---|--|
| 1 | Dana-Kushma 220 kV Transmission Line Project | Yes | B | Yes | Yes | Yes | Yes | No | No | Yes | |
| 2 | Kushma-New Butwal 220 kV Transmission Line Project | Yes | B | | Not yet | Under review | No | No | No | No | IEE comments being incorporated |
| 3 | Bharatpur-Udipur 220 kV Transmission Line Project | Yes | B | | Not yet | Not yet | No | No | No | Yes | ToR for IEE approved and IEE under process |
| 4 | Markichowk-Kathmandu 220 kV Transmission Line Project | Yes | B | Yes | Yes | Yes | Yes | No | No | No | |
| 5 | Udipur-Manang 220 kV Transmission Line Project | Yes | A | | Not yet | Not yet | No | No | No | No | Scoping and ToR for EIA submitted to MoPE |

Note: EIA- Environmental Impact Assessment; IEE- Initial Environmental Examination; DDR- Due Diligence Report; EMP- Environmental Management Plan; GRC- Grievance Redress Committee; BOQ- Bill of Quantity

Annex 3: Status of Environmental Compliance for SASEC PESP

| Name of Subproject | Compliance to Environmental Management Plan* | | | | | | | | | | | Grievances | | | Corrective Action Plans are prepared and implemented (Y/N) | Env compliance reporting is maintained (Y/N) | Remarks | |
|--|--|---|---|-----------------------------|-------------------------|--|-----------------------------|--|--------------------------|---|-----------------------|-----------------------|-----------------------------|------------------------------|--|--|---------|---------------------------|
| | Physical | | | Biological | | | Socio-economic | | | | | | | | | | | |
| | Spoil Management compliance in %)** | Landslide protection with Bio-engineering (compliance in %)** | Drainage Management (compliance in %)** | Others as per EMP (specify) | Compensatory Plantation | Firewood is used for cooking and heating (Y/N) | Others as per EMP (specify) | Safety Gears are sufficient and used (Y/N) | Labors are insured (Y/N) | Labor and work camps are healthy and have sanitary facilities (Y/N) | Community Structure 1 | Community Structure 2 | Others as per EMP (specify) | No. of grievances documented | | | | No of grievances resolved |
| Dana-Kushma 220 kV TL Project | | | | | | | | | | | | | | | | | | Just started |
| Kushma-New Butwal 220 kV TL | | | | | | | | | | | | | | | | | | |
| Bharatpur-Udipur 220 kV TL Project | | | | | | | | | | | | | | | | | | |
| Markichowk-Kathmandu 220 kV TL Project | | | | | | | | | | | | | | | | | | |
| Udipur-Manang 220 kV TL Project | | | | | | | | | | | | | | | | | | |

Note: * Add field as guided by EMP in EIA/IEE/DDR; ** Write percentage of compliance in a scale of 100%; *** mention type of community structures

Progress status and issues in brief: All the projects are in planning phase except Dana - Kushma 220 kV TL where construction of sub stations has just started. Camp site management and safety issues need to be improved in this project.

Annex 4: Photographs



Dana Substation site with fencing, Myagdi



Fuel storage without safety measures at Khurkot, Parbat



Workers' camp at Dana Substation site, Myagdi



Use of fire wood in workers' camp at Dana



Orientation training to DFO staff and CFUG before forest survey



Meeting with forestry staff for conducting forest survey



Interaction with local people during IEE field survey

Tree girth & height measurement during forest inventory by DFO staff