## Environmental Compliance Monitoring Report

## Semi-Annual Report No. 2

Loan/Grant Number: L3139 NEP/G0397 NEP/G0398 NEP January - June, 2017

## Nepal: South Asia Regional Economic Cooperation Power System Expansion Project

Prepared by the Government of Nepal for the Asian Development Bank.

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# **Environmental Monitoring Report**

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## Nepal: South Asia Sub-regional Economic Cooperation (SASEC) Power System Expansion Project

Prepared by Alternative Energy Promotion Center for the Asian Development Bank

#### Abbreviations

ADB	Asian Development Bank
AEPC	Alternative Energy Promotion Centre
EA	Executing Agency
EARF	Environmental Assessment and Review Framework
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environment Protection Act
EPR	Environment Protection Rules
FY	Fiscal Year
GoN	Government of Nepal
GRM	Grievance Redress Mechanism
IEE	Initial Environmental Examination
MoPE	Ministry of Population and Environment
NRs	Nepalese Rupees
PIU	Project Implementation Unit
PM	Project Manager
RSC	Regional Service Center
SASEC	South Asia Sub-regional Economic Cooperation
SM	Social Mobilizer
SMC	Social Mobilization Coordinator
SPS	Safeguard Policy Statement
UC	Users' Committee
VDC	Village Development Committee

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#### 1. Introduction

#### Background

1. South Asia Sub-regional Economic Cooperation (SASEC) Power System Expansion Project, funded by Asian Development Bank (ADB), has two components namely on-grid and off-grid power system expansion in Nepal. The implementation partner of SASEC on-grid component is Nepal Electricity Authority (NEA) and off-grid component is AEPC.

2. AEPC is an Implementing Agency and the Ministry of Population and Environment is an Executing Agency for the SASEC Off-Grid Component. The ADB/SASEC Project Number is 44219 wherein the Loan Number is 3139-NEP (SF) and the Grant Number is 0398-NEP (EF). The Project was implemented from January 2015 and estimated completion date will be 31 December 2021. The grant and loan closing will be on 30 June 2022.

3. The off-grid component provides access to electricity and facilitates productive energy use (PEU) activities in rural locations without national grid connection. This will enhance income and welfare of rural communities by utilization of the renewable energy, mainly in sectors of agriculture, rural enterprise, health and education.

#### Impact and Outcome

4. The impact and outcome of SASEC off-grid project is to increase electricity access and enhance renewable energy development in off-grid areas of Nepal.

#### Output

5. The project purpose is achieved through the following outputs

#### Output 3: Mini-grid based renewable energy systems in off-grid areas increased

6. This includes 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, through the provision of (a) a credit line of US\$5 million from ADB's Special Funds to user communities for mini-hydro power plants and (b) a US\$11.2 million grant from the SCF administered by ADB.

#### Output 4: Capacity development supports to AEPC provided

7. The physical investments will be reinforced and supplemented by capacity building support to AEPC, including project management support, preparation support for distribution

system/rural electrification master plan and feasibility study of utility level wind farm, and parallel livelihood development activities in the project area.

#### 2. Compliance Status with Environmental Covenants

11. Each subproject complies with applicable government laws and regulations, and ADB Safeguard Policy Statement 2009. EMP of the subproject is prepared in the IEE which includes mitigation measures, monitoring plan, budgetary provision and roles of institution. Environmental safeguard compliance with loan and grant covenants is illustrated in **Annex I** whereas, **Annex II** demonstrate the existing condition of environmental compliance.

#### 3. Environmental Safeguards in SASEC Off-grid Component

8. Environmental assessment is the primary administrative tool to integrate environmental consideration into decision-making to ensure that proposed development intervention will have minimal environmental impacts. As provisioned by Government of Nepal, there is no need to conduct IEE for mini hydro and solar/solar wind mini grid project because they have minor or insignificant impacts on the existing environment. However, ADB has recognized the importance of Environmental Assessment to identify the possible impacts due to the implementation of such projects and recommend site specific mitigation and enhancement measures to make the project more sustainable along with the improved environment of the surroundings. SASEC off grid components falls under category "B" project according to ADB Safeguard Policy Statement, 2009 .Therefore, Initial Environmental Examination (IEE) for the sub-projects is mandatory.

9. In this context, IEE reports and Due Diligence Report (DDR) has been prepared for sample subprojects in accordance with the ADB environmental procedures and GoN environmental regulations (Environmental Protection Act, 1997 and Environmental Protection Rule, 1997). During the construction and operation of the sub-projects, environmental monitoring is an important tool to ensure the compliance of mitigation measures and implementation of environmental management plan (EMP).

#### **Project Progress Status**

10. The project is in initial implementing phase. The beginning phase of the project is focusing on planning, procurement, and preparation for implementation. All the mini-hydro and solar-wind sub-projects are under preparation for implementation. These days, Simrutu mini-hydro and Chisapani solar wind sub projects are under construction. All the mini-hydro and solar-wind sub-

projects are under preparation for implementation. The status of the subprojects is presented in **Annex III**.

#### 4. Subproject Impacts

12. Each subproject has many positive impacts. It will enhance the living standard of beneficiaries. The vital beneficial impact of the subproject is to have electricity to the rural communities, which in turn will intensify the economic activities (small level industries/cottage industries) and will also likely to help in development activities. Beside this, it will generate local employment, increase in revenue and establishment of new business venture. The overall economic development of the area will be enhanced. However, there may be some adverse impacts in each subproject, the effective mitigation measures will be carried out to cope with these impacts. These impacts can vary from subproject to subproject; especially it varies by the project components.

13. According to assessments conducted by PIU in the on-going subprojects, there are few adverse impacts and risks as illustrated in table 1 below.

S.N	Subprojects	Adverse Impacts and Risks	Mitigation Measures	Schedule
1.	All Subprojects	Losing a small portion of land for powerhouse, canals, solar panel installation and mini-grid connection.	No avoidance, but minimize the impact through proper management	Construction
2.	All Subprojects	Damages to crops during the construction period	Conditions application for the contractor and regular monitoring during the construction phase through PIU, contractor and UC.	Construction
3.	All Subprojects	Possibility to reject existing solar units at household level	Awareness and promotion	Operation

#### Table 1 Adverse Impact and Mitigation Measures

#### 5. Public Consultation and Information Disclosure

15. The main objective of this process is to recognize the opinion of the public regarding the project and respond to their concerns and suggestions. Integration of environmental concerns in the decision making process will avoid or minimize the conflict during implementation process.

16. Consultations with local people were done regarding the subproject activities, potential environmental impacts and mitigation measures. Local people including various stakeholders, women's group, VDC representatives and key persons were consulted for the process. Public consultation was carried at the local level for all subprojects. The meeting minutes and the list of participants are included in the IEE report of the respective sub projects.

17. Public consultation was done in an open dialogue form with the participants. At first, a brief description of the subproject was provided explaining how the subproject was planned and coverage area of the subproject. Then, the possible environmental impacts of the subproject were discussed in detail followed by the mitigation measures. After the discussion, the participants were asked to provide their concerns with regard to the subproject. Discussion was also made on whether the subproject is in accordance to community wills or it has some environmental and social issues. All concerns, issues and suggestions were well noted.

18. The majorities of the participants were positive to the subproject and wished for the quick implementation of the subproject as they are in immense need of the electrical energy for households and enterprises. According to the participants, the subproject will help their children for better educational opportunities and will also help in improvement of family health by avoiding the smoky kerosene lamps. With the electrical lights at household level, they could run local enterprise; utilize night hours as well for better productivity at household level. The participants were aware about the environmental impacts of the sub-project. As the impacts are very minute, in their opinion, the construction work will not have any risks to the local people.

S.N	Subprojects	Issues	Response
1.	All Subprojects	<ul> <li>Installation Investment cost and energy tariff</li> </ul>	<ul> <li>Incorporated in IEE</li> </ul>
		<ul> <li>Land requirement</li> </ul>	<ul> <li>Incorporated in IEE</li> </ul>
		<ul> <li>Project construction period</li> </ul>	<ul> <li>Incorporated in IEE</li> </ul>
		<ul> <li>Battery management and replacement (solar mini grid subproject)</li> </ul>	<ul> <li>Incorporated in IEE</li> </ul>

#### Table 2 Issues rose during public consultation

		<ul> <li>What if electricity from national grid comes to service area</li> <li>Employment during project implementation</li> <li>Adverse environmental impacts</li> </ul>	<ul> <li>Answered at group discussion</li> <li>Answered at point and incorporated in IEE</li> <li>Discussion during group discussion</li> <li>Impacts and mitigation measures incorporated in IEE</li> </ul>
2.	Olane Solar Mini-grid	<ul> <li>Additional land requirements</li> <li>Compensation to the land owners</li> </ul>	<ul> <li>Included in IEE</li> </ul>
3.	Dakburang Solar Mini- grid	Compensation to the land     owners	<ul> <li>incorporated in IEE</li> </ul>

### 6. Implementation of Grievance Redress Mechanism and Complaints Received from Stakeholders

#### **Grievance Redress Mechanism**

19. A grievance redress mechanism (GRM) has been established to receive and facilitate the resolution of APs' concerns, complaints, and grievances on negotiated/voluntary land donation, relocation, income restoration, environmental management and other construction and operation related issues. The GRM is willing to be proactive and accessible to all donors to address their concerns grievances and issues effectively and swiftly, in accordance with ADB SPS. RSC will inform about the GRM to the APs' during the first step of community mobilization. The GRM is based on five consecutive levels of action aimed at resolving issues as soon as possible and within a set time frame.

20. **First level of GRM:** The rural municipality level will be the first level of intervention to address grievances and complaints. Many grievances can be resolved by providing correct and complete information early in the subproject development process. The RSC representing the EA/PM or Project Management Unit (PMU) has deployed Social Mobilization Coordinator (SMC) and Social Mobilizer (SM) to listen and provide information to APs and resolve their issues. The SMC and SM may seek the assistance of the project safeguards specialists to help resolve the issue. The SMC/SM carry on records of the:

- (i) the name of person (s),
- (ii) date of the received complaint,
- (iii) nature of the complaint,

(iv) location and

(v) how the complaint was resolved (if resolved).

These reports will be submitted to the EA and to the project safeguard specialist on a monthly basis.

21. **Second level of GRM:** If the grievance remains unresolved the SMC/SM forwards the complaint to the EA/PM and project safeguard specialist. The person (filing the grievance) will be notified by the SMC/SM that his/her grievance has been forwarded to the EA/PM and project safeguard unit. Grievances will be resolved through consultation and interaction with APs with support of Users' Committee. The EA will answer queries and find resolution for grievances regarding various issues including social, livelihood and environmental impacts. The project safeguard specialist will undertake the corrective measure/s in the field within 7 days of the decision. The project safeguard specialist will fully document the following information:

- (i) the name of person/s,
- (ii) date of the received complaint,
- (iii) nature of the complaint,
- (iv) location, and
- (v) how the complaint was resolved (if resolved).

22. **Third level of GRM:** If the grievance remains unresolved, it will be referred to Grievance Redress Committee (GRC). The GRC will be headed by the PM, with other members made up of the chairman of the subproject rural municipality, Ward Secretary, representative of APs and Chairman of UC. The AP will be given the opportunity to present his/her concern/issues at the GRC and GRC will suggest corrective measures within 15 days. The project safeguard specialist will work as secretary of the GRC and will be responsible for processing and placing all papers before the GRC, recording decisions, issuing minutes of the meetings, and taking follow-up action to see that formal orders are issued and the decisions are carried out.

23. **Fourth level of GRM:** If the above process fails to adequately resolve the concern/grievance to satisfactory of the AP; the APs can seek DDC intervention to resolve the issue requesting the GRC Secretary to forward the matter to the DDC level PHC. The PHC will be represented by the CDO (Chairman of PHC), PM of EA, Project Social Safeguard Specialist (Secretary of PHC), concerned rural municipality Chairman, concerned Ward Secretary, concerned CUG Chairman, and a member of the CBO. The affected person can present his or her concerns/issues at the PHC. All cost of the hearing will be borne by the project. The PHC will meet when necessary. The PHC will suggest corrective measures at the field level and issues

directions that should implement the directions within 30 days of the decision taken. The project safeguard specialist will work as the secretary of the PHC and will be responsible for processing and placing all papers before the PHC, recording decisions, issuing minutes of the meetings, and taking follow-up action to see that formal orders are issued and the decisions are carried out.

24. **Fifth level of GRM:** If all of the above resolution methods have failed, the AP can seek legal redress mechanism through Nepali's judicial or appropriate administrative system.



Figure 1 Flow Diagram of GRM

#### Status of Implementation of Grievance Redress Mechanism

25. Till the date no any grievance is recorded.

#### 7. Institutional Arrangement

26. The key institutions involved in safeguard related issues are AEPC/PIU, VDCs, Construction Contractor and Users' Committee.

SN	Institution/ Parties	Responsibilities
1.	AEPC/SASEC PIU	<ul> <li>Responsible for overseeing subproject compliance with environmental and social safeguard requirement,</li> <li>Carry out public consultations and disclosures</li> <li>Effective management of the GRM.</li> <li>Conduct routine visual inspections of construction activities, including vegetation clearance, earthworks, workers health and safety etc.</li> </ul>
2.	Rural Municipality	<ul> <li>Support PIU during public consultation</li> <li>Assist in Grievance Redress Mechanism</li> </ul>
3.	Users' Committee	<ul> <li>Responsible to monitor the construction process to ensure quality of work.</li> <li>During operation phase it will be responsible for overall management after the project handover.</li> </ul>
4.	Construction Contractors	<ul> <li>Responsible for environmental and social management as well as worker health and safety during construction phase.</li> </ul>

Table 3 Roles and responsibilities of Institution

#### 8. Conclusion and Recommendations

27. It is expected that the above mentioned subprojects have very nominal or insignificant environmental impacts. The anticipated environmental impacts can be easily mitigated through implementation of EMP of the respective subproject. All the subprojects are based on the voluntary land donation. ADB's safeguard requirement -2 related to involuntary resettlement will not be triggered. Vulnerable households will be given preference in employment during project implementation and other capacity building training.

28. The Environment Management Plan (EMP) has been prepared for the subproject and roles and responsibilities of the institution involved in the construction and operation stage of the subproject are clearly mentioned. The EMP will be included in the bidding documents and the PIU will ensure its implementation by continuous supervision and monitoring. The subproject proponent is mostly responsible for obeying all acts, rules, and regulations as provisioned by the Government, and ADB's Safeguard Policy Statement 2009 while implementing the subproject.

29. It is recommended that during the implementation of the subprojects the EMP shall fully comply with ADB's SPS 2009 and Nepal Government requirements.

Annex I: Status of c	compliance with Loan	and Grant Covenant
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Schedule	Para	Description	Current Status	Responsibility	Remarks
	no				
4	8	Condition for award of contract		AEPC	As per GoN Environment
		The Borrower shall ensure that no Works	Being complied		Protection Act, 1997 and
		contract for Part 3, which involves			Environment Protection Rule,
		environmental impacts, is awarded until:			1997
		(a) the Ministry of Science, Technology and Environment has granted the final approval of the IEE, or environmental impact assessment, as applicable, for Part 3; and			
		(b) AEPC has incorporated the relevant provisions from the EMP into the Works contract.			
5	11	The Borrower shall ensure, or cause 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	Being complied	AEPC	

		<ul> <li>(a) all applicable laws and regulations of the Borrowers relating to environment, health, and safety;</li> <li>(b) the Environmental Safeguards;</li> <li>(c) the EARF (for subprojects); and</li> <li>(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.</li> </ul>			
5	16	The Borrower shall make available, or cause APEC to make available necessary budgetary and human resources to fully implement the EMP	Being complied	AEPC	
5	17	Safeguards – Related Provisions in Bidding Documents and Works Contracts : The Borrower shall ensure, or cause APEC to ensure, that all bidding documents and contracts for Works contain provisions that require contractors to: (a) comply with the measures and requirements relevant to the contractor set	Being complied	AEPC	

5	18	Safeguards Monitoring and Reporting	Being complied	AEPC	
		completion of construction.			
		their pre-project condition upon the			
		infrastructure and agricultural land at least			
		(e) reinstate pathways, other local			
		construction; and			
		prior to starting to transport materials and			
		agricultural land and other infrastructure			
		(d) adequately record the condition of roads,			
		EMP, the IPP,			
		that were not considered in the IEE, the			
		implementation or operation of the Project			
		impacts that arise during construction,			
		resettlement or indigenous peoples risks or			
		of any unanticipated environmental,			
		(c) provide the Borrower with a written notice			
		environmental and social measures; and			
		(b) make available a budget for all such			
		Safeguards Monitoring Report;			
		corrective or preventative actions set out in a			
		people during construction), and any			
		the extent they concern impacts on affected			
		forth in the IEE, the EMP, and the IPP (to			

	The Borrower shall do the following or shall		
	cause APEC to do the following:		
	(a) submit semiannual Safeguards		
	Monitoring Reports to ADB and disclose		
	relevant information from such reports to		
	affected persons promptly upon submission;		
	(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 IPP, promptly inform		
	ADB of the occurrence of such risks or		
	impacts, with detailed description of the		
	event and proposed corrective action plan;		
	and		
	(c) report any actual or potential breach of		
	compliance with the measures and		
	requirements set forth in the EMP, or the IPP		
	promptly after becoming aware of the breach		
1			

### Annex II: Compliance with Environmental Assessment and Review Framework

Description	Current status	Responsibility	Remarks
Sub-projects that will not be supported by the Project include: (i) any	Being complied	AEPC	
projects assessed as category A; (ii) subprojects directly located on/in			
biologically sensitive or significant habitat (e.g. on a site with endangered			
flora or fauna); and (iii) subprojects in legally protected areas where the			
proposed development is not permitted under Government legislation.			
Environmental mitigation measures should be included in the detailed	Being complied	AEPC	
feasibility study report.			
Battery management process/guideline should be included in the mini-grid	Being complied	AEPC	
solar/wind package			
Sub-project selection taking into account environmental screening criteria	Being complied	AEPC	
Sub-project environmental assessments prepared in the form of an IEE	Being complied	AEPC	
(category B sub-projects) or desktop assessment (category C sub-			
projects) in accordance with the requirements set out in this EARF			
Appropriate public consultations and disclosures	Being complied	AEPC	
Effective management of the grievance redress mechanism	Being complied	AEPC	
EARF compliance reported in the environmental monitoring report	Being complied	AEPC	

### Annex III: Project Progress Status

S.N.	Subproject Name	Subproject Implementation Status	Environmental Safeguard Status
1.	Simrutu Mini-Hydro (200 kW)	Construction is going on	Environment safeguard and Due-diligence conducted at PPTA stage Environment and social safeguard unit performed the compliance monitoring
2.	Saniveri Mini-Hydro (300 kW)	Project implementation modality has been in process and upfront equity is being collected	Environment safeguard and Due-diligence conducted at PPTA stage
3.	Giri-khola Mini-Hydro (200 kW)	Financial closure is on progress	IEE completed
4.	Khatyadkhola Mini- Hydro (500kW)	Design Review and financial closure is on progress	IEE under preparation
5.	Phawakhola Mini-Hydro	Bid Document under Preparation	IEE completed
6.	Chisapani Solar/Wind Hybrid Mini-grid (35 kW)	Construction started from 23 <sup>rd</sup> Feb, 2017 and is on progress	Environment safeguard and Due-diligence conducted at PPTA stage

7.	7.       Ramitekhola Solar Mini- grid (30 kWp)       Contract awarded on 30 <sup>th</sup> May, 2017       IEE complet		IEE completed.
8.	Gutu Solar Mini-grid (100 kWp)	Design reviewed and financial closure is on progress	IEE completed
9.	Olane Solar Mini-grid (25 kWp)	Technical bid evaluation	IEE completed
10	10SaptamiSolar/WindDesignreviewedandunderHybrid Mini-grid (70 kW)implementation		IEE under preparation
11	11 Sugarkhal Solar Mini- Draft DFS report submitted grid (75 kW)		IEE and Due-diligence are under preparation
12	Pamakham Bhanjyang Solar Wind	Draft DFS report is under progress	IEE and Due-diligence are under preparation
13	Dakburang Solar Wind	Draft DFS report is under progress	IEE and Due-diligence are under preparation
14	Hillepani Solar Mini-grid	Draft DFS report is under progress	AEPC safeguard team is planning to carry out environmental and social safeguard study for next semi annual period

15	Mahadevdanda	Solar	Draft DFS report is under progress	AEPC	safeguard	team	is	planning	to	carry	out
	Mini-grid			enviror	nmental and	social	safe	guard stud	dy fo	r next	semi
				annual	period						
					•						

#### Annex IV: Environmental Monitoring Checklist Format

South Asia Sub-regional Economic Cooperation (SASEC) Power System Expansion Project

**Environmental Monitoring Checklist** 

Name of subproject: .....

Date: .....

SN	Activity	Details	Remarks
1.	Employment generation		
a.	Number of local labour employed during construction	Male Female	
b.	Number of construction workers hired from outside	Male Female	
C.	Number of child workers involved (if any)	Male Female	
d.	Number of women employed during construction phase	Male Female	
2.	Training and awareness program		·

a.	Participants on awareness program on electrocution, health and safety	Male Female	
b.	Participants on awareness program on environment management	Male Female	
C.	Participants on income generating training ( if any)	Male Female	
3.	Trade and commerce		
a.	Number of shops increased		
b.	Number of shop decreased		
C.	Rental of house increased		
d.	Establishment of local enterprises in the subproject vicinity		
4.	Transportation facility		
a.	Number of public vehicles increased during construction		
b.	Cost of transportation		
C.	Saving of time		
5.	Change in migration pattern		
a.	Number of person migrating to subproject area		
b.	Number of person migrating from subproject area		

C.	Number of person returned from foreign job		
d.	Number of person migrating to subproject area for business purpose		
6.	Occupational health and safety measu	res	
a.	First aid facility and emergency services provided at work sites		
b.	Protective gears provided to workers and using helmet, facemasks, gloves, muffle, boots, jacket, goggles etc		
C.	HIV/AIDS awareness provided for worker		
d.	Number and types of accident occurred		
e.	Accidental insurance for worker		
f.	Information, sign, signboard used at construction sites		
7.	Camp site management		
a.	Clean drinking water supply at camp site		
b.	Temporary pit latrine at campsite		
C.	Kitchen waste management at camp site		
d.	First aid facilities available at camp sites		
e.	Types of fuel used for cooking (kerosene/LPG gas/firewood)		

8.	Protection of cultural and religious site	9S	
a.	Protection of temple, chautari, mela spot, dharmasala, cremation sites etc		
9.	Land value increased or decreased around subproject vicinity		
10.	Forest and vegetation		
a.	Number of trees cut		
b.	Increased of sale of timber and NTFP		
C.	Pressure due to use of firewood on nearby forest		
d.	Compensatory plantation in forest, private land and roadsides		
11.	Wildlife		
a.	Hunting and poaching by workforce		
b.	Trading of wildlife products		
C.	Loss of wildlife habitat due to construction activities		
12.	Birds		
a.	Hunting and poaching by workforce		
b.	Trading of birds		

C.	Loss of birds habitat due to construction activities	
13.	Slope instability	
a.	Number and location of slope failure	
b.	Measures for landslides and erosion control	
C.	Application of bioengineering measures	
d.	Disturbed area due to lack of drainage	
14.	Spoil management	
a.	Use of safe spoil disposal location	
b.	Lower value land is used as disposal site	
C.	Reuse of spoil materials	
d.	Plantation is done on the spoil disposal land	
15.	Air, water and noise quality	
a.	Dust generation from construction sites	
b.	Noise generation from construction sites	
C.	Disturbance of drinking and irrigation water	

d.	Discharge of drain water into farm land and settlement area	
16.	Quarrying of construction materials	
a.	Proper management of stockpiling of construction materials	
17.	Safe disposal of construction waste	
18.	Grievance received in last month	
19.	Establishment of safeguard unit	
20.	Meeting conducted by Users' Committee	
21.	Photographs	

### Annex V: Photographs



Power house and ground mounted solar panel at Chisapani, Sindhuli



Construction at Simrutu khola mini hydro sub project