

Environmental Monitoring Report

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Loan and Grant Number: 3789, 8357, 0645
Semestral Report (January-June 2021)
December 2021

Cambodia: National Solar Park Project

Prepared by the Electricité Du Cambodge (EDC) and the Asian Development Bank.

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**CONSULTING SERVICES FOR PROJECT IMPLEMENTATION CONSULTANT
CONTRACT No. CS-NSPP-ADB-EDC-2020-01**

DECEMBER 2021

National Solar Park Project

**SEMI-ANNUAL ENVIRONMENTAL MONITORING REPORT
(JANUARY TO JUNE 2021)**

Prepared by Project Management Unit of the EDC under technical supports from JOINT VENTURE OF NEWJEC INC.
AND CHEANG ENGINEERING CONSULTANTS CO., LTD

NOTE

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1 ENVIRONMENTAL SAFEGUARDS SUMMARY

1.1 Summary of Project Progress

1. The first Semi-annual Environment Monitoring Report (SEMR) covers the period of January to June 2021 for National Solar Park Project for the Transmission line and Substations in the provinces of Kampong Chhnang and Kampong Speu, ADB Loan No 3789 - CAM (COL). The SEMR has been prepared to fulfil the safeguard policy requirement of ADB.
2. The SEMR is prepared by PIC and checked by SEPRO/EDC.
3. The following table gives a brief summary of the project progress for contract award, construction and key activities in this reporting period:

Table 1: Summary of Project Progress

Safeguards Category	Environment	B	
Reporting Period:	January to June 2021	Date Last Report Issued:	Not applicable
Contracts Awarded to Date:	Substation and Towers of Transmission Line– pre-construction period (design stage in progress)		
Construction Progress to Date:	<p>The physical construction progress is as follows:</p> <ul style="list-style-type: none"> - The package including substations, GS6 substation, and 230 kv transmission line has been contracted with Xian Electric Engineer Co. Ltd on 04 March 2020. - The civil works have been started by middle of April 2021 for the substation and by Middle of June 2021 for the tower. - The overall physical progress of the package as of 30 June 2021 is in below: The progress of the overall physical/construction works including the national solar park, the GS6 substation, the transmissional line and access road are completed 25%. Details of the construction progress are: (i) National Solar Park is completed 10%; (ii) GS6 substation is completed 0%; (iii) Transmissional line is completed 15%; and (iv) access road is completed 0%. 		
Key Sub-project Activities in this Reporting Period:	<p>Project name: National Solar Park Components: Substation, GS6 Substation (upgrade), and 230kV Transmission Line.</p> <p>For general status and progress:</p> <ul style="list-style-type: none"> - 1st Submission of IESIA report to MoE on 21 January 2021 - 2nd Submission of the revised IESIA (Initial Environmental and social impact) to MOE and Principal approval of the IESIA on 13 May 2021). - Final approval of the IESIA from MoE will be expected in September 2021. - PIC site inspection for checking the access road in January 2021 - PIC site inspection for checking the preparation of the construction of boundary fence in February 2021 - PIC approved electrical clearance, stub design, and setting the dimension of DB/DC/DE, March 2021. - PIC site inspection for preparing the civil work of Tower foundation sections 1 and 2 in March 2021. - PIC site inspection for preparing the civil work of Control Building in April 2021. - PIC site inspection for preparing the civil work of Tower Foundation in May 2021. 		

	<ul style="list-style-type: none"> - Mobilization of Xian Electric Engineer Co. Ltd., to site. Construction of work camps and associated construction facilities such as fuel tank area - UXO clearance certificate issued for this project by CMAC on 7 December 2020 in the Annex 4. -
Report prepared by:	PIC
Report checked by:	SEPRO/EDC

4. The Environmental Monitoring Report (EMR) findings are based on progress reports and site visits between January and June 2021 as follows:
 - Reviewing the previous monthly/environmental reports that prepared by the contractor:
 - Reviewing monthly/environmental report of the contractor:
 - Screen the issues that happened in the field and the result of environmental mitigation measures performed by the contractor;
 - Find out the compliance with EMP in the IEE report and Cambodia's regulation and law.
 - Site monitoring: Use environmental monitoring checklist, consultation (directly ask the question to the project workers and people living nearby the project sites), and visual: During the field observation on environmental mitigation measure that implemented or rectified by the contractor, Xian Electric Engineer Co. Ltd. This methodology also has been applied for other environmental monitoring items, and the degree of impact has been recorded and photographed to prove the impacts (good or bad) are used.
5. All works in the Construction stage are proceeding in accordance with the provisions of the EMP, such as review of monitoring report format, regulatory compliance action plan and camp layout review and preparation of site camp and approval by local authorities.
6. The Environmental Management Plan (EMP) is successfully being implemented by the Contractor through the PIC (Environmental Consultant) engaged by the executive agency. Based on ADB advice, a Construction Environmental Management Plan (CEMP) should be developed and approved by the PMU. PIC, therefore, asked the contractor to develop the CEMP immediately. The CEMP shall be finalized and approved after this first SEMR (Jan-June 2021).
7. For the next semi-annual from July to December 2021, the construction activities will be ongoing progress works for substations and most transmission-line parts.
8. Various proactive measures are being taken to implement the project in compliance with requirements, prevent damages to heritage structures, coordinate with relevant agencies, communicates with the public, and address the grievance of the local residents. Areas such as public communications, documents, and reporting need further enhancement.

1.2 Summary of EMP Implementation

9. EMP implementation is summarized in the following points for this reporting period:
 - The Worker Camp installed in April 2021 for substation includes the provision of the separated toilet with a septic tank for male and female workers, washing area, and waste bins;
 - UXO clearing activity completed with the clearance certificate issued on 7 December 2020 attached in Appendix 4
 - To date, there are no issues related to accidents to workers during works.
 - Provision of first aid kit at the worker camp.
 - Oil tank for storage was provided and tank was installed in camp site under the concrete base slab can control oil and the lubricants spillage;

- Traffic signage was installed to ensure people's safety guidelines to the construction zones;
- Personal protective equipment (PPE) were provided to all the workers;
- COVID-19 precautionary measures were being implemented following the MoH's guidance.
- Based on the monthly contractor monitoring report, solid and liquid wastes were properly managed and disposed of.

1.3 Summary of EMP Monitoring

10. EMP monitoring during the construction period was currently being established. Xian Electric Engineer Co. Ltd is just fully mobilized at the project sites in April 2021 for substation and middle of June 2021 for the tower. No sampling activity for air and water quality during the SEMR reporting period is conducted yet.
11. EMP monitoring is summarised in the following points, for this reporting period:
 - a) A number of Monitoring Visits to Construction Sites and wider area:
 - Three visits by PMO/SEPRO/ EDC
 - Two visits by PIC. The following concerns were highlights of the following site visits;

1.4 Summary of Complaints, Issues and Corrective Action

12. No grievance case reported in the period of Jan-June 2021.

Conclusions:

13. Contractors should continue the implementation of the Environmental Monitoring Plan, perform self-monitoring, including the preparation of the CEMP. Monthly Reports with proper documentation should be submitted to PIC and SEPRO/EDC. The actions recommendations during this monitoring period should be implemented in the next reporting period. There were no significant environmental impacts observed during the reporting period, and a few short-coming on follow-up with regulatory agencies, regular technical support by PIC's environment consultants, public communications, documentation, and reporting were observed for which necessary corrective measures have to be taken.

2 SAFEGUARDS STAFF, TRAINING AND DOCUMENTATION

2.1 Implementation Arrangements

14. The environmental management plan (EMP) was defined the institutions and responsibilities for environmental safeguards and EMP implementation.

- 1) EDC is the executing agency (EA) of the project: EA is overall project management to ensure that project complies with loan covenant.
- 2) PMO. PMO have formed Social, Environment and Public Relations Office (SEPRO) to in charge of the social and environmental issues and also to monitor the EMP implementation for the whole Project. The PMO leaders and staff in charge of each package, are aware of responsibilities of the implementation of environmental impacts mitigation measures. The PMO staffs are in close coordination with PIC, thus compliance to the Update EMP is gradually improving.
- 3) PIC Consultants. Provide support to the PMO and the Contractors through close inspection of implementation of the environmental management measures and daily compliance at site. The consultant regularly submits reports to SEPRO/EDC on monitoring of EMP implementation and compliance of Contractors, which serve as the bases for PMO to provide close guidance at site.
- 4) Contractors: try to provide staff in charge of environment and safety to ensure that CEMP is prepared and follow-up. Some of the assigned personnel, however; still have not spent sufficient time for environmental management activities or have not regularly stayed on site., therefore; PIC consultants need to prepare an orientation training focus on Environmental and Social Safeguards to focal points of PMO, SEPRO and Contractor staffs.

15. The roles and responsibilities of the different in EMP implementation and monitoring are described in the table below

Table 2: The roles and responsibilities of the different in EMP implementation and monitoring

Agency	Roles/ Responsibilities
Electricite du Cambodge (Executing Agency)	<ul style="list-style-type: none"> - Responsible for overall supervision and monitoring of the project implementation - Establish the PMO with sufficient staff and appropriate qualification - Ensure implementation of the safeguards planning document is compliant with the loan and grant covenants - Provision of counterpart staff, operational support and budget for project activities - Ensure compliance with all loan and grant covenants
Project Management Office (within EDC)	<p>In coordination with PIC</p> <ul style="list-style-type: none"> - Responsible for day-to-day project management and supervision - Implement project in accordance with the legal agreements - Coordinate with line ministries to ensure smooth and efficient implementation of the project - Responsible for procurement of goods, works and services - Secure technical and safeguard approvals for all civil works prior to contract award - Ensure compliance with all loan and grant covenants - Implement/comply with safeguards requirements detailed in the safeguard documents - Responsible for submission of reports, including submission of summary of financial and project accounts and annual financial statements, and safeguards monitoring report

Agency	Roles/ Responsibilities
Social, Environment and Public Relations Office (SEPRO)	In coordination with PMO and PIC <ul style="list-style-type: none"> - Ensure compliance with ADB safeguards requirements - Ensure compliance and consistency of safeguards documents with the government policy, legal and administrative framework across all jurisdictions--national, state and local - Responsible for overall coordination and reporting for various project activities - Responsible for overall implementation of safeguards requirements
Project Implementation Consultant (PIC)	<ul style="list-style-type: none"> - Responsible for preparation of safeguards documents - Ensure compliance with safeguards requirements through effective implementation and monitoring of social and environmental safeguards - The PIC will: (a) update, as necessary, the Initial Environmental Examination (IEE), Environmental Management Plan (EMP), and Land Acquisition and Resettlement Plan (LARP), and, after obtaining ADB's approval, oversee their implementation; and (b) supervise the design, supply, installation, and commissioning of the solar park infrastructure works by the EPC contractor. - Project performance monitoring and evaluation, including preparation of progress reports and completion report - The PIC will recruit and manage a local registered firm, who will work with EDC to prepare and submit an Initial Environmental Impact Assessment (IEIA) or full EIA for the solar park infrastructure to the Ministry of Environment (MOE) for clearance and approval, as required, prior to any civil works contract awards.
Contractor	<ul style="list-style-type: none"> - Preparation of CEMP, and conduct monitoring environmental items basically and follow-up all activities at the project sites, camp site, and other material yards. - Daily/Weekly and monthly monitoring - Monthly Environmental Health, and Safety (EHS) monitoring report - Provide sufficient budget and human resources for the implementation of the EMP/CEMP - Ensure proper and timely implementation of required pre-construction and construction mitigation measures in the EMP/CEMP - Implement additional environmental mitigation measures, as necessary.

16. The specific roles and responsible persons are required to be filled in order to meet the EMP requirements. The following table gives the status of the key specific roles for EMP implementation:

Table 3: Status of Environmental Safeguard Roles

Safeguards Role	Status & Comment			
PIC-Project Consultant Environmental Specialist	Date Started:	26 March 2020	Full Time/Part Time	[PT]
	Comment	<ul style="list-style-type: none"> - Mr. Shusuke Minato - Mr. Chheang You 		
SEPRO	Date Started:	18 September 2019	Full Time/Part Time	[FT]
	Comment	<ul style="list-style-type: none"> - Mr. Mao Visal 		
PMO GRM Focal Point	Date Started:	18 September 2019	Full Time/Part Time	[FT]
	Comment	<ul style="list-style-type: none"> - Mr. Salim for Transmission Line - Mr. Im Am for Substation 		

Contractor	Date Started:	4 March 2020	Full Time/Part Time	[FT]
	Comment	-		
Environmental Monitoring Consultant (EMC)	Date Started:	N/A	Full Time/Part Time	[FT]
	Comment	Not yet hired by the Consultant during the report period		
Contractor Environment Health & safety Staff	Date Started:	4 March 2020	Full Time	[FT]
	Comment	- Mr. Theng Samrith(for transmission line) - Mr. Keang (for substation)		
GRM Focal Person	Date Started:	18 September 2019	Full Time	[FT]
	Comment	- Mr. Bin Sopheakda for SEPRO - Mr. Theng Samrith for contractor		

17. The project concludes that the environmental safeguards roles are in the process of filling up. The Environment, H& S position for Xian Electric Engineer Co. Ltd, the contractor for the substation, transmission line and upgrade GS6.

2.2 Monitoring and reporting System on Environmental Safeguards

18. PMO/SEPRO will establish a system to monitor environmental safeguards of the project including monitoring the indicators set out in the monitoring plan of the EMP. Safeguard team will comprise social expert, environmental expert and Technical expert. PMO under technical support from the PIC will prepare quarterly environmental monitoring and semi-annual monitoring report and submit to ADB.
19. The Semi-annual Environmental Monitoring Report (SEMR) will be continuously conducted and updated every 6 months during the construction stage whenever there are adjustments in design or revision in construction methodology to ensure that the mitigation measures are appropriate for the potential impacts. The SEMR for project has been updating due to changes in the project's scopes and monitoring the progressive works to ensure minor environmental negative impacts and people satisfactorily. The PIC consultants will provide an orientation training on environment safeguards including the monitoring system to PMO, SEPRO and Contractors in December 2021 as planned.

Table 4: Schedule of Reporting

No.	Activity/Task	2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
I	Understanding the Project and Setting the Schedule								
1.1	Field visit								
1.2	Update IEEs/EMPs								
1.3	Update CEMP outline for the Contractors								
II	Environmental Management Training and Environmental Instruments Monitoring								
3.1	Prepare environment training materials and offer training								
3.2	Refresher training on the implementation of the EMP and GRM								
III	Environmental Monitoring of Construction Impacts								
4.1	Periodic instrument monitoring 6 months								
4.2	Works with contractors to complete CEMP								

No.	Activity/Task	2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
4.3	Visual monitoring and inspection of constructors 'environment management								
4.4	Quarterly report								
4.5	Semi-annual Environmental Monitoring report unit project end								

2.3 Training & Capacity Building

20. The following table gives the environmental safeguards training courses that have been completed during this reporting period and the planned training courses for the next six months:

Table 5: Environmental Safeguards Training Provided and Planned

Training Course Title	Training Date	Participants	Training Provider
Orientation/ training for EMP and GRM Implementation	1 st and 2nd December 2021 (planned)	EDC, PIC, Contractors	PIC's International Environmental Specialist and National Environmental Specialist

Noted: the measures for prevention of COVID 19 will be included in this training.

2.4 ADB Approvals

21. The following table gives information on the status of the safeguards documents. During this reporting period the safeguard documents of this project is in progress.

Table 6: Status of Environmental Safeguards Documents

Environmental Documents	Update Issued (Latest Version)	Submitted to EDC	Submitted to ADB	Comments
Draft IEE	04 May 2021	04 May 2021	21 May 2021	Not yet finalized due to pending issue in the integration of the bird deflectors into the design and final design of the access road to solar park
Updated EMP	19 March 2021	19 March 2021	24 May 2021	Not yet finalized due to pending issue of the integration of the bird deflectors into the design and final design of the access road to solar park

2.5 National Approvals

22. TOR for IESIA based on the 115kV transmission line has been submitted to MOE on 22 May 2020. However, because of in the meeting with EDC that it recommended the 115kV transmission line to 230 kV transmission line. Thus, SBK needs to revise the TOR then resubmit revised TOR for IESIA study to MOE. MOE agreed to let SBK to start their field survey after this meeting. While IESIA Report was submitted on 7th September 2020, SBK revised TOR and resubmitted to MOE on 30th September 2020. MOE suggested to hold a short meeting for the revised TOR. Further MOE has informed us to hold a meeting for the revised TOR on 19 October 2020.

23. In December, 2020, the Site inspection including MOE team, EDC team and PIC was done. The first meeting inter-departmental of MOE was done. PIC revised the IESIA according to the MoE for submitting the final report to MOE. The final report was submitted to MOE in February, 2021. Due to the spread of covid-19, MOE has temporarily suspended its business operations, and no inter-ministerial meeting have been held as of the end of March.
24. Inter-ministerial meeting was held on 28 April 2021 and MOE approved IESIA in principle on 13 May 2021.
25. Final IESIA report will be submit to MOE at the end of July 2021 and is expected to be approved in August 2021.
26. The following table gives an update on the necessary national approvals required for the project to proceed.

Table 7: Approval of MOE for Submitted Report

Documents	Submitted to MOE	Approved By MOE:	Status – if not approved	Comment
TOR (115kV)	22 May 2020	16 July 2020	-	EDC submit the TOR to MOE on May, 2020 and received the approval on July, 2020. MoE let SBK to start the survey work. (But this TOR was for 115kV and design voltage for this project was to be adopted 230kV.)
IESIA Report (115kV)	07 September 2020	-	Pending	MoE needs to check the update ToR and hold the meeting to discuss with their committees first, before they start to review the site for IESIA. Then now the condition of the place of Kampong Speu is flooded too, so it was affecting to their work now.
TOR (230kV)	30 September 2020	05 November 2020	-	EDC recommended to change the capacity from 115kV to 230kV. MoE let SBK to start to avoid any affection to the time, but SBK need to revise the ToR then resubmitted for MOE. SBK revised then resubmit on 30 September 2020.
IESIA Report (230kV)	19 November 2020	-	Pending	Site inspection was carried out by MoE team, EDC team and PIC on 3 December 2020.
IESIA Report (resubmit)	February 2021	13 May 2021 (in principle)	Pending	Due to the spread of Covid-19, inter-ministerial meeting had been delayed and was held on 28 April 2021. EDC received IESIA approval in principle from MoE on 13 May 2021.

2.6 Construction Environmental Management Plan (CEMP) Approvals

27. As mentioned in the table 2.3 above, the updated EMP was submitted on May 24, 2021. CEMP will be prepared and submitted by contractor, thus the date of submission this CEMP will be updated in the next report of this semi-annual monitoring report.

Table 8: Approval of CEMP

Civil Works Package/ Subproject	CEMP Given to SEPRO/EDC	Approved By SEPRO/EDC PMO:	Comment:
Solar Park project (substation and Transmission Line)	-on progress after updated EMP approval	-will update for next report	-

3 EMP IMPLEMENTATION

3.1 General Note on the Environmental Performance

28. The following table gives the environmental impact mitigation measures in the Borrower (Project) EMP and how the project is progressing with implementing the mitigation measures for project.
29. The evidence for the compliance is through a combination of:
- b) Site visits to observe site practices;
 - c) Consultation with affected people;
 - d) Regular monthly environmental report from Xian Electric Engineer Co. Ltd, the contractor for the construction of substation, Transmission Line and upgrade GS6.
30. Performance monitoring is required to assess the overall performance of the EMP. A performance monitoring system is normally developed by the EA for the entire subproject. Select indicators of major components of the environment that will be affected primarily by the construction phase are showed from the mitigation and monitoring plans.

3.2 Status of EMP Implementation (Mitigation Measures)

31. This section presents the compliance status of Environmental Management and Monitoring Plans of the three subprojects under implementation stage.

3.2.1 Compliance with the EMP during the Pre-Construction Stage






32. All the subprojects require to specify in the EMP with respect to: (i) design measures and public disclosure; (ii) project boundaries/location and change alignment; (iii) environmentally responsible procurement; (iv) allocation, staff mobilization and environmental capacity development; (v) unexploded ordnances of all construction sites; (vi) updating EMP, and reporting.

3.2.2 Compliance with the EMP during the Construction Stage

33. Through continual monitoring, instructions and guidance provided by the PIC consultant, the implementation of environmental impact mitigation measures by the construction contractors is good. There are still shortcomings however, thus compliance will be continuously monitored and improved (see the table of Status of EMP Compliance below).
34. During this stage CEMP has been prepared and updated by the Contractor (Xian Electric Engineer Co. Ltd.). However, based on discussion meeting with the Contractor at site, they have strong commitment to comply all contracts as signed in the bidding documents and contract awards. To be noted that CEMP is ongoing that they planned to submit next month (July 2021) to EDC and PIC.

Table 9: Status of EMP Compliance

EMP Requirement (Mitigation Measure)	Compliance & Description (Yes, No, Partial)	Comment or Further Explanation if Needed	Reasons for Not Full Compliance
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1. Work camps	Complied-Yes	<ul style="list-style-type: none"> Accommodation was prepared at campsite. 		
2. Toilet	Complied-Yes	<ul style="list-style-type: none"> Separate water closet (toilet) with septic for male and female workers Wash/bathing area 		
3. Waste management	Complied-Yes	<ul style="list-style-type: none"> Rubbish bin was provided at the worksite. 		
4. First Aid	Complied-Yes	<ul style="list-style-type: none"> First aid kit 	 	
5. PPE	Complied-Yes	<ul style="list-style-type: none"> Provision of workers' PPE and uniforms 		

			
6. Temperature check	Complied	Contractor provided alcohol at the construction and campsite, and PPE (including face-mask) to all workers. Workers have been checked their temperature daily before starting works.	

Noted: Other subplans will be reported in next semi-annual monitoring report, because the works of transmission line were just started by middle of June 2021.

35. Most of the EMP subplans are assessed 'Compliant' as the measures are currently implemented. For item assessed as 'Partial', measures are implemented however some minor improvement has to be made.
36. Health and Safety Performance: The following table gives the Health and Safety impact mitigation measures in the Borrower EMP and how the project is progressing with implementing the mitigation measures.

Table 10: Summary of Potential Environmental Impact

Pre-construction Phase	
(i) Substation	1) Land acquisition and resettlement, addressed by Resettlement Action Plan (RAP). 2) Land clearing. 3) Detailed Engineering Design (DED)- (Minimize negative environmental impacts)
(ii) Transmission line	1) Land acquisition and resettlement, addressed by RAP. 2) Land clearing. 3) DED (Minimize negative environmental impacts)
Construction Phase	
(i) Substation	1) Civil works (e.g., dust, air pollution, noise, solid & liquid waste, erosion, sedimentation, local flooding, land & surface water pollution). 2) Environment, Health and Safety (e.g., no safety vest, no traffic sign, no first aid kit, no PPE for workers use, and bad living environment, unsafe camp site, no clean water, and no bathroom or toilet for workers). 3) Civil disturbance (e.g., increased traffic, reduced access, disrupted business and community activity, social issues from migrant workers, worker and public accidents). 4) Potential impacts including accident, disease transmission, bad living environment and other risk to workers and mechanical during construction.
(ii) Transmission line	1) Increase in dust emissions from site construction, noise arising from construction of the site facilities.

2) Environment, Health and Safety (e.g., no safe belt, no safety vest, no traffic sign, no first aid kit, no PPE for workers use, and bad living environment, unsafe camp site, no clean water, and no bathroom or toilet for workers). 3) Worker camp (bad living environment, no safe clean water, illegal waste disposal, no waste bin, no sanitary toilet) 4) Civil disturbance (e.g., increased traffic, reduced access, disrupted business and community activity, social issues from migrant workers, worker and public accidents). 5) Potential impacts including accident, disease transmission, illegal waste disposal and other risk to workers. 6)
Post-Construction/Operation Phase
(i) Substation
1) Poor Maintenance and management the system 2) No or insufficient training program on maintenance and operation 3) Environment, Health and Safety (EHS): Potential impacts including accident, disease transmission, bad living environment and other risk to workers, technician and operator during operation.
(ii) Transmission line
1) Environment, Health and Safety (EHS): cause of accident to local people and staffs because of miss of news about dangers of project and other risk to workers, technician and operator during operation. 2) Issues on maintenance and operation if insufficient training program on maintenance, operation and safety to workers and operational staffs, particularly working at high areas.

Table 11: Issues for Further Action

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			
None			
New Issues from This Report			
Update IEE/EMP	ADB approval	PMO/PIC Q1-2022	
CEMP Approval	PMO approval	Contractor/PIC Q1-2022	

3.3 Health and Safety Performance

37. The following table gives the Health and Safety impact mitigation measures in the Borrower EMP and how the project is progressing with implementing the mitigation measures, for all subprojects.

Table 12: Status of Health and Safety Compliance

No.	Health and Safety Requirement	Compliance & Description (Yes, No, Partial)	Comment or Further Explanation if Needed	Reasons for Not Full Compliance
1	Measures against COVID-19 pandemic in terms of preventive measures	Yes	Workers are provided with Facemasks, alcohol (for spraying hand) at the project sites, also temperature check daily	None
2	Individual worker has to be protected with helmet and safety boots	Yes	Workers are provided with uniform and applicable PPEs including safe vest, boot, face-mask.	None
3	First Aid Kit	yes	First Aid Kit available in site offices and worker camps	None

38. The health and safety measures have been implemented in order to prevent accidents and health hazards. The worker safety is ensured by providing safety PPEs (helmets, jackets, boots, face mask etc.). Also the hygienic conditions and facilities such as availability of sufficient water, electricity, mosquito nets, separate toilets for man and woman, etc.

Table 13: Health and Safety Issues

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			
None			
New Issues from This Report			
None	None		

4. EMP MONITORING

3.4 Environmental Quality Monitoring

39. Environmental quality monitoring requirements are defined in the Monitoring Plan section of the EMP. The following table gives a summary of the environmental quality monitoring requirements.

Table 14: EMP Environmental Quality Monitoring Requirements

Environmental Issue Monitored	Location	Parameters/Method	Frequency	Responsible Organisation
Occupational Health and Safety (OHS) Training	Substation	OHS training log book	Monthly during civil works	Supervision by PIC/SEPRO-PMO/EDC Implementation: Contractor C-EHS
Danger and warning signs (traffic, electricity) for safety of workers and the community	Substation Access roads / road easements affected by delivery of equipment and construction material	Ocular inspection / spot checks	Weekly	Supervision by PIC/SEPROPMO /EDC Implementation: Contractor C-EHS
Information Disclosure, Participation and Consultation – Distribution of FAQs/ PIB – Community Awareness Program on safety issues / Training in ERPs Grievances received / resolution, if any	Communities in and around the Substation	Consultation log book	Once during civil works	Supervision by PIC/SEPROPMO /EDC Implementation: Contractor C-EHS
Loss of habitat	Substation Transmission line alignment Temporary access roads / road easements affected by delivery of equipment and construction material	Ocular inspection	Once before the start of site preparation and civil works, and once after completion of civil works	Supervision by PIC/SEPROPMO /EDC Implementation: Contractor C-EHS
Erosion, spoil control measures such as silt traps,	Substation Transmission line alignment	Ocular inspection	Weekly, and once after completion of	Supervision by PIC/SEPROPMO /EDC

Environmental Issue Monitored	Location	Parameters/Method	Frequency	Responsible Organisation
planting and/or sowing soil binding grass	Temporary access roads / road easements affected by delivery of equipment and construction material		spoil disposal	Implementation: Contractor C-EHS
Air Quality and fugitive dust Spraying of water to opened land areas and before movement of construction vehicles	Substation Transmission line alignment Temporary access roads / road easements affected by delivery of equipment and construction material	<ul style="list-style-type: none"> Hand held/ portable air monitoring devices Ocular inspection/spot checks Parameters as CO, NO2, SO2, O3, TSP, Pb, PM10, PM2.5 need to be tested every six months in construction stage, especially at the new substation.	Bi-monthly during civil works and once after completion of civil works Every day at substation, along transmission line alignment during dry season and weekly during wet season Every semester in construction stage	Supervision by PIC/SEPROPMO /EDC Implementation: Contractor C-EHS, cooperated with third party or laboratory
Noise and vibration level	Substation Transmission line alignment Temporary access roads / road easements affected by delivery of equipment and construction material	<ul style="list-style-type: none"> Noise monitoring using hand-held/portable devices Ocular inspection/ spot checks 	Bi-monthly during civil works and once after completion of civil works (only upon commissioning of the substation) Weekly The results shall be compared with result tested by tool of laboratory of MoE once in construction stage	

Environmental Issue Monitored	Location	Parameters/Method	Frequency	Responsible Organisation
Smoke belching construction vehicles (emissions)	Substation Transmission line alignment Temporary access roads / road easements affected by delivery of equipment and construction material	Ocular inspection / spot checking	Weekly	Supervision by PIC/SEPROPMO/ED C Implementation: Contractor C-EHS
Qualitative surface water; Qualitative turbidity levels	Substation Transmission line alignment Temporary access roads / road easements affected by delivery of equipment and construction material	Surface water parameters pH , TDS, TSS, DO, BOD5, COD, Oil and Grease, Detergent, SO4, TN, TP, Pb, As, Cd, Fe, Hg, Total Coliform	Every 6 months for results from laboratory Continuously daily observations recorded in site diary	Supervision by PIC/SEPROPMO/ED C Implementation: Contractor C-EHS, cooperated with third party or laboratory
Quality of transformer oil	Substation	Material Safety Data Sheet (MSDSs) – compliance to IS: 1866: Code of Practice for Electrical Maintenance and Supervision of Mineral Insulating Oil in Equipment	Once	Supervision by PIC/SEPROPMO/ED C Implementation: Contractor C-EHS
Waste management	Transmission alignment Workers' camps, Sorting and Recycling area Controlled Area set up for Hazardous Material storage area Qualitative level of unmanaged and uncontained worker (domestic) and construction solid waste for	Ocular inspection / spot checks Public complaint, grievance case	Weekly	Supervision by PIC/SEPROPMO/ED C Implementation: Contractor C-EHS

Environmental Issue Monitored	Location	Parameters/Method	Frequency	Responsible Organisation
	all construction places			
All equipment used is PCB free	Substation	Certification checks	Bi-annually	Supervision by PIC/SEPROPMO /EDC Implementation: Contractor C-EHS
Occupational Health and Safety (OHS) Training	Substation	OHS training log book	Monthly during civil works	Supervision by PIC/SEPROPMO /EDC Implementation: Contractor C-EHS
Provision of sanitary facilities and wash areas, safe drinking water and garbage bins	Substation	Ocular inspection / spot checks	Once	Supervision by PIC/SEPROPMO /EDC Implementation: Contractor C-EHS
Danger and warning signs (traffic, electricity) for safety of workers and the community	Substation access roads / road easements affected by delivery of equipment and construction material	Ocular inspection / spot checks	Weekly	Supervision by PIC/SEPROPMO /EDC Implementation: Contractor C-EHS
Information Disclosure, Participation and Consultation – Distribution of FAQs/ PIB – Community Awareness Program on safety issues / Training in ERPs Grievances received / resolution, if any	Communities in and around Substation	Consultation log book	Once during civil works	Supervision by PIC/SEPROPMO /EDC Implementation: Contractor C-EHS
Orientation of Project Staff, Contractors / Sub-contractor(s),	Project area of influence	<ul style="list-style-type: none"> Number of participants 	Once	PIC

Environmental Issue Monitored	Location	Parameters/Method	Frequency	Responsible Organisation
Workers, Facility Operators		<ul style="list-style-type: none"> Duration of briefing and orientation exercise 		
Maintenance of Sanitary facilities and wash areas, safe drinking water and garbage bins	Substation	Ocular inspection / spot checks	Monthly	Facility Operator / Contractor / C-EHS PIC ¹
Maintenance of water retention pond, drainage lines	Substation	Operation & Maintenance log sheet	Monthly	Facility Operator / Contractor / C-EHS PIC
Waste management collection, transport and disposal	Substation	<ul style="list-style-type: none"> Operation & Maintenance log sheet Spot checks 	Monthly	Facility Operator / Contractor / C-EHS PIC
Maintenance of SOP e.g. for hazardous materials and register of activities involving hazardous materials Maintenance of MSDSs	Substation	Operation & Maintenance log sheet	Monthly	Facility Operator / Contractor / C-EHS PIC
Occupational health, and safety	Substation	Number of incidents/ accidents /near-miss / fatalities	Semi-annually	Facility Operator / Contractor / C-EHS PIC
Community health and Safety Community Awareness Program on safety issues / Training in ERPs Grievances received / resolution, if any	Communities in and around the solar park	<ul style="list-style-type: none"> Consultation Log book 	Once at commencement of operation	Facility Operator / Contractor / C-EHS / C-GRM PIC
Vegetation planting, maintenance of hedge growth and field margins, re-seeding of site	Substation, Access roads	Ocular inspection	Quarterly	Facility Operator / Contractor / C-EHS PIC

¹PIC role in implementation activities during operation phase will be limited to its contract duration.

Environmental Issue Monitored	Location	Parameters/Method	Frequency	Responsible Organisation
Bird /Bat collision /electrocution	In and around the Substation/solar park	<ul style="list-style-type: none"> Spot checks / observation Log sheet (carcass counts with taxonomic composition) Operation & Maintenance log sheet	Monthly	Facility Operator / Contractor / C-EHS PIC
Orientation of Project Staff, Contractors / Sub-contractor(s), Workers	Project area of influence	<ul style="list-style-type: none"> Number of participants Duration of briefing and orientation exercise	Once	PIC
Failure of transmission towers	Along the transmission line alignment	Operation & Maintenance log sheet	Monthly	Facility (power system) operator / Contractor / C-EHS
Occupational health, and safety	Along the transmission line alignment	Number of incidents/ accidents /near-miss / fatalities	Semi-annually	Facility (power system) operator / Contractor / C-EHS
Community health and Safety – Community Awareness Program on safety issues / Training in ERPs Grievances received / resolution, if any	Communities located along the transmission line alignment	<ul style="list-style-type: none"> Consultation log book 	Once at commencement of operation	Facility (power system) operator / Contractor / C-EHS
EMF ²	Along the transmission line alignment Substation	Hand held EMF field meters	Annually	Facility (power system) operator / Contractor / C-EHS
Vegetation planting, maintenance of hedges and field margins, re-seeding of sites	Along the transmission line alignment	Ocular inspection	Quarterly	Facility (power system) operator / Contractor / C-EHS
Bird /Bat collision /electrocution	Along the transmission alignment	Spot checks / observation Log sheet (carcass counts with taxonomic composition)	Monthly	Facility (power system) operator / Contractor / C-EHS
Pilferage of cables	Along the transmission alignment	Ocular inspection Operation & Maintenance log sheet	Quarterly	Facility (power system) operator / Contractor / C-EHS

² EMF Electro-magnetic field

40. The above table gives information on the environmental quality monitoring to be implemented by Xian Electric Engineer Co. Ltd. This contractor just started their works at substation in April 2021, while transmission line was in the middle of June 2021. Environmental Quality Monitoring (analysis / sampling) has not been conducted by contractor, Xian Electric Engineer Co. Ltd during this reporting period; however project has conducted analysis and sampling for air quality, noise and vibration in September 2020 for the IESIA. The baseline data is summarized and shown in the tables below.
41. **Summary of Results – Air quality (ambient air).** Air quality monitoring was conducted on 25 September 2020 (see annex 3). Parameters tested were carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), Ozone (O₃), PM₁₀, PM_{2.5}, and lead (Pb). Results shows that all parameters were within the air quality national standards. No significant environmental impacts attributed to the works were noted during the sampling. No grievance cases concerning air quality impacts were reported during this period.

Table 15: Ambient Air monitoring results, 25 September 2020

Parameter	Reference Method	National standards, MOE (24-hr average)	No. of sampling hours	Units	UTM 48 (Results)	Remarks
CO	Method Carbon Monoxide Passive Dosimeter	<20 (8-hr average)	8	mg/m ³	0.45	
NO ₂	Method Saltzman [ISO 6768:1998 (E)]	<0.1	24	mg/m ³	0.011	
SO ₂	Method Pararosaniline [ISO 6767:1990 (E)]	<0.3	24	mg/m ³	0.008	
O ₃	Method Professional Gas Detector (O ₃)	<0.2	1	mg/m ³	0.011	
TSP	Method Weight Concentration Measuring	<0.33	24	mg/m ³	0.069	
PM ₁₀	Method Weight Concentration Measuring	<0.05	24	mg/m ³	0.042	
PM _{2.5}	Method Weight Concentration Measuring	<0.025	24	mg/m ³	0.015	
Pb	Method 3500-Pb C (HNO ₃ , HCl Digestion)	<0.005	24	mg/m ³	ND	

42. **Summary of Results – Noise:** Noise level and vibration measurement were conducted on 25 September 2020 for 24 hours at the same location as air quality test. Results shows that the highest noise level was 84.8 dB(A) during daytime which is lower than the national standard. The average noise level during night time is above the acceptable limit. It should be noted that there is no residential area within the 5-km radius of the project site. No significant environmental impacts attributed to the works were noted during the sampling. No grievance cases concerning noise quality impacts were reported during this period. The location of the substation is in Prey Chrov village, Kbal commune, Teuk Phos district, Kampong Chhnang province, where the study team studied the sound quality with the UTM points X: 433596, Y: 1303869.

Table 16: Results noise measurement at the new electricity sub-station

No	Time	During	Level of Noice dB(A)			Standard*
			LAeq	LAmx	L Amin	
1	Day	6:00 - 7:00	49.6	71.2	54.0	75
2		7:00 - 8:00	51.1	70.0	51.0	
3		8:00 - 9:00	51.9	70.6	49.5	
4		9:00 - 10:00	53.1	71.5	43.0	
5		10:00 - 11:00	53.7	70.9	41.4	
6		11:00 - 12:00	50.7	79.2	48.6	
7		12:00 - 13:00	47.3	63.2	38.0	
8		13:00 - 14:00	45.1	70.1	51.1	
9		14:00 - 15:00	49.9	70.8	49.6	
10		15:00 - 16:00	51.2	71.6	43.2	
11		16:00 - 17:00	51.5	84.8	39.5	
12		17:00 - 18:00	50.3	63.1	38.0	
13	Evening	18:00 - 19:00	46.2	60.3	40.4	70
14		19:00 - 20:00	44.7	56.9	44.4	
15		20:00 - 21:00	45.3	64.4	43.4	
16		21:00 - 22:00	43.4	62.2	44.0	
17		22:00 - 23:00	38.9	62.3	42.7	
18	Night	23:00 - 00:00	37.7	57.2	44.5	50
19		00:00 - 1:00	38.2	58.2	44.4	
20		1:00 - 2:00	37.7	69.8	44.4	
21		2:00 - 3:00	39.1	51.1	44.1	
22		3:00 - 4:00	36.7	65.1	43.2	
23		4:00 - 5:00	39.9	71.9	41.9	
24		5:00 - 6:00	40.0	71.7	48.5	
Average in 24 hours			51.5	67.0	44.7	

43. **Summary of Results –vibration.** Result of vibration measurement shows that the highest level was 25.4 dB(A) during daytime which is also lower than the national standard. The standard of vibration for morning is 70 dB(A), and day time is 65 dB(A), while night time is 50 dB(A).

Table 17:Vibration measurement results at the new sub-station

Survey Period		Noise Level dB(A)			
		LAeq	Standard (Leq)	Lmax	Lmin
Morning	6:00 - 7:00	13.7	70	13.7	12.1
	7:00 - 8:00	14.0		14.0	12.3
	8:00 - 9:00	20.6		20.6	13.9
	9:00 - 10:00	20.2		20.2	13.8
	10:00 - 11:00	25.4		25.4	14.1
	11:00 - 12:00	21.6		21.6	13.9
	12:00 - 13:00	15.2		15.2	13.9
	13:00 - 14:00	20.1		20.1	13.8
	14:00 - 15:00	21.9		21.9	14.1
	15:00 - 16:00	16.7		16.7	13.9
	16:00 - 17:00	16.8		16.8	13.7
	17:00 - 18:00	17.4		17.4	14.0

Survey Period		Noise Level dB(A)			
		LAeq	Standard (Leq)	Lmax	Lmin
Days	18:00 - 19:00	17.4	65	17.4	13.9
	19:00 - 20:00	15.6		15.6	13.7
	20:00 - 21:00	16.0		16.0	13.9
	21:00 - 22:00	15.5		15.5	13.9
	22:00 - 23:00	16.3		16.3	13.8
Night	23:00 - 00:00	19.1	50	19.1	14.0
	00:00 - 1:00	13.7		13.7	12.3
	1:00 - 2:00	13.8		13.8	12.1
	2:00 - 3:00	13.6		13.6	12.0
	3:00 - 4:00	13.6		13.6	11.6
	4:00 - 5:00	13.7		13.7	12.2
	5:00 - 6:00	14.1		14.1	12.4
24 hours		16.9		33.0	13.3

Analized by Laboratory of the General Department of Environmental Protection of the Ministry of Environment

44. **Summary of Results –Surface Water quality:** Due to the location of substation, there is no river or lake or stream nearby, thus surface water was sampling at the place closed to the transmission line to laboratory of MoE (about 3 km from substation). There are 18 parameters tested (Acid or base pH, Temperature, Total Desolved Solid (TDS), Total Suspended Solid (TSS), Desolved Oxygen (DO), Biochimecal Oxygen Demand (BOD5), Chemical Oxygen Demand (COD), Oil and Grease Detergent, Sulphate (SO₄), Total Nitrogen (TN), Total Phosphorus (TP), Lead (Pb), Asenic (As), (Cd), Iron (Fe), Mercury (Total)). As the results, all the parameters are good, but there are only 3 parameters (TN, TP and Fe) over the standard. Sure, this area is the agricultural land that it is the main source to affect to TN and TP from fertilizer, while Fe is from natural.

Table 18 : Results of surface water quality test

No	Parameters	Scale	Standard limit For river water	SW Location: Stung Kraing Ponley (x: 433683; y: 1301168)
1	Acid or base pH	-	6,5-8,5	8.05
2	Temperature	°C	<45	25.00
3	Total Dissolved Solid (TDS)	mg/l	<1000	106.00
4	Total Suspended Solid (TSS)	mg/l	25-100	81.00
5	Dissolved Oxygen (DO)	mg/l	7.5-2.0	6,60
6	Biochemical Oxygen Demand (BOD ₅)	mg/l	1-10	2.80
7	Chemical Oxygen Demand (COD)	mg/l	<50	8.62
8	Oil and Grease	mg/l	<5.0	1.93
9	Detergent	mg/l	<5.0	ND
10	Sulphate (SO ₄)	mg/l	<300	4.00
11	Total Nitrogen (TN)	mg/l	0.1-0.6	1.16
12	Total Phosphorus (TP)	mg/l	0.005-0.05	0.17
13	Lead (Pb)	mg/l	<0.01	0.002

No	Parameters	Scale	Standard limit For river water	SW Location: Stung Kraing Ponley (x: 433683; y: 1301168)
14	Asenic (As)	mg/l	<0.01	0.003
15	(Cd)	mg/l	<0.001	ND
16	Iron (Fe)	mg/l	<1.0	10.02
17	Mercury (Total)	mg/l	<0.0005	ND
18	Total coliform	MPN/100ml	<5000	7.5X10 ³

Laboratory of the General Department of Environmental Protection of the Ministry of Environment

3.5 Construction Phase Affected People Consultation

Consultation with local people were not conducted during the SEMR reporting Period because NO complaint was reported either verbally or recorded in the GRM records regarding environmental issues during this SEMR reporting period.

4 COMPLAINTS, ISSUES, CORRECTIVE ACTION

4.1 Information Disclosure

45. The following table gives information on any information disclosure activities undertaken. The subproject components were introduced to the public and key stakeholders during initial consultation meetings for the transmission line designs and substation, and then again for the DED for project which included verbal and visual presentations of all components of project.
46. The series of consultative meetings for environment for the DED of the project was conducted in March and June 2021 with villagers, villages, Sangkat/communes along the ROW and Substation. Project Information Booklet (PIB) has been prepared and distributed to the communities and local authority.
47. The main meetings were conducted with concerned departments in Kampong Speu (on 6 August, 2020 at 14:30 pm) and Kampong Chhnang province (on August 7, 2020, at 08:30 AM). As the following table, it is only results of the provincial levels (attendance lists, and photos in **annex 1**). While the project dissemination was done two times, once during the IESIA and the second it was prepared during the DMS by EDC (as annex 2 there were some of the pictures and attendant list for second dissemination).
48. The following table gives information on any information disclosure activities undertaken before construction works started.

Table 19 :Information Disclosure

Topic / Reason for Information	Disclosure Date	Method of Disclosure	Outcome / Results
<i>Consultation with relevant departments and institutions at Kampong Speu Province Hall</i>	6 August, 2020 at 14:30 pm	consultative meeting	<ul style="list-style-type: none"> - Project owner shall consider to take care the health of the staff / workers and the people nearby the location of this transmission line and substation. -Project owner should cooperate with the health center near the construction site and the staff / workers' accommodation to facilitate any problems or accidents. -Project owner must have medicine and first aid for staff / workers' camp. -Project owner must recruit or give the priority local people near the project site for job/works. -Project owner shall educate all contractors to stop and report to authority whenever they found the cultural heritage in the ground during their earth works. -The project owner must carefully study the safety gap from one tower to another. - The project owner must have the programme to inform affected people and who living nearby the ROW of transmission line about safety and endanger of project. -The project owner must cooperate with local authorities and to study the impact and compensation provided to the affected people.
<i>Consultation with relevant departments and institutions at Kampong Chhnang Province</i>	August 7, 2020, at 08:30 AM	consultative meeting	

4.2 Grievance Redress Mechanism

49. Due to the procedures defined for grievance redress in EMP are:

- A project specific GRM is established as part of this EMP to receive and manage any public concerns or issues that may arise due to the project. The GRM comprises: (i) a set of clear procedures developed by the PMO to receive, record and address any concerns which are raised; (ii) specific contact details for individuals at the PMO / SEPRO and contractors.
- The GRC is expected to: (i) resolve issues on land acquisition (if any), compensation to temporary damages to crops, orchards, trees and other use of land such as temporary / permanent areas for transmission towers / ROW; (ii) resolve issues on dust, noise, vibration, construction related nuisances to APs, households or public; (iii) convene once a month to review complaints lodged (if any); (iv) record the grievances and resolve the issues within the stipulated time from the date the grievance was filed; and (v) report to the complainant(s)/APs the status of grievance resolution and the decisions made or action taken. All contractors including contractor appointed GRM focal person ("C-GRM") and work staff will be briefed by the PIC on GRM.
- The grievance redress process applies to environmental issues and includes four steps may be elevated to the ADB as a last resort, as follows:

Step 1

Any complaints by an AP / complainant can be presented to the Contractor, commune council via village or commune chief, either verbally in person or in writing. The Contractor, village or commune chief will be obliged to provide immediate written receipt of the complaint and take it forward in a written format and share with PMO. The contractor will resolve the issue within one week through negotiation.

Step 2

If or when the AP / complainant is not satisfied with the action or decision of the contractor, the AP / complainant will take the issue to PMO / SEPRO via the commune council. In all cases, the grievances will be recorded in writing and then forwarded to the PMO/SEPRO. SEPRO will have 15 days to resolve the complaint through negotiation. If the issue is not handled within 15 days, or if the complainant is not satisfied with the result, he/she can bring the issue to the district office.

Step 3

The district office has 15 days to negotiate the complaint and bring it into a resolution. If the complaint cannot be resolved in a way that is satisfactory to all parties, the district office will bring the issue to the provincial GRC.

Step 4

The Provincial GRC will meet the AP/ complainant and try to resolve the issue. Within 30 days of the submission of the complaint to the GRC, it has to take a decision and inform in written both the AP/ complainant and PMO / SEPRO of the decision

50. Based on site inspection and the contractor's monthly progress reports from Jan-June 2021, there were no complaint from villagers.

51. Summary:

- o Number of new grievances, if any, since last monitoring period: 0
- o Number of grievances resolved: not applicable
- o Number of outstanding grievances: nil

Table 20: Type of grievances by the relevant stakeholders within the project areas

Type of Grievance	Details (Date, person, address, contact details, etc.)	Required Action, Responsibility and Timing	Resolution
Old Issues from Previous Reports			
None			
New Issues from This Report			
None			

5 CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

52. In general, the implementation of environmental management measures during pre-construction and construction phases. The EMP are currently taken into account and assessed to be compliant. Environmental Safeguard document such as the IEE and EMP has been updating based on the DED documents and the documents are in progress. Environmental mitigation measures have progressed and maintained momentum, recognizing the implementation of the Project in line with the Environmental Safeguard Framework. Contractor/subcontractors are required to mitigate environmental impact and the monitoring is being conducted by environmental consultants of PIC and PMO/SEPRO of EDC.
53. COVID 19 measures implemented in the project site. Contractor provided a face-mask and alcohol to workers and checked workers' temperature daily. As planned, formal training on COVID 19, EMP, and GRM will also be carried out in December 2021.
54. The contractor provided PPEs including hard hat, jacket, face-mask and boot to all worker and also found the first aid kit available at the construction and campsite.
55. For this period (from January – June 2021), the progress of the overall physical/construction works including the national solar park, the GS6 substation, the transmissional line and access road are completed 25% as of 30 June 2021. Details of the construction progress are: (i) National Solar Park is completed 10%; (ii) GS6 substation is completed 0%; (iii) Transmissional line is completed 15%; and (iv) access road is completed 0%.

5.2 Recommendation

56. Active areas for improvement and continuation of good practice over the next six months include the following:
 - Overall improvement of environmental performance needs to be monitored.
 - Update the IEE/EMP based on a Detailed Engineering Design (DED) and the bird deflector to minimize risks to birds.
 - Ensure CEMP is updated and approved by EDC/PMU.

- Ensuring public awareness of the GRM is provided to all affected people, community and local authority.
- The PIC's environmental consultants supervise the monitoring of implementing mitigation measures during this construction stage.
- Ensuring a training on EMP and GRM, including a monitoring system, will be provided as planned.
- Ensuring that the contractor complies with all safety training requirements for all construction sites to ensure workers are equipped with the knowledge and PPE to safely undertake the work.
- Ensuring contractor carries out the good practice of Covid-19 following the MoH's and EMP guidance;
- Ensuring safety signs in areas of public access in order to protect community health and safety.
- Ensuring the simple Environmental GRM signboard with contact details is disclosed at all active construction and worker's campsites.
- Submitting SEMR-Jul-Dec 2021 to ADB by 15 January 2022.

Annex 1: Project Dissemination to Relevant departments in Province

1. Pictures of Consultation with relevant departments in Province

1.1 Kampong Speu Province










1.2 Kampong Chhnang Province



NATIONAL SOLAR PARK PROJECT

Ann-2











ល.រ	ឈ្មោះ	ភេទ	ស្ថាប័ន	ឋានៈ/តួនាទី	លេខទូរស័ព្ទ	ហត្ថលេខា
1.	កុំ ឡ	ប	ស.ស.ជ.ប.ក.ប.ក.	1509/1509	02-15678888	
2.	ក. ក. ក. ក. ក.	ប្រុស	ក. ក. ក. ក. ក.	ក. ក. ក. ក. ក.	012-405767	
3.	ក. ក. ក. ក. ក.	ប្រុស	ក. ក. ក. ក. ក.	ក. ក. ក. ក. ក.	01636694	
4.	ក. ក. ក. ក. ក.	ប្រុស	ក. ក. ក. ក. ក.	ក. ក. ក. ក. ក.	016903465	
5.	ក. ក. ក. ក. ក.	ប្រុស	ក. ក. ក. ក. ក.	ក. ក. ក. ក. ក.	093652102	
6.	ក. ក. ក. ក. ក.	ប្រុស	ក. ក. ក. ក. ក.	ក. ក. ក. ក. ក.	015595858	
7.	ក. ក. ក. ក. ក.	ប្រុស	ក. ក. ក. ក. ក.	ក. ក. ក. ក. ក.	090900666	
8.	ក. ក. ក. ក. ក.	ប្រុស	ក. ក. ក. ក. ក.	ក. ក. ក. ក. ក.		

ល.រ	ឈ្មោះ	ភេទ	ស្ថាប័ន	ឋានៈ/តួនាទី	លេខទូរស័ព្ទ	ហត្ថលេខា
០១.	ម.ល. ហង់ ឌី	ប.ប	អគ្គនាយកដ្ឋាន	នាយក	០១៨ ៩០៩ ១១៤	ហង់ ឌី
០២.	អ.ប. ហង់ ឌី	ប.ប	អគ្គនាយកដ្ឋាន	នាយក	០១៨ ៨៥១ ១២២	ហង់ ឌី
០៣.	អ.ប. ហង់ ឌី	ប.ប	អគ្គនាយកដ្ឋាន	នាយក	០១៨ ៨៥១ ១២២	ហង់ ឌី
០៤.	អ.ប. ហង់ ឌី	ប.ប	អគ្គនាយកដ្ឋាន	នាយក	០១៨ ៨៥១ ១២២	ហង់ ឌី
០៥.	អ.ប. ហង់ ឌី	ប.ប	អគ្គនាយកដ្ឋាន	នាយក	០១៨ ៨៥១ ១២២	ហង់ ឌី
០៦.	អ.ប. ហង់ ឌី	ប.ប	អគ្គនាយកដ្ឋាន	នាយក	០១៨ ៨៥១ ១២២	ហង់ ឌី
០៧.	អ.ប. ហង់ ឌី	ប.ប	អគ្គនាយកដ្ឋាន	នាយក	០១៨ ៨៥១ ១២២	ហង់ ឌី
០៨.	អ.ប. ហង់ ឌី	ប.ប	អគ្គនាយកដ្ឋាន	នាយក	០១៨ ៨៥១ ១២២	ហង់ ឌី
០៩.	អ.ប. ហង់ ឌី	ប.ប	អគ្គនាយកដ្ឋាន	នាយក	០១៨ ៨៥១ ១២២	ហង់ ឌី
១០.	អ.ប. ហង់ ឌី	ប.ប	អគ្គនាយកដ្ឋាន	នាយក	០១៨ ៨៥១ ១២២	ហង់ ឌី

NATIONAL SOLAR PARK PROJECT

ប្រារព្ធឡើងនៅថ្ងៃសុក្រ ៣កើត ខែស្រាពាំង ឆ្នាំឡឹក ឆ.ស ២៥៦៤ ព្រះវររាជវាំង ខេត្តកោះកុង ថ្ងៃទី២០២០
នេះមន្ត្រីបេសកកម្មខេត្តកំពង់ឆ្នាំង ចេញមើលដំណើរការការងារស្បៀង

Ann-4

ល.រ	ឈ្មោះ	ភេទ	ស្ថាប័ន	ឋានៈ/តួនាទី	លេខទូរស័ព្ទ	ហត្ថលេខា
101	គ.វ. កុញ្ញកិរិយ	ប្រុស	សភាបាលី	សមាជិក	02 35 12 36	
111	ស.វ. ក. វ. វ.	ស្រី	សភាបាលី	សមាជិក	02 91 66 06	
121	គ.វ. ក. វ. វ.	ប្រុស	សភាបាលី	សមាជិក	02 93 19 33	
131	គ.វ. ក. វ. វ.	ស្រី	សភាបាលី	សមាជិក	02 97 5 984	
141	គ.វ. ក. វ. វ.	ប្រុស	សភាបាលី	សមាជិក	02 68 15 15	
151	គ.វ. ក. វ. វ.	ប្រុស	សភាបាលី	សមាជិក	02 77 73 7076	
161	គ.វ. ក. វ. វ.	ស្រី	សភាបាលី	សមាជិក	02 72 68 95	
171	គ.វ. ក. វ. វ.	ប្រុស	សភាបាលី	សមាជិក	02 36 00 6	
181	គ.វ. ក. វ. វ.	ស្រី	សភាបាលី	សមាជិក	02 86 3 994	
191	គ.វ. ក. វ. វ.	ប្រុស	សភាបាលី	សមាជិក	02 49 67 2	
201						
211						
221						
231						
241						

3. Results of the Public consultation (for dissemination)

3.1 Results of meeting with institutions and departments in Kampong Speu province

<p>The meeting was held at Kampong Speu Provincial Hall under the high presidency of H.E Sok Phea, deputy Governor of Kampong Speu Province. Relevant departments and institutions participating in the meeting include:</p> <ul style="list-style-type: none"> - Kampong Speu Provincial Administration - Department of Environment of Kampong Speu - Department of Public Works & Transport of Kampong Speu - Department of Agriculture Forestry & Fisheries of Kampong Speu - Department of Health of Kampong Speu - Department of Mines & Energy of Kampong Speu - Department of Rural Development of Kampong Speu - Department of Labor and Vocational Kampong Speu - Department of Culture& Fine Arts of Kampong Speu - Department of Women's Affairs of Kampong Speu - Department of Tourism of Kampong Speu - Department of Planning of Kampong Speu - Department of Post & Telecommunication (MPTC) of Kampong Speu - Electricity du Cambodia, Kampong Speu - Department of Land Management Urban Planning & Construction of Kampong Speu <p>Kampong Speu Provincial Police Commissioner.</p>	
<p>Location: Provincial Hall of Kampong Speu</p> <p>On 6 August, 2020 14:30 pm Number of participants Total: 20 people Female: 1 people</p>	<p>Idea of participants in the meeting</p>
<p>H.E Sok Phea, Vice Governor of Kampong Speu Province</p>	<p>Vice Governor and Relevant departments understood the project activities and operation of the electricity as well as the environmental and social situation in and near the project site, which was warmly welcomed and supported for the presence of the investment of Electricite due Cambodia.</p> <ul style="list-style-type: none"> - Electricity due Cambodia (EDC) must cooperate with local authorities and the people during the construction phase. - Electricity due Cambodia (EDC) must solve all the impacts that occurred. - Electricity due Cambodia (EDC) must have a trade-off or strategy to address the affected people. - Electricity due Cambodia (EDC) must consider for any towers which builds on or into the waterway system should build in detour or away from the waterway system. - Electricity due Cambodia (EDC) must have a sign or a fence to prevent children and animals from the tower. - Electricity due Cambodia (EDC) needs to disseminate project information as well as general knowledge related to towers and shock protection so that they are aware and avoid getting close to towers.

Mr. Bun Sambath , “Director of Kampong Speu Provincial Hall	<ul style="list-style-type: none"> – The project owner must study the safety gap from one tower to another tower. – The project owner must provide clear information about the possibility of doing business under the tower and also transmission lines. – The project owner must cooperate with the relevant authorities for cutting down trees or forest in or near Project area. – The project owner must provide reasonable compensation to the affected people
Mr. Koy Sonin , represent of Provincial Department of Environment in Kampong Speu.	He expressed his pleasure, and support for the project
Mr. Nuon Sophorn , director of Department of Industry, Science Technology, and Innovation.	<ul style="list-style-type: none"> – The project owner should consider, study and solve the impact before starting construction. – The project owner should make each tower foundation strong according to the construction technique. – The project owner has a high responsibility to deal with the impact. – Please the owner of the project to provide electricity at a more affordable price
Mr. Som Davy , director of the Ministry of Land Management Urban Planning, Cadastral, and Construction	<ul style="list-style-type: none"> – The project owner must build each electric pole according to the correct technical standards. – The project owner must have a solution and provide appropriate compensation to the affected people.
Mr. Huot Thuon , director of Department of Post and Telecommunications	<ul style="list-style-type: none"> – Project owners should have a clearly study from the impact before starting construction. – The project owner should cooperate with local authorities as well as other relevant institutions to avoid contact with other fiber optic cable or antennas – Please help disseminate project information to the people before starting construction.
Mr. Say Savy , deputy Director of the Department of Health	<ul style="list-style-type: none"> – Please the project owner has to consider the health of staff/workers and people near the location of this transmission line. – The project owner should cooperate with the health center near the staff/workers’ accommodation to facilitate any problems or accidents. – The project owner must have medicine at the accommodation of the staff/workers. – The project owner must recruit staff/works in the village near the project location.
Mr. Sun Meanchey , director of the Department of Culture and Fine Arts,	<ul style="list-style-type: none"> – The owner of the project should have a clearly study about the hill or the temple or the place of worship where the place where the electric pole is built or laid. – Please help the project owner to inform the Ministry/ Department when they find Tuol Ang Prasat or other places

3.2 Results of meeting with relevant Departments and institutions in Kampong Chhnang Province

<p>Chaired by Mr. Chhean Vuth, deputy director of Provincial department of Environment and representative of vice governor of Kampong Chhnang Province. Relevant departments and institutions participating in the meeting include:</p> <ul style="list-style-type: none"> - Kampong Chhnang Provincial Administration - Department of Environment of Kampong Chhnang Province - Department of Public works & Transportation of Kampong Chhnang - Department of Land Management Construction & Cadastral Affairs of Kampong Chhnang Province - Kampong Chhnang Provincial Health Department - Department of Industry, Science, Technology, and Innovation of Kampong Chhnang Province - Department of Rural Development of Kampong Chhnang Province - Department of Labor and Vocational Training Kampong Chhnang Province - Department of Culture and Fine Arts of Kampong Chhnang Province - Department of Women's Affairs of Kampong Chhnang Province - Department of Tourism of Kampong Chhnang Province - Department of Planning of Kampong Chhnang Province - Electricity du Cambodia - Kampong Chhnang Provincial Post Office - Kampong Chhnang Provincial Police Commissioner 	
<p>Location: Office of Provincial Department of Environment, Kampong Chhnang Province</p> <p>On August 7, 2020, 08:30 AM</p> <p>Number of participants Total: 19 people Female: 3 people</p>	<p>Idea of participants in the meeting</p>
<p>Mr. Prum Chan Sopheap, deputy director of Kampong Chhnang Provincial Hall, who participant of this meeting. He welcomed and supported development, and he has some suggestions</p>	<ul style="list-style-type: none"> - The project owner must cooperate with local authorities, relevant departments/institutions, and affected people to resolve all issues peacefully. - The project owner must build the tower according to the technical standard. - The project owner should take too many people for doing work at the project site. - The project owner must have a sign which placed at the foot of each tower and make fences to protect children or animals that get closer to the tower.
<p>Mr. Chhean Vuth, deputy director of Provincial department of Environment</p>	<ul style="list-style-type: none"> - Please the project owner finds appropriate solutions and compensation for the affected people. - The project owner should study the impact from the project before starting construction. - The project owner must cooperate with local authorities, relevant departments/Institutions
<p>Mr. Soe Piseth, director of Office of Department of Industry, Science, Technology, and Innovation, who participant of this meeting. He welcomed and supported development. He has as suggestions</p>	<ul style="list-style-type: none"> - The project owner should provide compensation to the affected people at a reasonable price. - Please the project owner builds and follow by the technique standard. - The owner of the project should have a fence to protect children are playing there. - Please the project owner must equip the protection equipment on each tower and transmission line as well.
<p>Mr. Som Sopheaktra, deputy director of the Department of Land Management, Urban</p>	<ul style="list-style-type: none"> - Please project owner have to disseminate the project's information to local authorities as well as affected residents. - Please the project owner follows by technical standard.

Planning Construction and Cadastral	<ul style="list-style-type: none"> - Please the project owner of the project must build a tower in a big land to protect children who plays near the tower. - Please the project owner should build tower or transmission line away from the location of the altar. - The project owner should turn away from people's residential land if possible.
Mr. Eng Bura , deputy director of the Department of Post and Telecommunication, who participant of this meeting, and he expressed his feeling that he supported for this project and he has some requests	<ul style="list-style-type: none"> - Please the project owner should cooperate with the relevant department/Institutions. - If there is any contact with the antenna or fiber optic cable, please inform to the relevant department or EDC. - The project owner should study the construction site carefully to avoid damaging the fiber optic cable or other antenna poles. - The project owner should provide a reasonable electricity price to people who live near this project.
Mr. Nuth Nissay , deputy director of the Department of Planning, who participant of this meeting, he warmly welcomed for the transmission line project. He also has some suggestions as	<ul style="list-style-type: none"> - The project owner has to cooperate with local authorities and affected people to solve the impact. - Please the project owner should disseminate the project information to the people to be aware of this project.

Annex 2: Project Dissemination to local and affected people

1. Pictures of meeting

			
Project Dissemination to AHH/AP in Chambak Sa 29 June 2021			
			
Project Dissemination to AHH/AP in Krang Pou village and Chambak Tum village 28 June 2021			
			
Project Dissemination to AHH/AP in Rung Roeang commune, date 09 March 2021 at 1:30 pm			



Public meeting for dissemination with local people in Osamre village in Ksem Ksan Commune, Udong District, Kampong Speu Province. On July 21,2020 at 8:30 PM



Public meeting for dissemination with people with local people in Thmey village in Rong Roeung Commune, Udong District, Kampong Speu Province. On July 21,2020 at 2:00 PM



Public meeting for dissemination with local people in Sdok, Sdok Saat, Trapeang Chambok, and Kandal in Meaychey Commune, Udong District, Kampong Speu Province. On July 22, 2020



Public meeting with Prey Chrov Villagers, Kbal Teuk commune, Teuk Phos District, Kampong Chhnang province. On July 23, 2020 at 14:00

2. Attendance list of dissemination

Attendance list of dissemination meeting on 29 June 2021 at 9:00AM

ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

បញ្ជីចំណុះ / ATTENDANCE LIST

សមាសភាពម្នាក់ទៀតប្រជុំព្រឹត្តិ

ការប្រជុំផ្សព្វផ្សាយជាសាធារណៈ ស្តីពីការធ្វើការវាស់វែងល្អិត និងកិច្ចសន្យា នៃគម្រោងសាងសង់ខ្សែបញ្ជូន ២៣០
គ.វី ពីអនុស្សាវរីយ៍ខាងជើងរាជធានីភ្នំពេញ មកអនុស្សាវរីយ៍ថាមពលព្រះអាទិត្យទឹកជ្រុង ខេត្តកំពង់ឆ្នាំង

ទីកន្លែង: ភោគាធិប្បវេណី ភោគបរិច្ឆេទ: ២៩ ០៦ ២០២១ ពេលវេលា: ៩:០០ am ថ្ងៃច័ន្ទ

ល/No	នាម/ គោត្តនាម Name	ភេទ Gender	មុខងារ Position	អង្គភាព Organization	លេខទូរស័ព្ទ និងហត្ថលេខា Phone Number & Signature
1	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	0102354781
2	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	070840104
3	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	032580659
4	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	096833894A
5	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	098 276 110
6	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	090
7	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	090
8	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	084163965
9	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	084
10	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	084
11	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	084
12	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	084
13	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	015577193
14	ប្រធាន	ប្រុស	ប្រធាន	រដ្ឋ	081716143

Attendance list of dissemination meeting on 28 June 2021

ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

វិញ្ញាបនបត្រ / ATTENDANCE LIST

សមាសភាពអ្នកចូលរួមប្រជុំស្តីពី

ការប្រជុំផ្សព្វផ្សាយជាសាធារណៈ ស្តីពីការងារវាស់វែងលទ្ធផល និងកិច្ចសន្យា នៃគម្រោងសាងសង់ខ្សែបញ្ជូន ២៣០
គ.វី ពីអនុស្សាវរីយ៍ខាងលើក្រៅប្រព័ន្ធគ្រប់គ្រង មកអនុស្សាវរីយ៍ជាមួយព្រះអាទិត្យទឹកជុស ខេត្តកំពង់ឆ្នាំង

ទីកន្លែង: ខេត្តកំពង់ឆ្នាំង ភូមិ ២២ ភូមិ ១ ២០២១ ពេលវេលា: ៩:០០ ទី ៦

ល/រ No	និម/នាម Name	ភេទ Gender	មុខងារ Position	អង្គភាព Organization	លេខទូរស័ព្ទ និងហត្ថលេខា Phone Number & Signatur
1	ប៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	010235418
2	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	70240139
3	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	012580555
4	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	087224997 A
5	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	015465880
6	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	0964440542
7	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	010239586
8	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	099251578
9	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	0967543764
10	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	
11	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	016731136
12	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	
13	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	
14	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	
15	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	
16	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	096 8176735
17	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	096 3985350
18	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	096 7510596
19	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	098 276110
20	ហ៊ុន ឈន់	ប្រុស	ប្រធាន	គ.វី	081714143

Attendance list of dissemination meeting on 09 March 2021 at 2 pm

ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

គ្រឹះស្ថានកម្ពុជា
គណៈកម្មការដោះស្រាយជម្លោះ

មជ្ឈមណ្ឌល

ខ្លឹមសារប្រជុំ: ការបង្កើនការយល់ដឹងអំពីគោលនយោបាយ និងការងាររបស់គណៈកម្មការដោះស្រាយជម្លោះ
របស់ក្រសួងយុត្តិធម៌ និងការសហប្រតិបត្តិការជាមួយសហគមន៍ក្រៅរដ្ឋបាល។
កាលបរិច្ឆេទ: ០៩ ខែ មីនា ឆ្នាំ ២០២១ (សប្តាហ៍ទី៣)
ទីកន្លែង: ភ្នាក់ងារ ភ្នំពេញ

ល.រ	នាម-គោត្តនាម	តួនាទី	លេខទូរសព្ទ	ហត្ថលេខា	ផ្សេងៗ
1	ឈុំ រតនា	ប្រធាន	០៩៩៧៨២៨/៥៦	[Signature]	
2	សោម ព័ន្ធក	(ប) ឧបនាយក	០១០៣៣០៥២៨	Guy	
3	ស្រី គង្គារ	(ប) ប្រធាន	០៩៩៧៨២៨	[Signature]	
4	ស្រី គង្គារ	(ប) ប្រធាន	០៩៩៧៨២៨	[Signature]	
5	ស្រី គង្គារ	(ប) ប្រធាន	០៩៩៧៨២៨	[Signature]	
6	ស្រី គង្គារ	(ប) ប្រធាន	០៩៩៧៨២៨	[Signature]	
7	ស្រី គង្គារ	(ប) ប្រធាន	០៩៩៧៨២៨	[Signature]	
8	ស្រី គង្គារ	(ប) ប្រធាន	០៩៩៧៨២៨	[Signature]	
9	ស្រី គង្គារ	(ប) ប្រធាន	០៩៩៧៨២៨	[Signature]	
10	ស្រី គង្គារ	(ប) ប្រធាន	០៩៩៧៨២៨	[Signature]	
11	ស្រី គង្គារ	(ប) ប្រធាន	០៩៩៧៨២៨	[Signature]	
12	ស្រី គង្គារ	(ប) ប្រធាន	០៩៩៧៨២៨	[Signature]	
13	ស្រី គង្គារ	(ប) ប្រធាន	០៩៩៧៨២៨	[Signature]	
14					
15					
16					
17					

NATIONAL SOLAR PARK PROJECT

ប្រតិបត្តិការ៖ ៤០គ.ម ចាប់ផ្តើមពីអង្គរ

(Datum: WGS 1984)

លេខ	ឈ្មោះ	ភេទ	កូដ	ឈ្មោះ/ស្ថានភាព	កាលបរិច្ឆេទ	លេខទំនាក់ទំនង	ហត្ថលេខា
១	កុំ ហ៊ា	ប	១០	ស្រី កុំ ហ៊ា	០៩/០៩/២០	០០៩ ២៣ ៤៣៤	
២	កុំ ហ៊ា	ប	១១	ស្រី កុំ ហ៊ា	០៩/០៩/២០	០០៩ ២៣ ៤៣៤	
៣	កុំ ហ៊ា	ប	១២	ស្រី កុំ ហ៊ា	០៩/០៩/២០	០០៩ ២៣ ៤៣៤	
៤	កុំ ហ៊ា	ប	១៣	ស្រី កុំ ហ៊ា	០៩/០៩/២០	០០៩ ២៣ ៤៣៤	
៥	កុំ ហ៊ា	ប	១៤	ស្រី កុំ ហ៊ា	០៩/០៩/២០	០០៩ ២៣ ៤៣៤	
៦	កុំ ហ៊ា	ប	១៥	ស្រី កុំ ហ៊ា	០៩/០៩/២០	០០៩ ២៣ ៤៣៤	
៧	កុំ ហ៊ា	ប	១៦	ស្រី កុំ ហ៊ា	០៩/០៩/២០	០០៩ ២៣ ៤៣៤	
៨	កុំ ហ៊ា	ប	១៧	ស្រី កុំ ហ៊ា	០៩/០៩/២០	០០៩ ២៣ ៤៣៤	
៩	កុំ ហ៊ា	ប	១៨	ស្រី កុំ ហ៊ា	០៩/០៩/២០	០០៩ ២៣ ៤៣៤	
១០	កុំ ហ៊ា	ប	១៩	ស្រី កុំ ហ៊ា	០៩/០៩/២០	០០៩ ២៣ ៤៣៤	
១១	កុំ ហ៊ា	ប	២០	ស្រី កុំ ហ៊ា	០៩/០៩/២០	០០៩ ២៣ ៤៣៤	

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ល.រ	ឈ្មោះ	ភេទ	ស្ថាប័ន	ឋានៈ/តួនាទី	កាលបរិច្ឆេទ	លេខទូរស័ព្ទ	ហត្ថលេខា
១២	ស៊ីម សីមា	ស	—	—	—	—	—
១៣	ស្រី អ៊ុយ	ស	—	—	—	—	—
១៤	ស៊ី អ៊ុយ	ស	—	—	—	០៩៥ ៥១ ៣៨	—
១៥	ស៊ី អ៊ុយ	ស	—	—	—	០៩៦ ៥៥ ៨៨ ១១	—
១៦	ស៊ី អ៊ុយ	ស	—	—	—	—	—
១៧	ស៊ី អ៊ុយ	ស	—	—	—	—	—
១៨	ស៊ី អ៊ុយ	ស	—	—	—	—	—
១៩	ស៊ី អ៊ុយ	ស	—	—	—	—	—
២០	ស៊ី អ៊ុយ	ស	—	—	—	—	—
២១	ស៊ី អ៊ុយ	ស	—	—	—	០១២ ៨៤ ៨៩	—
២២	ស៊ី អ៊ុយ	ស	—	—	—	០១២ ៨៦ ៣៩ ១៤	—
២៣	ស៊ី អ៊ុយ	ស	—	—	—	០១២ ៨៩ ៤៩ ១២	—

[illegible]

காலப்பிறகு: 21/07/2020
 சிகப்பை: 2500 (மொத்தம் 2500)
 X=45450 Y=12914184 (Datum: WGS 1984)

ល.រ	ឈ្មោះ	ខណ្ឌបំណុល	ឈ្មោះអ្នកបំណុល	កាលបរិច្ឆេទ	លេខសម្គាល់	ហត្ថលេខា
1.	ស្រី ឈូ (ឆរ)	ស	ស្រី ឈូ	១/០៧/២០	០៨៦៥៦៥៣៧៦	ឈូ
2.	ស្រី ឈូ (ឆរ)	ស	—	—	—	—
3.	ស្រី ឈូ (ឆរ)	ស	—	—	—	—
4.	ស្រី ឈូ (ឆរ)	ស	—	—	—	—
5.	ស្រី ឈូ (ឆរ)	ស	—	—	—	—
6.	ស្រី ឈូ (ឆរ)	ស	—	—	—	—
7.	ស្រី ឈូ (ឆរ)	ស	—	—	—	—
8.	ស្រី ឈូ (ឆរ)	ស	—	—	—	—
9.	ស្រី ឈូ (ឆរ)	ស	—	—	—	—
10.	ស្រី ឈូ (ឆរ)	ស	—	—	—	—
11.	ស្រី ឈូ (ឆរ)	ស	—	—	—	—

8 Public meeting at Wat Kraing Kdep

មជ្ឈមណ្ឌលសម្រាប់ការពិគ្រោះយោបល់ និងផ្សព្វផ្សាយអំពីការសាងសង់ការពារ: ការកំណត់តំបន់ការពារប្រព័ន្ធបរិស្ថាន ១១៩គីឡូម៉ែត្រ
ពីអេកូឡូស៊ីបង្កឱ្យមានការបំផ្លាញប្រព័ន្ធបរិស្ថាន (អូឡូ) ខេត្តកំពង់ឆ្នាំង ខេត្តកំពង់ស្ពឺ ខេត្តកំពង់ស្ពឺ (OSG) ខេត្តកំពង់ស្ពឺ
ប្រទេសកម្ពុជា ៩០គ.ម បេសអេកូឡូស៊ីកម្ពុជា

កាលបរិច្ឆេទ: ១១ / កក្កដា / ២០១០

ទីតាំងប្រជុំ: វត្តក្រាំងក្តៅ

X=..... Y=..... (Datum: WGS 1984)

ល.រ	ឈ្មោះ	ស្ថានភាព	ស្ថានភាព	ឈ្មោះស្ថានភាព	កាលបរិច្ឆេទ	លេខទូរស័ព្ទ	ហត្ថលេខា
1	ឈ្មោះ (ឈ្មោះ)	—	—	—	១១/០៧/១០	០៩៦៤៧៤៣៧៥២	—
2	ឈ្មោះ (ឈ្មោះ)	—	—	—	—	០៩៥៨៨៨៨	—
3	ឈ្មោះ (ឈ្មោះ)	—	—	—	—	—	—
4	ឈ្មោះ (ឈ្មោះ)	—	—	—	—	—	—
5	ឈ្មោះ (ឈ្មោះ)	—	—	—	—	០៩៨៨៨៨៨	—
6	ឈ្មោះ (ឈ្មោះ)	—	—	—	—	០៩៧៤៧៤៧៤	—
7	ឈ្មោះ (ឈ្មោះ)	—	—	—	—	—	—
8	ឈ្មោះ (ឈ្មោះ)	—	—	—	—	០៩៦៨៨៨៨	—
9	ឈ្មោះ (ឈ្មោះ)	—	—	—	—	—	—
10	ឈ្មោះ (ឈ្មោះ)	—	—	—	—	—	—
11	ឈ្មោះ (ឈ្មោះ)	—	—	—	—	—	—

NATIONAL SOLAR PARK PROJECT

કાલચબુથ: 23/11/2020
 સ્થાન: ...

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ਸ.1	ਨਾਮ:	ਸ.2	ਕੁਰਸੀ	ਮਾਨ:/ਮਾਨ	ਮਾਨ:ਮਾਨ	ਮਾਨ:ਮਾਨ	ਮਾਨ:ਮਾਨ
12	ਮੇਨ ਮੇਨ (66)	(12)	—	—	—	—	—
13	ਮੇਨ ਮੇਨ (75)	13	—	—	—	—	—
14	ਮੇਨ ਮੇਨ (83)	14	—	—	—	—	—
15	ਮੇਨ ਮੇਨ (98)	15	—	—	—	—	—
16	ਮੇਨ ਮੇਨ (54)	16	—	—	—	—	—
17	ਮੇਨ ਮੇਨ (68)	17	—	—	—	—	—
18	ਮੇਨ ਮੇਨ (68)	18	—	—	—	—	—
19	ਮੇਨ ਮੇਨ (50)	19	—	—	—	—	—
20	ਮੇਨ ਮੇਨ (85)	20	—	—	—	—	—
21	ਮੇਨ ਮੇਨ (85)	21	—	—	—	—	—
22	ਮੇਨ ਮੇਨ (86)	22	—	—	—	—	—
23	ਮੇਨ ਮੇਨ (88)	23	—	—	—	—	—
24	ਮੇਨ ਮੇਨ (88)	24	—	—	—	—	—
25	ਮੇਨ ਮੇਨ (88)	25	—	—	—	—	—
26	ਮੇਨ ਮੇਨ (90)	26	—	—	—	—	—
27	ਮੇਨ ਮੇਨ (87)	27	—	—	—	—	—
28	ਮੇਨ ਮੇਨ (87)	28	—	—	—	—	—
29	ਮੇਨ ਮੇਨ (88)	29	—	—	—	—	—
30	ਮੇਨ ਮੇਨ (88)	30	—	—	—	—	—

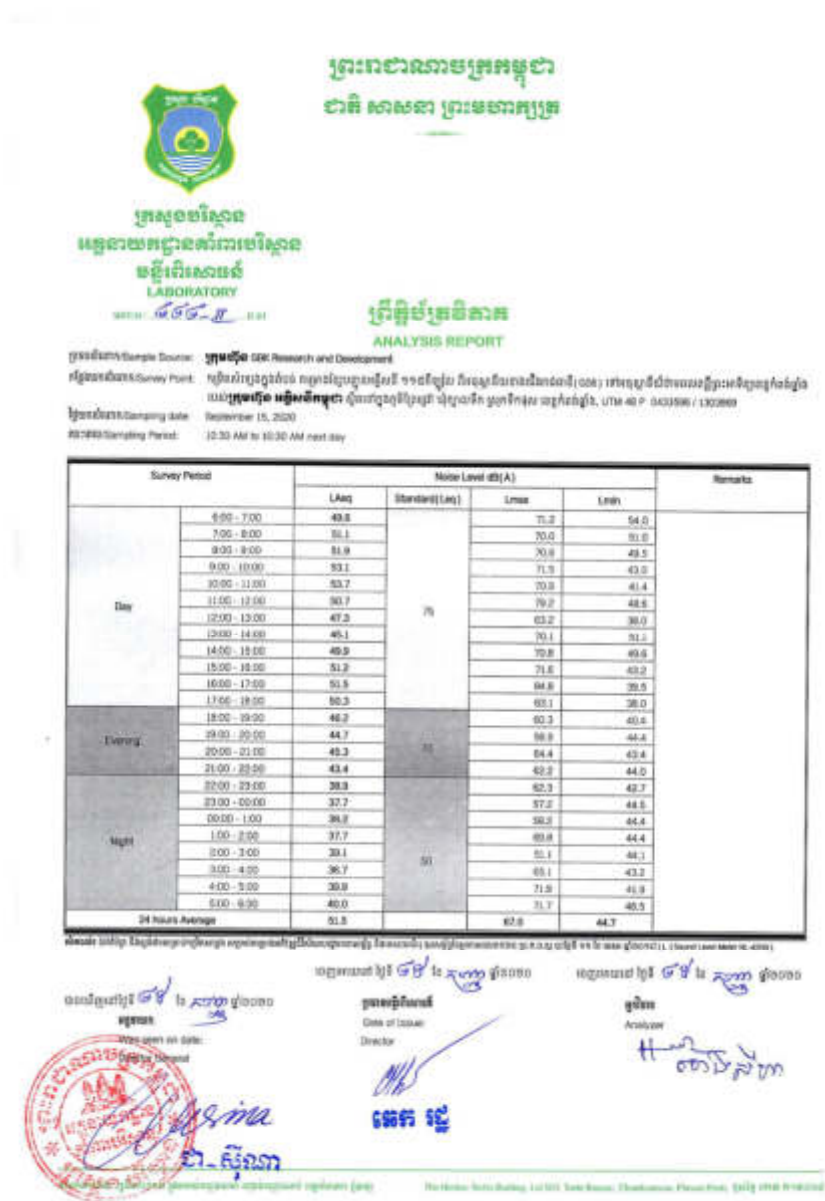
(Datum: WGS 1984)

[illegible]

1. Air quality

[illegible]

2. Noise



ក្រសួងបរិស្ថាន
អគ្គនាយកដ្ឋានគាំពារបរិស្ថាន
មន្ទីរពិសោធន៍
LABORATORY
09737 ៨៩៩-៣៣ ៤៤

ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

ប្រឹក្សាប្រតិបត្តិ
ANALYSIS REPORT

<p>កម្រិតនៃសំណាក (Sample Size)</p> <p>កម្រិតនៃចំណុច (Survey Point)</p> <p>ថ្ងៃនៃការប្រមូល (Sampling date)</p> <p>ពេលវេលាប្រមូល (Sampling Period)</p>	<p>ក្រុមហ៊ុន SEN Research and Development</p> <p>កម្រិតចំណុចប្រមូលស្រុកស្រែចម្ការ ១៩៩៧ ផ្លូវលេខ ៧២ ភូមិស្រែចម្ការ ឃុំស្រែចម្ការ សង្កាត់ស្រែចម្ការ (២២) ភូមិស្រែចម្ការ ឃុំស្រែចម្ការ សង្កាត់ស្រែចម្ការ ខណ្ឌស្រែចម្ការ រាជធានីភ្នំពេញ</p> <p>ក្រុមហ៊ុន ស៊ីធីស្រី ផ្ទះលេខ ២២ ផ្លូវលេខ ៧២ ភូមិស្រែចម្ការ ឃុំស្រែចម្ការ សង្កាត់ស្រែចម្ការ ខណ្ឌស្រែចម្ការ រាជធានីភ្នំពេញ</p> <p>September 15, 2020</p> <p>10:30 AM to 10:30 AM next day</p>
--	--


Time	Survey Period	Vibration Level (g)				Remarks
		Log	Standard (Log)	Limit	Limit	
Day	6:00 - 7:00	13.7	80	31.0	32.1	
	7:00 - 8:00	14.0		31.7	32.3	
	8:00 - 9:00	20.8		40.0	33.8	
	9:00 - 10:00	20.3		37.6	33.8	
	10:00 - 11:00	25.4		52.5	34.1	
	11:00 - 12:00	21.6		40.4	33.8	
	12:00 - 13:00	15.2		17.0	33.8	
	13:00 - 14:00	20.1		43.2	33.8	
	14:00 - 15:00	25.9		40.5	34.1	
	15:00 - 16:00	35.7		28.1	33.9	
	16:00 - 17:00	38.0		36.5	33.7	
	17:00 - 18:00	17.4		37.5	34.0	
Night	18:00 - 19:00	17.4	81	36.5	33.9	
	19:00 - 20:00	15.6		34.0	33.7	
	20:00 - 21:00	16.0		34.1	33.9	
	21:00 - 22:00	15.5		30.6	33.9	
	22:00 - 23:00	16.3		35.8	33.6	
	23:00 - 00:00	15.1		43.1	34.0	
	00:00 - 1:00	13.7		35.5	32.3	
	1:00 - 2:00	12.8		38.8	37.1	
	2:00 - 3:00	13.6		32.7	32.0	
	3:00 - 4:00	13.6		34.7	31.8	
	4:00 - 5:00	13.7		31.4	32.2	
	5:00 - 6:00	14.1		30.0	32.4	
24 hours Average		16.9		30.0	33.3	

စာအုပ်စာတမ်းများကို အောက်ဖော်ပြပါအတိုင်း အသုံးပြုနိုင်ပါသည်။

<p>ထွက်ပြေးရက်စွဲ <i>၁၆</i> <i>၁၂</i> <i>၂၀၁၀</i></p> <p><i>၁၆</i> <i>၁၂</i> <i>၂၀၁၀</i></p> <p>ထုတ်ပြန်</p> <p>Date of Issue</p> <p>Director</p> <p><i>[Signature]</i></p> <p>ဇေယျာ</p>	<p>ထွက်ပြေးရက်စွဲ <i>၁၆</i> <i>၁၂</i> <i>၂၀၁၀</i></p> <p>အကြီးအကဲ</p> <p>Analyst</p> <p><i>[Signature]</i></p>
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၁။ ဤစာချုပ်သည် အောက်ဖော်ပြပါ အချက်များနှင့် အညီ အကျိုးသက်ရောက်မှု ရှိပါသည်။
 ၂။ ဤစာချုပ်သည် အောက်ဖော်ပြပါ အချက်များနှင့် အညီ အကျိုးသက်ရောက်မှု ရှိပါသည်။

4. Water quality analysis results



ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

ក្រសួងធនធានទឹក និង រុក្ខជាតិ
អគ្គនាយកដ្ឋានគ្រប់គ្រងគុណភាពទឹក
មជ្ឈមណ្ឌលសាងសង់
LABORATORY
ស្ថាប័ន - ១៥៨ - ៤៤


វេជ្ជប្រតិបត្តិការ
ANALYSIS REPORT

ប្រភពនៃសំណាក Source: ក្រុមហ៊ុន GRR Research and Development Co., Ltd ថ្ងៃ ខែ ឆ្នាំប្រមូលសំណាក Date: July 24, 2020 ប្រភេទសំណាក/Type of Sample: សំណាកទឹកស្រទាប់ផ្ទៃដី ក្នុងតំបន់ប្រតិបត្តិការសាងសង់ គម្រោងសាងសង់ប្រព័ន្ធធារាសាស្ត្រ (DBP) ក្នុងតំបន់ ទីតាំងសាងសង់ ឥឡូវ: គម្រោងសាងសង់ប្រព័ន្ធធារាសាស្ត្រ ក្នុងតំបន់ប្រតិបត្តិការសាងសង់ គម្រោងសាងសង់ប្រព័ន្ធធារាសាស្ត្រ (DBP) ក្នុងតំបន់ ទីតាំងសាងសង់ ។ ៣៤ ៤៤ P ០៤២៨៨៨ / ៤៤២៨៨៨					
ល.រ No	ឈ្មោះសំណាក Parameter	ឯកតា Unit	លទ្ធផល Result	កម្រិត Standard	វិធីសាស្ត្រប្រតិបត្តិការ Reference Method
1	pH	-	8.05	6.5-8.5	Method pH Meter
2	Temperature	°C	25.00	<45	Method Thermometer
3	Dissolved Oxygen (DO)	mg/L	4.80	7.5-2.0	Method DO Meter
4	Total Dissolved Solid (TDS)	mg/L	108.10	<1000	Method m/Lab Meter
5	Total Suspended Solid (TSS)	mg/L	81.00	25-100	Method 2540 D
6	Biochemical Oxygen Demand (BOD) 5	mg/L	0.90	1.0-10	Method 5210 B
7	Chemical Oxygen Demand (COD) Mn	mg/L	9.40	<50	Method 219 K 0202
8	Oil and Grease	mg/L	1.90	<5.0	Method 9550 D
9	Detergent (MSB)	mg/L	ND	<5.0	Method 9540 C
10	Sulfate (SO4)	mg/L	4.00	<300	Method 4500-SO4 ²⁻ B
11	Total Nitrogen (TN)	mg/L	1.30	0.1-0.6	Method 200 N 0102 40
12	Total Phosphorus (TP)	mg/L	0.17	0.005-0.05	Method 200 P 0102 40
13	Arsenic (As)	mg/L	0.000	<0.01	Method 3500-As D
14	Cadmium (Cd)	mg/L	0.0003	<0.01	Method 3500-Cd C
15	Iron (Fe) Total	mg/L	0.00	<1.0	Method 3500-Fe C
16	Lead (Pb)	mg/L	0.00	<0.01	Method 3500-Pb C
17	Mercury (Total)	mg/L	0.0003	<0.001	Method 3500-Me C
18	Total Coliform	MPN/100ml	7.6x10 ²	<5000	Method 9223-423

សំគាល់: 1- កម្រិតសំណាក គ្រប់គ្រង និង គ្រប់គ្រងសំណាកប្រតិបត្តិការសាងសង់ គម្រោងសាងសង់ប្រព័ន្ធធារាសាស្ត្រ (DBP) ក្នុងតំបន់ ទីតាំងសាងសង់
 2- កម្រិតសំណាក គ្រប់គ្រង និង គ្រប់គ្រងសំណាកប្រតិបត្តិការសាងសង់ គម្រោងសាងសង់ប្រព័ន្ធធារាសាស្ត្រ (DBP) ក្នុងតំបន់ ទីតាំងសាងសង់
 3- ND Means Not Detected (Lower than LCL), NW Means No Volume
 4- កម្រិតសំណាកប្រតិបត្តិការសាងសង់ គម្រោងសាងសង់ប្រព័ន្ធធារាសាស្ត្រ (DBP) ក្នុងតំបន់ ទីតាំងសាងសង់

ចេញនៅថ្ងៃទី ២៤ ខែ កក្កដា ឆ្នាំ ២០២០


អគ្គនាយក

Signature: 

ឈ្មោះ: **គា. គីរីណា**

ចេញនៅថ្ងៃទី ២៤ ខែ កក្កដា ឆ្នាំ ២០២០


ប្រធានមជ្ឈមណ្ឌលសាងសង់

Signature: 

ឈ្មោះ: **គា. គីរីណា**

ចេញនៅថ្ងៃទី ២៤ ខែ កក្កដា ឆ្នាំ ២០២០

អ្នកវិភាគ

Signature: 

ឈ្មោះ: **គា. គីរីណា**

អគ្គនាយកដ្ឋានគ្រប់គ្រងគុណភាពទឹក អគ្គនាយកដ្ឋានគ្រប់គ្រងគុណភាពទឹក អគ្គនាយកដ្ឋានគ្រប់គ្រងគុណភាពទឹក អគ្គនាយកដ្ឋានគ្រប់គ្រងគុណភាពទឹក
 The Ministry of Natural Resources and Environmental Conservation, P.O. Box 100, Phnom Penh, Cambodia. ទីស្នាក់ការកណ្តាល ភ្នំពេញ ២៤២០០០

Annex 4: UXO CLEARANCE

P/01/01/01-01

HANDOVER CERTIFICATE OF CLEARED LAND MINE/UXO AREA

PART 1-GENERAL INFORMATION

1.1 Battle Field ID : N/A	1.2 Demining Unit : Demining Development Unit					
1.3 Project Supported by: EDC	1.4 Demining Tool : TSC07,08,12,21,BC03,BC13					
Total Area of Land Released (A/B/C+D1+D2) based on contract agreement : 1,521,920.00 m2						
<div style="display: flex; justify-content: space-between;"> <div> A Pull Clearance (m²) : 1,521,920.00m² <small>at depth 7m and 12,956,000.00m² (Box) at Shallow Search 1m) 360,630.00 m² (Line)</small> </div> <div> B Technical Survey (TS) m²: <div style="border: 1px solid black; padding: 2px; width: 100px; float: right;"> C NTS Size (m²): </div> </div> </div>						
A1 Minefield Size (m²): A2 Battle Field Size (m²): 1,521,920.00m²	B1 Target Inspection (m²): <div style="display: flex; justify-content: space-between;"> <div> Systematic Investigation Breaching Lane (m²): Inspected Box (m²): Non Inspected Box (m²): </div> </div>					
Clearance Without Sketch						
D1 Safety Preparation Size (m²):	D2 Spot Check (m2):					
D3 Quality Control (m²): 456,576.00						
PART 2-OPERATIONAL INFORMATION						
2.1 Province: Kampong and Kampong Speu Province	2.3 Commune: N/A					
2.2 District: N/A	2.4 Village : N/A					
2.5 Task Start Date : 25 February 2020	2.6 Task End Date : 07 December 2020					
2.7 Methods and technologies used for Clearance? <input checked="" type="checkbox"/> Manual <input checked="" type="checkbox"/> Mechanical <input type="checkbox"/> Dogs <input type="checkbox"/> Combined	2.8 Clearance depth: The depth of clearance was increased up to depth of 0 to 7 meters by using the trained metal detectors in 3 typed: 1/- Mine lab F3- (Red Ends cap). 2/- Ebinger Upex 740M which was upgraded into 2400mm. and 3/- Foster FEREX.					
2.9 Quality Control Carried Out by: Mr. Phorn Saroeung, Project Manager conducted a quality control check of 30% of the land cleared as mentioned above.	2.10 Beneficiaries : - Direct Beneficiaries : EDC - Indirect Beneficiaries : - Number of Students :					
Purpose of Land Use: Building 60MW Sola Station in Kampong Chhnang province.						
2.11 Quantity of Devices Found and Destroyed :						
Anti Personal Mine (AP)	Anti Tank mine (AT)	Improvised Mine (IMP)	Unexploded Ordnance (UXO)	Others	Fragment	Small Arms (kg)
01	05	0	79		10,846	
PART 3-DECLARATION						
a. Original/Copy to: ELECTRICITE DU CAMBODGE	b. Original to: Data Base Office, CMAC, HQ.					