Annual Environmental and Social Monitoring Report

Project Number: 52127-001
September 2019

Sermsang Khushig Kundii Solar Power Project, Mongolia

Prepared by the Tenuun Gerel Company, LLC for the Asian Development Bank

Contents

Appendices

I. INTRODUCTION

A. PURPOSE OF THE REPORT

1. This environmental and social monitoring report presents the project's environmental and social performance in compliance with the requirements of ADB's Safeguards Policy Statement (2009) (ADB SPS), applicable laws and regulations of Mongolia and applicable good international industry practices. The project is categorized as "B" for environment and "C" for involuntary resettlement (IR) and Indigenous Peoples based on ADB SPS. This report describes and assesses the implementation of the environmental and social management plan (ESMP) prepared for this project during its construction and operation.

2. This report includes the background information of the project and the status of implementation from May 2018 to March 2019. It also includes information on activities related to information disclosure, grievance redress and capacity building.

B. BACKGROUND OF THE PROJECT

3. The Tenuun Gerel Construction LLC (TGC) of Mongolia is part of an international private sector consortium which developed the Sermsang Khushig Kundii Solar Power Project (the Project) 65km southeast of Ulaanbaatar (UB). The Project is located on open grassland steppe consisting of the following three main components:

(i) a new 48ha, 15MW PV solar power plant of comprised of approximately 51,372 PV solar panels;
(ii) a new 13.7 km 110kV transmission line; and
(iii) an existing substation expansion to accommodate the new transmission line.

4. The 110kV transmission line will transfer electrical power from the solar power plant to the existing substation located at the new international airport of UB. The new solar power plant will provide clean, much needed electrical power to the Central Energy System (CES) of Mongolia with zero greenhouse gas emissions pursuant to the 2007 National Renewable Energy Law.

5. The following civil works and activities were conducted during the reporting period:

Table 1 Project activities during the reporting period.

Civil Works/Activities	Start Date	End Date
Construction of 15 MW solar power plant	28th May, 2018	1st November, 2018
Final Design of transmission lines	July, 2017	January, 2018
Construction of transmission lines	1st September, 2018	14th November, 2018
Expansion of substation	1st October, 2018	14th November, 2018
Test Operation	30th January, 2019	4th June, 2019
Technical Commissioning	3th January, 2019	1st February, 2019
State Commissioning	21th March, 2019	Completed 4th June, 2019

C. PROJECT MANAGEMENT ARRANGEMENTS

6. The TGC is the Project owner and part of the private sector consortium comprised of TGC, Sharp Energy Solutions Corporation (Sharp), and Sermsang Power Corporation Public Company, Ltd. (SSP). The consortium constructed the Project components. TGC is currently operating the 15MW PV solar power plant. TGC constructed the transmission towers and substation. The management of the transmission lines and towers will be transferred to the National Power Transmission Grid Company upon the commissioning of the solar power plant.

D. ENVIRONMENTAL OVERVIEW OF THE PROJECT AREA

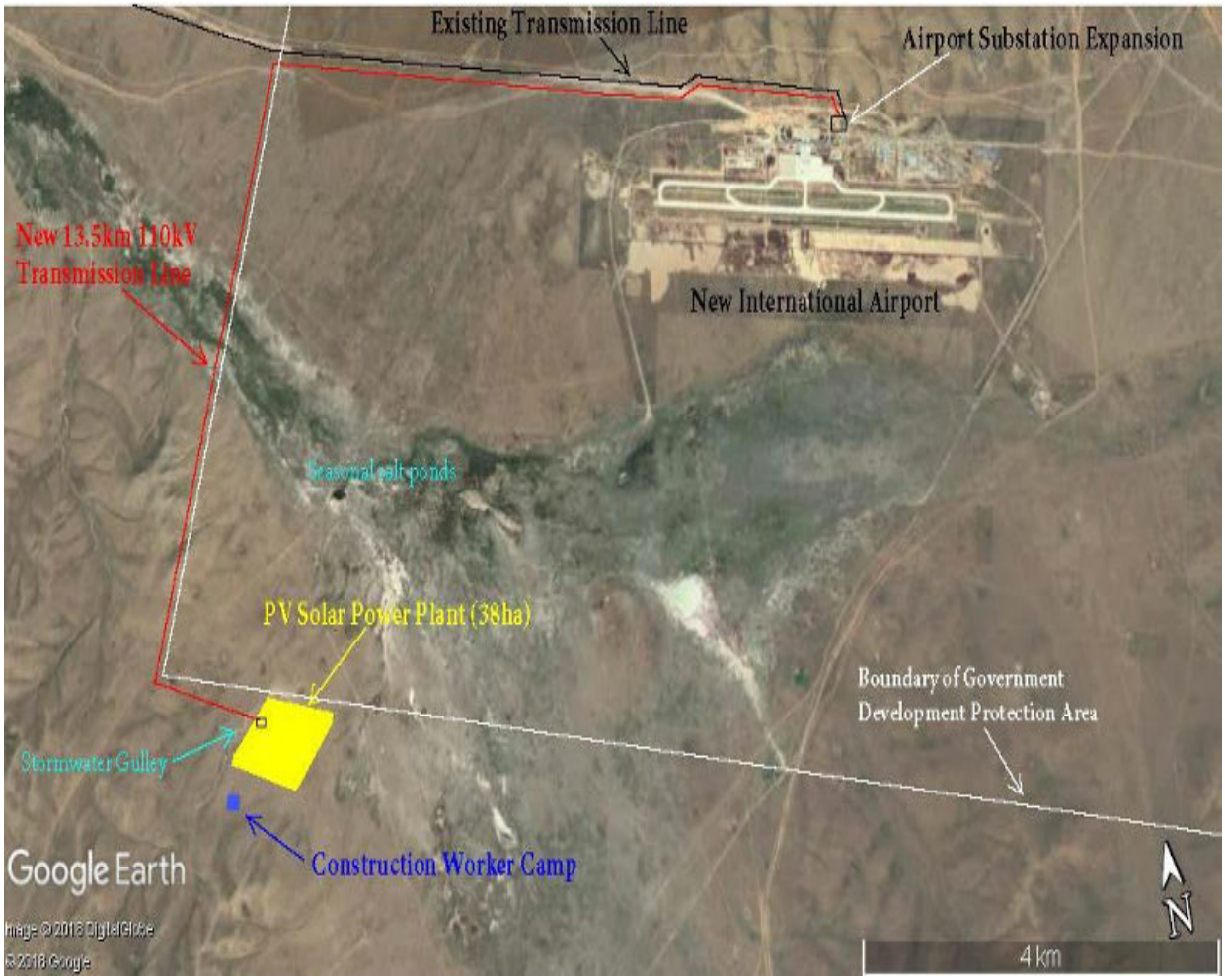
7. The Project is situated at the border of the State Reserve Area that was set aside by the Government for the development of the new international airport and future support facilities. A section of the transmission line alignment and the existing substation for expansion are within the Development Protection Area (***Figure 1***).

8. The project site is within the vast barren steppe grasslands located 20 km west of the nearest town. The 13.7 km 110kV transmission line (TL) from the solar power plant extends north along the western boundary of the state development reserve area to join the corridor of the existing TL that connects the new airport with Ulaanbaatar. The new and existing TLs connect to the substation at the new airport. The low-slope grassland terrain underneath the new TL extends down to the flat terrain of the existing TL and airport.

9. The project site represents the typical steppe region in Mongolia. The nearest ecological protected area is the Bogd Mountain is located in 20 kilometers north from the project site. There are no known rare or endangered wildlife in the project area. The largest single cultural resource is Mandshiiriin Monastery located in the south slope in the Bogd Mountain and 25 km from the project site.

10. Administratively the project site is the part of Sergelen soum (district) which is the one of administrative units of Tuv aimag (province). The soum has an estimated population of 2,037 representing 780 households, at an average household size of approximately 2.6 persons. The 61.7% of the population are resided in rural areas or considered as herding household and the remaining 48.3% are resided in the soum center.

Figure 1.Project Area



11. Initially, TGC entered into a certified, long-term land possession agreement, valid for up to 15 years with the Sergelen soum, which is based on the soum Governor's decision of December 1, 2016 to implement the general land management plan approved by the soum council. However, during the reporting period, TGC was re-classified as a foreign company. In accordance with the Mongolian law, foreign companies are granted the renewable 5-year land-user certificate instead of the long-term land possession certificate. TGC completed the requirements and the 5-year land user certificate will be issued by the soum as soon as the issue with the government system for issuing land registration numbers is resolved. The land allocated for the 13.7 km transmission line is regulated by a license issued by the soum to TGC. TGC has obtained permits, primarily related to safety, from the Civil Aviation Authority and the soum for use of land under the transmission line.

12. The new solar power plant and 13.7 km transmission line in Sergelen soum are located on pastureland. Pasture lands are public land and the dominant land type in the soum, which are used freely by local herders without restrictions, permits or fees. The seasonal use of the pastureland is highly dependent upon weather conditions and the availability of water sources for livestock. Herders can also graze their livestock on other types of land including land allocated to individuals and entities with land possession certificates. Thus, the construction and operation of the solar plant will not result in loss of income from economic or physical

displacement. The herders have access to the pasture underneath the completed transmission line.

II. ENVIRONMENTAL AND SOCIAL MANAGEMENT

A. COMPLIANCE WITH ENVIRONMENTAL AND SOCIAL SAFEGUARDS RELATED PROJECT REQUIREMENTS

13. Pursuant to the Mongolian Law on Environmental Impact Assessment (2012), a general environmental impact assessment (GEIA) for the project was conducted by the Ministry of Environment and Tourism (MET). The GEIA approval, granted on 17 November 2015. The Project complied with the relevant national and local laws and regulations during the construction and operation (**Table 2**).

14. Project complied Labor Law of Mongolia (1999), Law on Water (2012), Law on Energy (2001), Land Law (2002), Law on Licensing (2001).

Table 2. Compliance with national and local laws and regulations on Environment and Social Protection

Description of Requirement/Permit	Status
Construction	
GEIA	Complied
Land possession agreement	Complied
Water abstraction permit	Complied
Construction permit	Complied
Permit of Archeological and Ethnical study	Complied
Operation	
Preparation of EMP	Approved 19th February, 2019 by Ministry of Environment
Water well and water usage permit	Complied
Power generation license	Issued on 4th July, 2019
Waste Water deposition permission	Issued 6th September, 2019

15. In compliance with the requirements ADB SPS, an initial environmental and social examination (IESE) was conducted for the solar power plant and transmission line alignment and an environmental and social management plan (ESMP) was prepared. The scope of the IESE included (i) the assessment of potential environmental and social risks and impacts from the construction, operation and maintenance of the project; and (ii) environmental and social audit of construction activities in the solar power plant site. The environmental and social audit reviewed the health, safety, and environmental (HSE) management plan and environmental management system (EMS) implemented by TGC's engineering, procurement, and construction (EPC) contractor. The ESMP identified corrective actions for the ongoing construction, and mitigation measures and monitoring and reporting requirements during construction and operation.

B. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL AND SOCIAL PERFORMANCE MONITORING

16. The consortium will be responsible for the implementation of the ESMP during Project construction and operation.

17. To construct the solar power plant and the transmission line, TGC engaged design, engineering, procurement and construction (EPC) contractors. Under the EPC contract, the contractor is responsible for obtaining all permits, licenses and approvals required by the applicable laws; and in ensuring that adequacy, stability, safety of all works and environmental protection of the project site during construction. The EPC contract also includes responsibility to implement the Health, Safety and Environmental (HSE) management plan and Environment Management System (EMS) specified in EPC contract. These plans guide the contractor in managing potential construction hazards such as fires and accidents, and waste management during construction of the power plant. The EPC contractor for the power plant and the transmission line has a dedicated HSE officer and worker camp coordinator to carry out environmental, health and safety management in the construction site and workers' camp.

18. TGC designated one of its staff to oversee the implementation of all environmental, health, safety and social management requirements during construction and operation of the Project. The TGC staff in-charge of environmental and social safeguards is also responsible for timely and complete disclosure of Project information to stakeholders, and the effective implementation of the grievance redress mechanism (GRM).

19. During operation, the solar power plant's HSE staff under the supervision of the solar power plant's General Manager will perform the day-to-day environmental and social safeguards management and HSE/EMS implementation on site. The TGC staff in-charge of environmental and social safeguards will continue to oversee the implementation of all environmental, health, safety and social management requirements, including regular monitoring and reporting to ADB, in coordination with the solar power plant's General Manager and HSE staff.

20.

21. ***Figure 2*** presents the Project's organizational structure.

C. STATUS OF ESMP IMPLEMENTATION

22. The IESE concluded that the environmental and social impacts of the three components of the Project are minor and temporary. No resettlement or private land or asset acquisition will occur, and no ethnic minorities are affected by the Project. The environmental impacts are restricted to temporary dust and noise, and disturbance to the grassland steppe from the construction phase which can be prevented or mitigated. No rare or endangered wildlife, critical habitat, or protected areas will be affected by the Project. Summary reports from contractors are attached in Appendix 1

23. Potential impacts of the operation of phase of the Project consist of generation of process and domestic waste produced at the PV solar power plant, and along the alignment of the transmission line from tower maintenance. Worker accidents or injury could occur as a result of the operations and maintenance of the plant and transmission including injury from lightning strikes. Potential injury of the public could also occur if unauthorized access to the facilities occurred.

24. The ESMP that has been developed for the Project prescribes impact mitigation and monitoring requirements during the construction, and operation of the Project. The solar power plant will operate guided by the standard operating procedures (SOPs), including HSE management plans and EMS (see **Appendix 2** for list and description of SOPs, manuals and

plans). An environmental management plan is prepared in compliance with the requirements of the MET (**Appendix 3**).

Figure 2 Organizational Structure

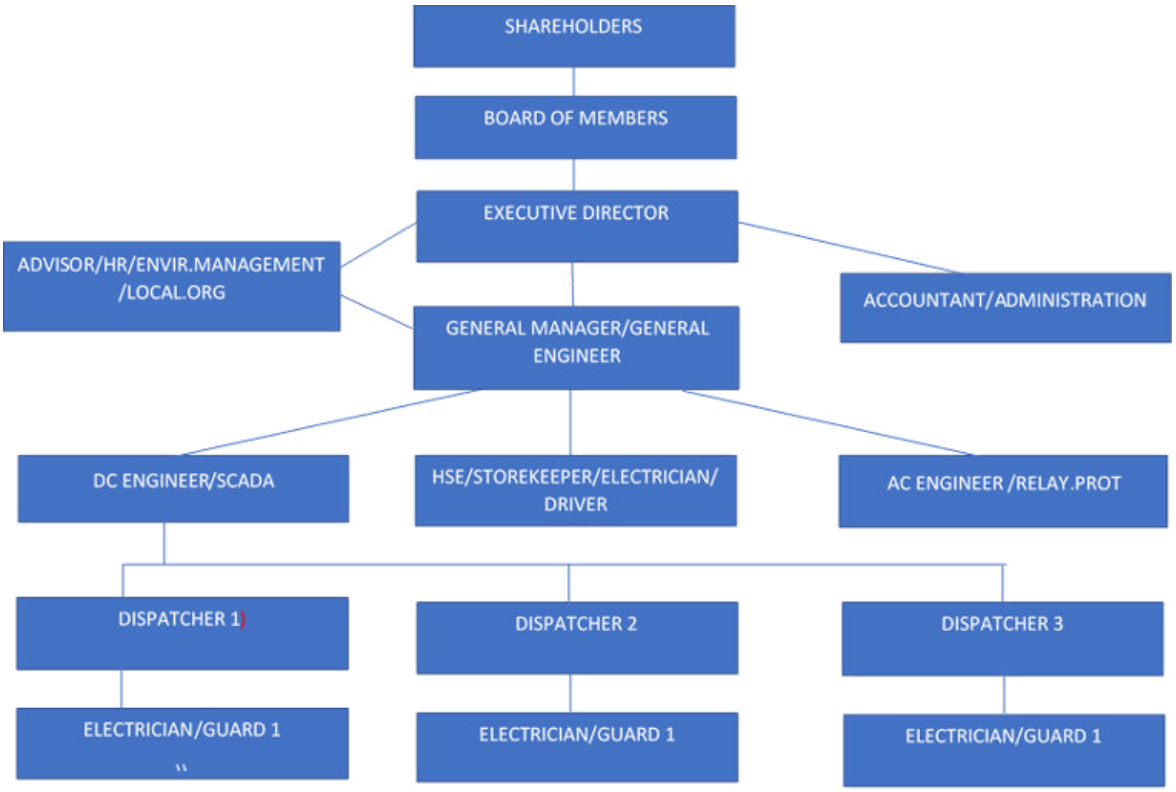


Table 3. Status of ESMP compliance

Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility		Status
		Supervision	Implementation	
Construction				
Dust	1. Regularly apply wetting agents to exposed soil and construction roads which must be budgeted in contractor bid documents. 2. Cover or keep moist all stockpiles of construction aggregates, and all truckloads of aggregates. 3. Minimize time that excavations and exposed soil are left open/exposed. Backfill immediately after work completed.	TGC/SS	Contractor	Completed
Contamination of land and surface waters from construction waste	4. Management of general solid and liquid waste of construction will follow GoM or soum requirements, and will cover, collection, handling, transport, recycling, and disposal of waste created from construction activities and worker force. 5. Areas of disposal of solid and liquid waste to be determined by GoM. 6. Disposed of waste should be catalogued for type, estimated weigh, and source. 7. Construction sites should have large garbage bins. 8. A schedule of solid and liquid waste pickup and disposal must be established and followed that ensures construction sites are as clean as possible. 9. Dedicated pits dug and used for domestic wastewater (greywater) should be disinfected monthly and backfilled when no longer needed. 10. Pit latrines should be disinfected monthly and backfilled when no longer needed 11. Solid waste should be separated and recyclables sold to buyers in community. Hazardous Waste 12. Collection, storage, transport, and disposal of hazardous waste such as used oils, gasoline, paint, and other toxics must follow GoM regulations. 13. Wastes should be separated (e.g., hydrocarbons, batteries, paints, organic solvents) 14. Wastes must be stored above ground in closed, well labeled, ventilated plastic bins in good condition well away from construction activity areas, all surface water, water supplies, and cultural and ecological sensitive receptors. 15. All spills must be cleaned up completely with all contaminated soil removed and handled with by contaminated spoil sub-plan.	TGC/SS	Contractor	Completed

Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility		Status
		Supervision	Implementation	
Noise	16. As much as possible restrict working time between 07:00 and 18:00 during summer construction work period. In particular are activities such as pile driving. 17. Maintain equipment in proper working order 18. Replace unnecessarily noisy vehicles and machinery. 19. Vehicles and machinery to be turned off when not in use. 20. Construct temporary noise barriers around excessively noisy activity areas where possible.	TGC/SS	Contractor	Completed
Damage to salt ponds	21. Review final location of transmission tower locations with respect to salt ponds. 22. Review measures that will ensure no erosion and sedimentation of salt ponds 23. Update ESMP to include mitigation measures for environmental, health and safety risks during construction of transmission towers 24. Protective berms, plastic sheet fencing, or silt curtains should be placed between all earthworks and salt ponds 25. Erosion channels must be built around aggregate stockpile areas to contain rain-induced erosion. 26. Earthworks should be conducted during dry periods. 27. All construction fluids such as oils, and fuels should be stored and handled well away from salt ponds. 28. No waste of any kind is to be thrown into salt ponds 29. No washing or repair of machinery near salt ponds. 30. Temporary pit latrines to be located well away from salt ponds and herder homesteads	TGC/SS	TGS/SS	Completed
Damage or loss of steppe vegetation, and landscape from construction roads and excavations	31. Contact MET for advice on how to minimize damage to steppe vegetation during construction. 32. All areas to be re-vegetated and landscaped after construction completed according to laws on land protection (see chapter II). Consult MET to determine the most successful restoration strategy and techniques for Project sites.	MET/TGC/SS	Contractor E&S	Completed
Land erosion	33. Berms, and plastic sheet fencing should be placed around all excavations and earthwork areas. 34. Earthworks should be conducted during dry periods. 35. Maintain a stockpile of topsoil for immediate site restoration following backfilling. 36. Protect exposed or cut slopes with planted vegetation and have a slope stabilization protocol ready.	MET/TGC/SS	Contractor E&S	Completed

Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility		Status
		Supervision	Implementation	
	37. Re-vegetate all soil exposure areas immediately after work completed.			
Damage to physical cultural resources	38. TGC to review potential locations of physical cultural resources, and explain possible PCR to contractors 39. As per Law on Protection of Cultural Heritage (see chapter II), all civil works should be located away from all cultural property and values. 40. Chance finds of valued relics and cultural values should be anticipated by contractors. Site supervisors should be on the watch for finds. 41. Upon a chance find all work stops immediately, find left untouched, and TGC notified to determine if find is valuable. Culture section of MET notified by telephone if valuable. 42. Work at find site will remain stopped until MET allows work to continue.	Institute of Archaeology of the Mongolian Academy of Sciences	TGC/contractor	Completed
No negative environmental impact	43. Ensure EPC contracts include implementation of HSE management plan and EMS. 44. Contractors to comply with all statutory requirements set out by GoM or *soum* for use of construction equipment, and operation construction plants such as concrete batching.	ADB/TGC	TGC	Completed
Pollution and social problems, e.g., STDs, disputes, fights, robberies	45. Use local workers as much as possible thereby reducing number of migrant workers. Locate worker camps away from human settlements. 46. Ensure adequate housing and waste disposal facilities including pit latrines and garbage cans. 47. A solid waste collection program must be established and implemented that maintains a clean worker camp 48. Locate separate pit latrines for male and female workers away from worker living and eating areas. 49. A clean-out or infill schedule for pit latrines must be established and implemented to ensure working latrines are available at all times. 50. Worker camps must have adequate drainage. 51. Local food should be provided to worker camps. Guns and weapons not allowed in camps. 52. Transient workers should not be allowed to interact with the local community. HIV Aids education should be given to workers. 53. Camp areas must be restored to original condition after construction completed.	TGC/SS	contractor	Completed

Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility		Status
		Supervision	Implementation	
Prevent of impacts through education	54. Implement training and awareness plan for TGC/SS and contractor E&S.	TGC/SS	SS	Completed
Pollution, injury, increased construction traffic congestion	55. Define and schedule how fabricated materials such as steel, wood structures, and scaffolding will be transported and handled. 56. All aggregate loads on trucks should be covered. 57. Piles of aggregates at sites should be used/or removed promptly or covered. Stored aggregates well away from all human activity and settlements, and cultural, and ecological receptors. Concrete batch plants & handling areas should be isolated from herder community.	TGC/SS	Contractor E&S	Completed
Public and worker injury, and health	58. Proper fencing, protective barriers, and buffer zones should be provided around all construction sites 59. Sufficient signage and information disclosure, and site supervisors and night guards should be placed at all sites. 60. Worker and public safety guidelines of GoM should be followed. 61. Speed limits suitable for the size and type of construction vehicles, and current traffic patterns should be developed, posted, and enforced on all roads used by construction vehicles. 62. Worker education and awareness seminars for construction hazards should be given at beginning of construction phase, and at ideal frequency of monthly. A construction site safety program should be developed and distributed to workers. 63. Appropriate safety clothing and footwear should be mandatory for all construction workers. 64. Adequate medical services must be on site or nearby all construction sites. 65. Drinking water must be provided at all construction sites. 66. Sufficient lighting be used during necessary night work. 67. All construction sites should be examined daily to ensure unsafe conditions are removed. 68. Inform herder community of location of construction traffic areas, and provide them with directions on how to best co-exist with construction vehicles on their roads. 69. Initiate Information Disclosure and Grievance Mechanism	TGC/SS	Contractor E&S	Completed
Loss of drainage & flood storage	70. Provide adequate short-term drainage away from construction sites to prevent ponding and flooding. 71. Ensure connections of salt ponds are maintained or enhanced to sustain existing flow and storage capacity.	TGC/SS	Contractor E&S	Completed
Equipment	72. Install appropriate types of fire extinguishers at all sites where fires	TGC/SS	Contractor	Completed

Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility		Status
		Supervision	Implementation	
damage and worker injury from accidental fires	could occur		E&S	
Operation				
No negative environmental and social impacts	73. Operation of facilities according to ESMP & established SOPs (Sharp's template HSE and EMS that will be tailored to and adopted by TGC)	TGC consortium, and assigned facility managers		Ongoing
Un-resolved potential future social or environmental impacts of operation of Project	74. Openness of Project to community continued with information disclosure and consultation when needed. GRM established for Project continued and maintained effective.	TGC consortium, and assigned facility managers		Ongoing
Risk of vehicle accidents Air & land pollution	75. Ensure enforced well marked safe speed limits along permanent solar power plant and transmission line access roads are in place. 76. All vehicles that use the roads should be required to be in good working condition	Tuv Roads Dept.		Ongoing
Waste management of facilities	77. Process and domestic solid and liquid management and disposal procedures established for construction phase should be continued with approved contracted waste collector/disposal entity to transport all waste to *soum*-approved disposal site(s). Septic tanks must be regularly pumped and septage disposed in *soum*-approved sites by an accredited septage hauler.	TGC - assigned facility managers		Ongoing

Potential Environmental Impacts	Proposed Mitigation Measures	Responsibility		Status
		Supervision	Implementation	
Fire prevention and alarm system	78. Fire alarm systems for electrical and other sources of fire must be installed and regularly maintained including sufficient appropriate fire extinguisher systems.	TGC - assigned plant management		Completed
Equipment failure and maintenanc e needs	79. Regular maintenance and inspections of all equipment and technology	TGC consortium, and assigned facility managers		Completed
Risk of worker and public injury	80. Implement updated worker safety and public safety plans including ensuring adequate fencing surrounds entire solar power plant. Intrusion surveillance and alarms should be installed on PV solar power plant property.			Completed
Storm water gully erosion in the western boundary of the solar PV plant site	81. Monitor rainfed water run-off and erosion in the dried gully during project operation for necessary structural measures, such as building armor stone wall, whenever needed.	TGC consortium, and assigned facility managers		Completed

III. ENVIRONMENTAL AND SOCIAL MONITORING

A. RESPONSIBILITIES IN MONITORING OF ENVIRONMENTAL AND SOCIAL SAFEGUARDS

22. TGC has own staff for implement the environmental monitoring. The staff (environmental officer and HSE officer) will be responsible for any sampling and laboratory analyses of environmental parameters.

B. KEY ENVIRONMENTAL QUALITY STANDARDS

23. Relevant environmental quality standards and criteria for Mongolia was monitored during the construction and will be continuously monitored during the operation phases (Table 4). The environmental standards provided by the Environmental, Health and Safety Guidelines of the IFC/World Bank (2007) should also be consulted to supplement GOM standards, if required.

Table 4 Environmental and Social Monitoring Plan

Environmental Indicators	Location	Means of Monitoring	Frequency	Reporting	Responsibility	
					Supervision	Implementation
Construction						
A. Air quality: dust (PM10, 2.5), noise, and vibration levels B. Salt pond quality: TSS, $CaCO_4$, pH, DO, NH_3, , Fe, Pb. C. Compl aints or issues logged by herders or other public D. Herder s knowledgeable of construction phase of transmission line E. Dome stic (worker) and construction solid waste inside & outside construction sites including	A), & B): Baseline sites of pre-construction phase, & other sites if deemed necessary. C): At all construction sites and *soum* centre office D)All herder families consulted as part of IESE E) & F): At all construction sites, worker camps	A) & B): MNS 0017-2-3-16, 1998 MNS OIML R 102:2001 MNS 4047:1988. Include observations of dust and noise. C): Verbal information transferred by telephone or hotline at construction sites D): Visual observation E): regular reporting by contractors/TGC	(A & B): Quarterly during construction periods including daily visual records C) -E): Throughout construction phase	Monthly Monthly	TGC/SS TGC/SS	A) & B): Monitoring firm SS

Environmental Indicators	Location	Means of Monitoring	Frequency	Reporting	Responsibility	
					Supervision	Implementation
worker camps. F. Incidence of worker or public accident or injury						
Operation						
Incidence of traffic accidents, & herder and public injury	On all permanent access roads to the Project facilities	Community and police reporting	Continuous	Monthly	Police and *Soum* governor	
Incidence of contaminant spills & soil contamination	Solar power plant and at transmission towers	Visual	Continuous		TGC facilities management	
Herder access to alignment of transmission line	Along transmission line	Visual	Continuous		Herder community	
Incidence of worker injury or accidents	Inside PV solar plant and at transmission line	Regular documenting & reporting	Continuous		TGC management	
Groundwater consumption	From domestic well if used during operational phase	Metered at well head	Monthly readings		TGC facilities management	
Incidence of dead birds below power lines and bird nests on transmission towers	Along 13.5 km transmission line	Visual	Monthly			
Erosion	Storm water gully in the western boundary of the solar PV plant site	Visual	Continuous			

C. ENVIRONMENTAL AND SOCIAL MONITORING DATA

24. Results of environmental monitoring are as follows:

Table 5. Environmental monitoring data

		Location	Monitoring Period	Results	Standard	
Air Quality	Dust	Planned in June, 2019			MNS 4585: 2007	
	NO_2 (mg/m^3) 24-hr					0.04
	CO (mg/m^3) 24-hr					0.02
Noise		Planned in June, 2019			MNS 4585:2007	07:00-23:00 60 dB(A) 23:00-07:00 45 Db(A)
Water Quality	TSS	**Appendix 5** – Water quality analyses			MNS 0900-2005	

25. During the construction period construction wastes, including hazardous materials and spoils, and wastewater were disposed in accordance with the ESMP measures and with the requirements of the MET and the soum. No incidents or accidents were recorded.

26. During construction and operation phases, herders continue to have access to the pastureland and were informed of any Project activities that may cause disruption. No incidents or accidents and complaints were recorded.

27. Monitoring of labor and working conditions indicated that workers of the EPC contractors were engaged following the applicable laws on labor and employment in Mongolia. TGC hired a total of 13 permanent and contractual employees to operate the solar powerplant, including one female full-time staff as Administration officer and Accountant. These employees were engaged following the applicable laws on labor and employment in Mongolia. During construction and operation, TGC and the EPC contractors ensured all employees and workers conduct activities following occupational health and safety standards. TGC hired two female summer interns to work as assistants and working on part time basis without monetary allowance.

28. TGC hired a female engineer who worked on site for two months. However, she resigned due to long hours of daily commute from the solar power plant site to her residence in Ulaanbaatar. On site dormitories with separate facilities for male and female staff are available, but personal reasons and family obligations are key factors for the female employee's choice to live off-site and to eventually chose employment near her family residence. Lessons learned from this experience will be considered in TGC's future recruitment of female employees such as considering willingness and commitment to work outside Ulaanbaatar.

IV. ISSUES AND CORRECTIVE ACTIONS

27. The following environmental and social safeguard issues and corresponding corrective actions were identified during the reporting period:

Table 6. Issues and Corrective Actions

Issue	Corrective Action	Status and Timeline
1. No HSE management plan yet	Coordination with Sharp to development and finalize the HSE management plan	HSE Management plan finalized and implemented by June 2019.
2. The Institute of Archeology of the Mongolian Academy of Sciences discovered five tombs along the transmission line on 8th April 2019. The Institute issued a letter to TGC (**Appendix 6**) indicating the results of initial survey conducted, highlighting there will be no negative impacts and acknowledging TGC's cooperation in accordance with applicable laws and regulations of Mongolia	The Institute will conduct follow up excavation and research surveys to protect these ancient burial sites and tombs. The Institute of Archeology says (point 1 of Appendix.6, Giving the Clarification letter) that the Rescue and digging survey work will not make a negative impact on power transmission line, its poles or columns and normal operation of solar Power Plant and that Tomb No.2 (The Monument-02) is situated between 2 poles of air transmission line, in 225m and 98m in both direction, means the survey work will not make a negative impact on poles, as same as on air line of transmission. The other Monuments-04, 05, 06, 07 are situated 4 meters to 21 meters away from the transmission line, so the rescue or digging survey will not negatively impact the transmission line, poles and the operation of the solar power plant	The follow-up surveys are planned for the 3rd quarter of 2020 at the request of TGC. The updated status will be included in the 2nd E&S monitoring report. Please see Appendix.6

V. PUBLIC CONSULTATION, INFORMATION DISCLOSURE AND GRIEVANCE REDRESS MECHANISM

28. A Project-specific grievance redress mechanism (GRM) has been established for the Project to receive, evaluate, and facilitate the resolution of local resident's concerns, complaints, and grievances about the social and environmental performance at the level of the project.

29. Grievances may be lodged through the contractors, solar power plant site and TGC office in Ulaanbaatar. TGC designated an officer to ensure the conduct of consultation and information disclosure to stakeholders and to manage feedbacks, including complaints. TGC's GRM is presented in

30.

31.

32. ***Figure 3***.

33. The GRM was introduced during community consultations and will be publicly available to stakeholders throughout the project. In the event of a grievance issue, up to three stages will be implemented, as follows:

- Stage 1 (maximum 7 days): If a concern arises the affected person may raise the issue with the contractor or TGC. All stakeholders including local residents, contractors and TGC staff will be aware of the GRM and will be requested to immediately report any incidents to TGC. If the issue is resolved directly between the affected person and contractor the solar power plant management, no follow-up is required. But the log/record shall be recorded by TGC.

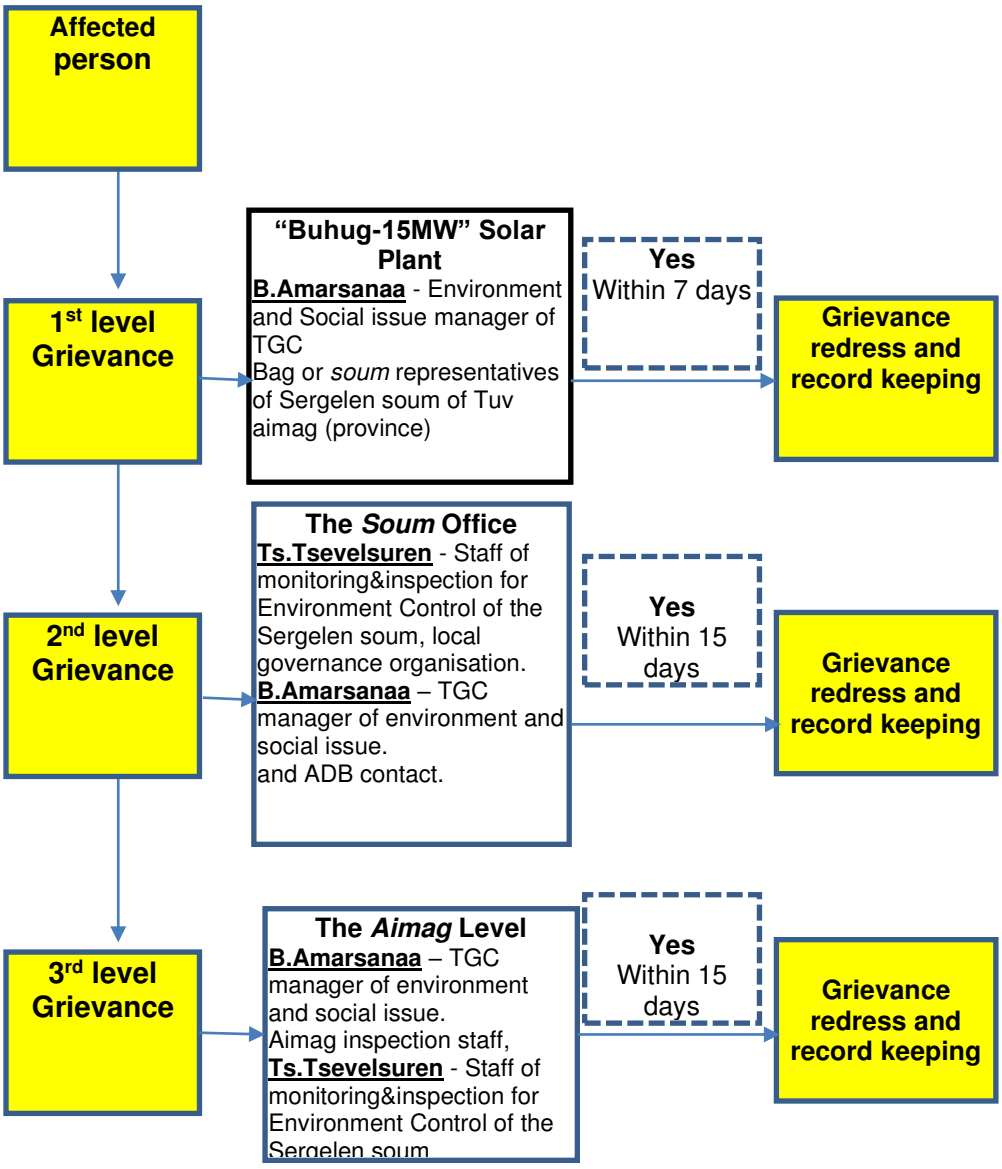
- Stage 2 (maximum 15 days): If the issue is not resolved, the affected person can submit an oral or written complaint to the *bag* or *soum* officials. The *soum* and TGC will reply within two weeks and keep a written record of the whole process.

- Stage 3 (maximum 15 days): If the issue is still not resolved, TGC will, if agreed by the affected person, arrange a meeting with the *soum* officials and relevant community representatives to identify a solution. If the issue still cannot be resolved it will be referred to the relevant higher-level authorities including the specialized inspection agency in the *aimag*. The project owner may report the process to ADB at any of Stages 1–3 but will do so immediately if Stage 3 is reached.

34. Following the GRM, TGC Staff will record all grievances received, including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions and the date actions were affected, and the final outcome. There were no concerns or complaints received during the reporting period.

35. During the reporting period, TGC LLC met with about 60 people from 4 bags of Sergelen soum, making a presentation on project activities and reporting to local residents and receiving feedback from citizens.

Figure 3. Grievance Redress Mechanism at TGC



VI. INSTITUTIONAL STRENGTHENING AND TRAINING

36. No training and capacity strengthening activities were conducted yet during the reporting period.

VII. CONCLUSION

A. OVERALL PROGRESS OF IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT MEASURES

37. The project construction was completed during the reporting period. Measures in the ESMP during construction period were implemented to the extent possible. There are no recorded incidents, accidents or grievances. The project construction followed applicable national and local laws and regulations. No fines or citations for violations were issued against the project during the construction period.

38. Project operation commenced in June 2018. Potential environmental and social risks and impacts will be mitigated through the implementation of the SOPs, HSE management plan and EMS. In compliance with Mongolian regulation, TGC will implement the MET-approved EMP.

B. ISSUES IDENTIFIED, AND CORRECTIVE ACTIONS RECOMMENDED

39. The EMP implementation schedule of 2019 was approved by the company and it will be followed. These include:

1. Rehabilitation Plan
   1.1 Establishing forest strip
   1.2 Biological rehabilitation
2. Chemical Risk Management
3. Waste management
4. Resettlement compensation measures
5. A plan for reporting to residents and stakeholders
6. Mitigation measures

38. The Institute of Archeology's Clarification Letter (Appendix 6) confirmed TGC's cooperation with the institute in accordance with the applicable laws and regulations of Mongolia and the follow-up surveys will not affect the transmission line and solar power plant operations. TGC and Institute of Archeology of the Mongolian Academy of Sciences initially agreed to conduct the follow up survey for the ancient tombs and burial sites found along the transmission line alignment by the 3rd quarter of 2020. The detailed plan including timeline and costs will be discussed and agreed before starting the follow up survey. The status of the discussion/agreements and details of the follow up survey plan will be reported to ADB.

The Institute of Archeology says (see in point 1 of Appendix.6, Giving the Clarification letter) that the Rescue and digging survey work will not make a negative impact on Power transmission line, its poles or columns and normal operation of solar Power Plant. And approved it in point 2, saying that The Tomb No.2 (The Monument-02) is situated between 2 poles of air transmission line, in 225m and 98m in both direction, means the survey work will not make a negative impact on poles, as same as on air line of transmission.

The other Monuments-04, 05, 06, 07 are situated little far from air transmission line, so theirs' rescue or digging survey will not negatively impact too. (please see Appendix.6)

Appendix 1 – Summary reports from contractors during the construction period

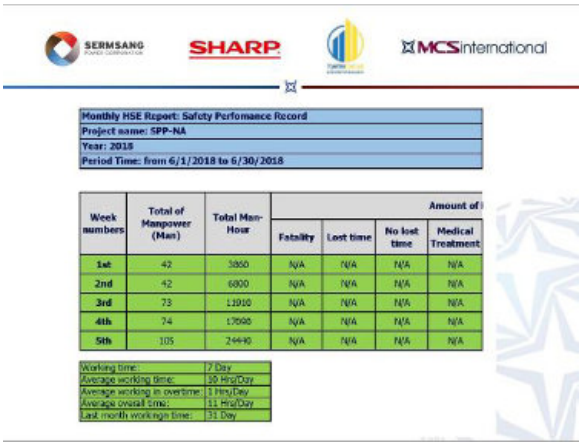
1. June Monthly Report

"Khushig Khundii" 15Mw Solar Power Plant Project (SPP-NA)

Monthly HSE Report for June

Monthly HSE Report: Safety Perfomance Record
Project name: SPP-NA
Year: 2018
Period Time: from 6/1/2018 to 6/30/2018

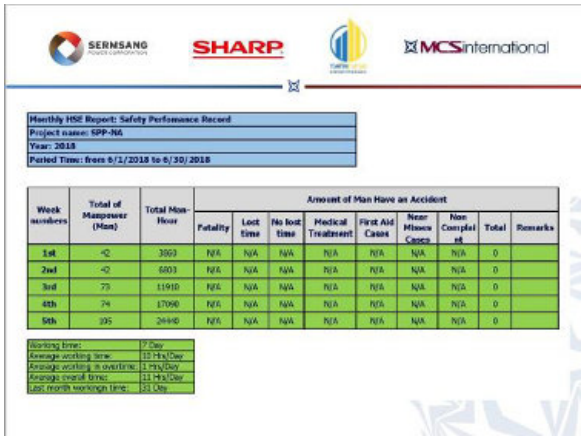
Man Description	Week 1 6.1-6.2	Week 2 6.3-6.9	Week 3 6.10-6.16	Week 4 6.17-6.23	Week 5 6.24-6.30	Remark
Manager	3	3	4	4	3	
Engineer	6	6	8	8	15	
Officer	3	3	5	5	6	
Worker	23	23	48	50	74	
Security staff	7	7	7	7	7	
Other						
Man Total	42	42	73	74	105	
Man Hours per week	20	70	70	70	70	
Man Hours Total per Week	840	2940	5110	5180	7350	
Man Hours Previous Month Total			3320			
MAN Hours Accumulated	3860	6800	11910	17090	24440	



Monthly HSE Report: Safety Perfomance Record
Project name: SPP-NA
Year: 2018
Period Time: from 6/1/2018 to 6/30/2018

Week numbers	Total of Manpower (Man)	Total Man-Hour	Amount of I			
			Fatality	Lost time	No lost time	Medical Treatment
1st	42	3860	N/A	N/A	N/A	N/A
2nd	42	6800	N/A	N/A	N/A	N/A
3rd	73	11910	N/A	N/A	N/A	N/A
4th	74	17090	N/A	N/A	N/A	N/A
5th	105	24440	N/A	N/A	N/A	N/A

Working time:	7 Day
Average working time:	10 Hrs/Day
Average working in overtime:	1 Hrs/Day
Average overall time:	11 Hrs/Day
Last month workings time:	31 Day



Monthly HSE Report: Safety Perfomance Record
Project name: SPP-NA
Year: 2018
Period Time: from 6/1/2018 to 6/30/2018

Week numbers	Total of Manpower (Man)	Total Man-Hour	Amount of Man Have an Accident								
			Fatality	Lost time	No lost time	Medical Treatment	First Aid Cases	Near Misses Cases	Non Compliant	Total	Remarks
1st	42	3860	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
2nd	42	6800	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
3rd	73	11910	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
4th	74	17090	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
5th	105	24440	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	

Working time:	7 Day
Average working time:	10 Hrs/Day
Average working in overtime:	1 Hrs/Day
Average overall time:	11 Hrs/Day
Last month workings time:	31 Day

Monthly HSE Report: Safety Perfomance Record
Project name: SPP-NA
Year: 2018
Period Time: from 6/1/2018 to 6/30/2018

Safety Induction and Training				
No:	Company name	Person numbers	Trained	Untrained
1	MCSI	5	3	N/A
2	Topology	48	14	N/A
3	Bilren Uuls	22	10	N/A
4	Desugen	4	4	N/A

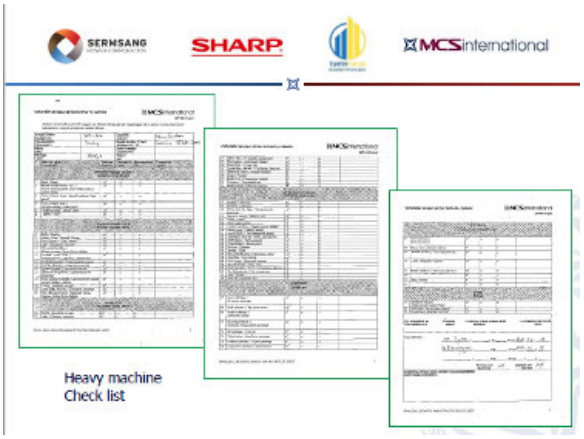
Monthly HSE Report: Safety Perfomance Record
Project name: SPP-NA
Year: 2018
Period Time: from 6/1/2018 to 6/30/2018

Equipment Tool and Machine Inspection

Equipment and Tool Inspection			
No:	Names	Total	Remark
1	Power Plug	15	
2	Welder	4	
3	Drill machine	3	
4	Steel bar cutting machine	2	
5	Grinder	7	
6	Diesel generator	3	
7	Electrical generator	5	
8	Concrete vibrator	7	
9	Air compressor	2	
10	Jigsaw cutting machine	3	
11	Hand saw	5	
12	Battery drill	15	

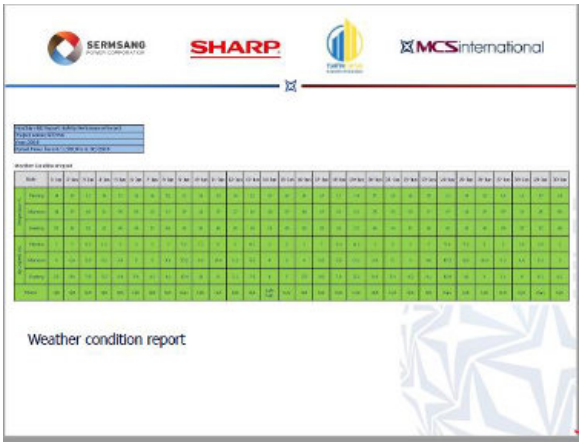
Heavy Machine Insion			
No:	Names	Total	Remark
1	Pickup	3	
2	Trench corepactor	3	
3	Hand Operated Mini Road Roller Compactor	2	
4	Camraer	2	
5	UAV	2	
6	Fuel Oil Delivery Truck	3	
7	Truck Mounted Crane	3	
8	Truck	7	
9	Piling machine	4	


SERMSANG
SHARP
MCSinternational
Machine inspection


SERMSANG
SHARP
MCSinternational
Heavy machine
Check list


SERMSANG
SHARP
MCSinternational
Driver's Insurance


SERMSANG
SHARP
MCSinternational
Equipment & tools
inspection


SERMSANG
SHARP
MCSinternational
Weather condition report


SERMSANG
SHARP
MCSinternational
HSE prestart


SERMSANG
SHARP
MCSinternational
Morning exercise


SERMSANG
SHARP
MCSinternational
Safety Patrol
Workplace and PPE


SERMSANG
SHARP
MCSinternational
Safety Patrol
Workplace and PPE

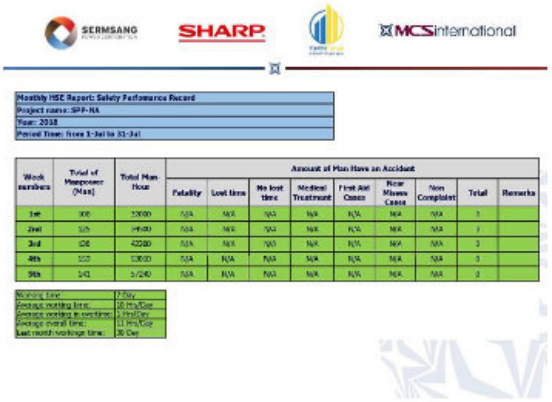
2. July Monthly Report

"Khushig Khundii" 15Mw Solar Power Plant Project (SPP-NA)

HSE Monthly Report for July

Monthly HSE Report: Safety Performance Record
Project name: SPP-NA
Year: 2018
Period Time: from 1-Jul to 31-Jul

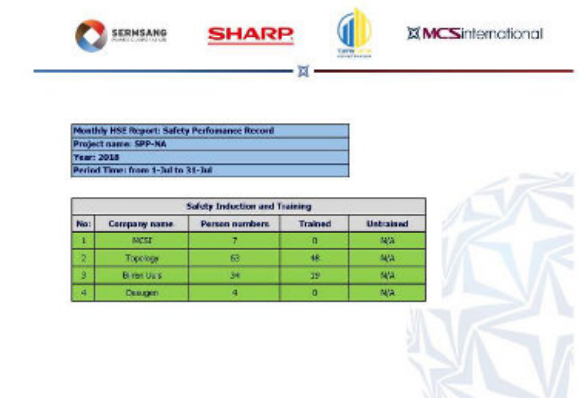
Man Description	Week 1 7.01-7.07	Week 2 7.08-7.09	Week 3 7.16-7.21	Week 4 7.22-7.28	Week 5 7.29-7.31	Remark
Manager	5	5	5	5	5	
Engineer	11	10	11	14	12	
Officer	6	6	6	7	6	
Worker	81	98	102	121	113	
Security staff	7	7	7	7	7	
Other						
Man Total	108	126	130	153	141	
Man Hours per week	70	20	60	70	30	
Man Hours Total per Week	7560	2500	7800	10710	4230	
Man Hours Previous Month Total	24440					
MAN Hours Accumulated	32000	34500	42300	53110	57240	



Monthly HSE Report: Safety Performance Record
Project name: SPP-NA
Year: 2018
Period Time: from 1-Jul to 31-Jul

Week numbers	Total of Manpower (Man)	Total Man Hour	Amount of Man Have an Accident								
			Fatality	Lost time	No lost time	Medical Treatment	First Aid Cases	Near Misses Cases	Non Complaint	Total	Remarks
1st	100	32000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
2nd	125	34500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
3rd	150	42300	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
4th	153	53130	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
5th	141	57240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	

Working time:	7 Hr/Day
Average working time:	10 Hr/Day
Average working in overtime:	3 Hr/Day
Average overall time:	11 Hr/Day
Last record workings time:	30 Day



Monthly HSE Report: Safety Performance Record
Project name: SPP-NA
Year: 2018
Period Time: from 1-Jul to 31-Jul

Safety Induction and Training				
No:	Company name	Person numbers	Trained	Untrained
1	MCSI	7	0	N/A
2	Topology	63	48	N/A
3	Bi-tet Co.'s	34	29	N/A
4	Dauguin	4	0	N/A

Monthly HSE Report: Safety Performance Record
Project name: SPP-NA
Year: 2018
Period Time: from 1-Jul to 31-Jul

Equipment Tool and Machine Inspection

Equipment and Tool Inspection

No:	Names	Total	Remark
1	Power Plug	15	
2	Welder	4	
3	Drill machine	1	
4	Ball bar cutting machine	1	
5	Grinder	2	
6	Diesel generator	1	
7	Electrical generator	5	maintenance-1
8	Concrete vibrator	2	
9	Air compressor	1	
10	Hydraulic cutting machine	1	
11	Hand saw	5	
12	Rebarer drill	15	

Heavy Machine Inspection

No	Names	Total	Remark
1	Pick-up	3	
2	Trench compactor	2	
3	Hand Operated Mini Road Roller Compactor	2	
4	Carriver	2	
5	JCB	2	
6	Fuel Oil Delivery Truck	2	maintenance
7	Truck Mounted Crane	3	maintenance-1
8	Truck	2	
9	Piling machine	4	
10	Tip Truck	3	
11	Excavator	2	

Weather condition report

Morning exercise

HSE prestart

New Employee Orientation and Induction

Daily Meeting with Sharp & Subcontractors

Safety Posters Installation

Main Cleaning

To support the free time for workers, made a basketball board

Safety Patrol

Safety Patrol

Be careful walking between PVs
Sharp edges!!!

Safety Patrol

Workplace and PPE

Safety Patrol

Workplace and PPE

Safety Patrol

Workplace and PPE

Safety Patrol

Drinking water warning

Safety Patrol

Rainy day

SERMSANG SHARP MCSInternational

Safety Patrol

SPP tidiness

SERMSANG SHARP MCSInternational

Safety Patrol

SERMSANG SHARP MCSInternational

Safety Patrol

Transportation

SERMSANG SHARP MCSInternational

Safety Patrol

SERMSANG SHARP MCSInternational

Equipment Inspection
(no spill & damage)

SERMSANG SHARP MCSInternational

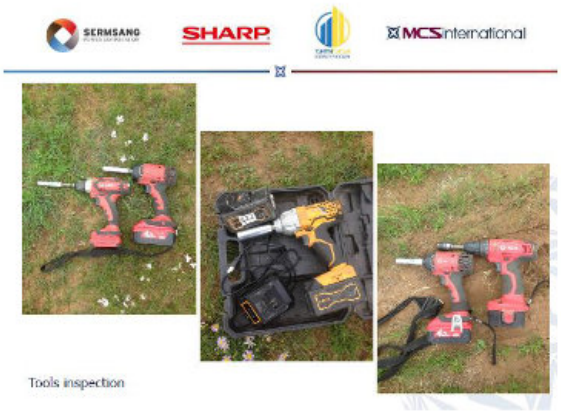
Small spill
Needs repair

Equipment & tools inspection
(no spill & damage)


Site area
Oil spill
Repair done


Site area
Oil spill
Repair done

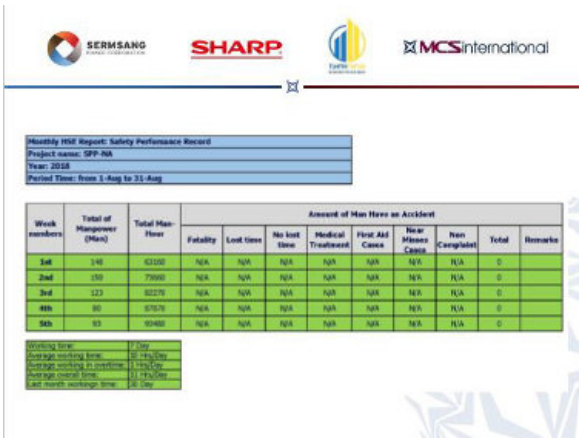

Machine inspection
Fuel Truck Containment

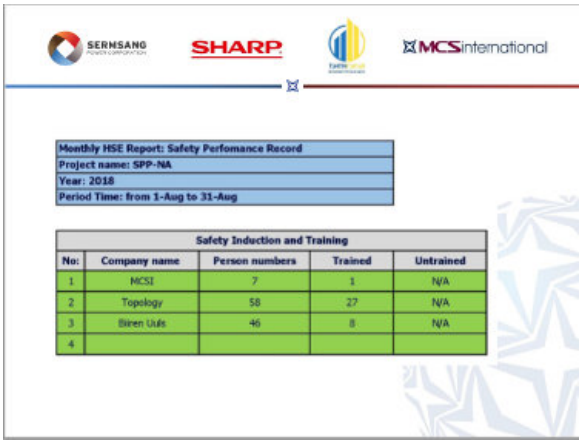

Tools inspection

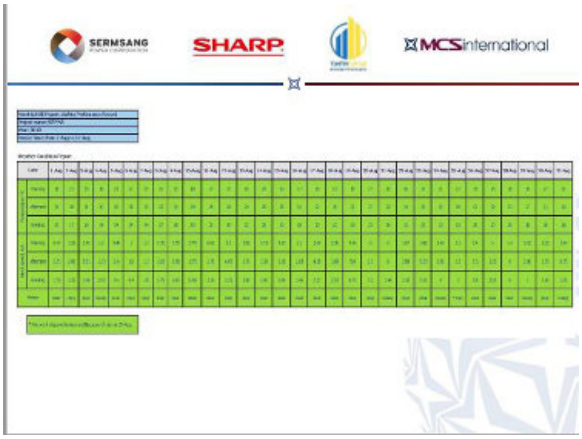

Ladder inspection
Tools inspection


Ladder inspection
Tools inspection

3. August Monthly Report








SERMSANG
SHARP
MCSinternational
HSE prestart


SERMSANG
SHARP
MCSinternational
HSE prestart


SERMSANG
SHARP
MCSinternational
New Employee Orientation and Induction


SERMSANG
SHARP
MCSinternational
Site Visit by Tenuugerel Construction, MCSI & Sharp


SERMSANG
SHARP
MCSinternational
Main Meeting with Subcontractors


SERMSANG
SHARP
MCSinternational
MCSI Project Team Meeting
Meeting with Sharp


SERMSANG
SHARP
MCSinternational
Lean Board Meeting


SERMSANG
SHARP
MCSinternational
Canteen inspection


SERMSANG
SHARP
MCSinternational
Canteen inspection


SERMSANG
SHARP
MCSinternational
Canteen inspection


SERMSANG
SHARP
MCSinternational
SAFETY PATROL FINDINGS 1ST AUGUST
Canteen inspection


SERMSANG
SHARP
MCSinternational
MCSI office installation


SERMSANG
SHARP
MCSinternational
Safety Posters Installation


SERMSANG
SHARP
MCSinternational
Safety Signs, Reflective tape and Grounding Installation


SERMSANG
SHARP
MCSinternational
Site Cleaning


SERMSANG
SHARP
MCSinternational
Temporary Toilet Disinfections


SERMSANG
SHARP
MCSinternational
Safety Patrol
Not safe scaffold
Instructed how to use it


SERMSANG
SHARP
MCSinternational
Safety Patrol
Workplace and PPE

Safety Patrol

Workplace and PPE

Safety Patrol

Workplace and PPE

Safety Patrol

Workplace and PPE

Safety Patrol

Wind speed checking
before pumping work

Safety Patrol

Bended working
platforms

Done

Need Rebuild again

Safety Patrol

The Nail Hazard

Safety Patrol

Office Tidiness

Done

Safety Patrol

Scheduled Trash and Waste water removal from site/camp

Safety Patrol

Oil change service

Equipment Inspection

Rear roller damage fixing

Equipment Inspection

Spill stopped

Equipment Inspection

Inspected Jackhammer, Need add oil


SERMSANG
SHARP
MCSinternational
Machine inspection
Concrete Pump Inspection
Passed


SERMSANG
SHARP
MCSinternational
Machine inspection
Dump Truck Inspection
Passed


SERMSANG
SHARP
MCSinternational
Machine inspection
Need remove oil stains and inspect spill reason
Removed oil stains


SERMSANG
SHARP
MCSinternational
Machine inspection
Passed
Ground Hole Drill Truck


SERMSANG
SHARP
MCSinternational
Machine inspection
Passed
Mixer Truck Inspection

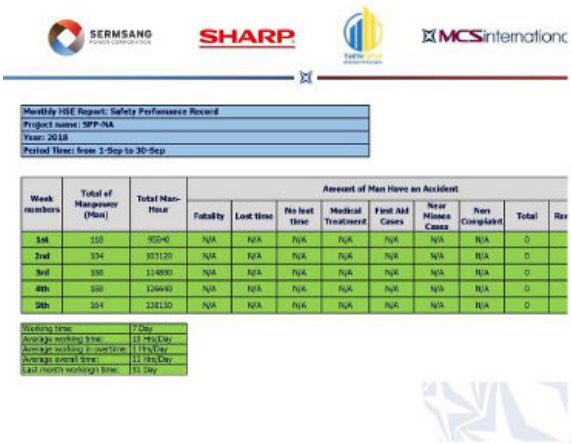
4. September Monthly Report

"Khushig Khundii" 15Mw Solar Power Plant Project (SPP-NA)

HSE Monthly Report for September

Monthly HSE Report: Safety Perfomance Record
Project name: SPP-NA
Year: 2018
Period Time: from 1-Sep to 30-Sep

Man Description	Week 1 9.01-9.02	Week 2 9.03-9.9	Week 3 9.10-9.16	Week 4 9.17-9.23	Week 5 9.24-9.30	Remark
Manager	3	3	3	3	3	
Engineer	12	14	15	15	16	
Officer	9	10	11	11	10	
Worker	87	70	132	132	128	
Security staff	7	7	7	7	7	
Other						
Man Total	118	104	168	168	164	
Man Hours per week	20	70	70	70	70	
Man Hours Total per Week	2360	7280	11760	11760	11480	
Man Hours Previous Month Total	93400					
MAN Hours Accumulated	95840	103120	114880	126640	138150	



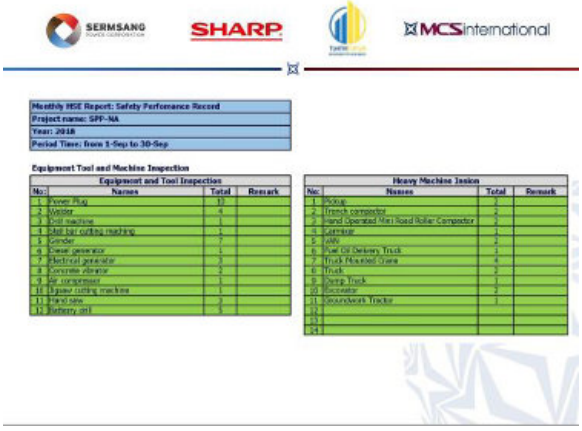
Monthly HSE Report: Safety Perfomance Record
Project name: SPP-NA
Year: 2018
Period Time: from 1-Sep to 30-Sep

Week numbers	Total of Manpower (Man)	Total Man-Hour	Amount of Man Have an Accident								
			Fatality	Lost time	No lost time	Medical Treatment	First Aid Cases	Near Misses Cases	Non Complaint	Total	Re
1st	118	95840	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
2nd	104	103120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
3rd	168	114880	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
4th	168	126640	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
5th	164	138150	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	

Working time:	7 Day
Average working time:	10 Hrs/Day
Average working in overtime:	1 Hrs/Day
Average overall time:	11 Hrs/Day
Last month workingn time:	31 Day

Monthly HSE Report: Safety Perfomance Record
Project name: SPP-NA
Year: 2018
Period Time: from 1-Sep to 30-Sep

Safety Induction and Training				
No:	Company name	Person numbers	Trained	Untrained
1	MCSI	20	2	N/A
2	Topology	82	37	N/A
3	Biren Uula	64	25	N/A
4	EnergyTech Progress	52	52	N/A
5	RichWell Engineering	20	20	N/A
6	Erchim Suljee	13	13	N/A
7				

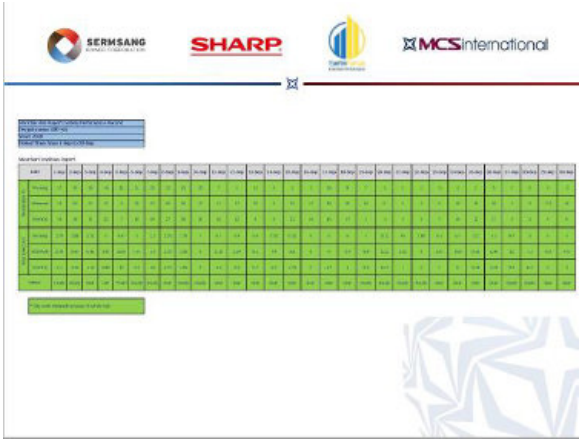


Monthly HSE Report: Safety Perfomance Record
Project name: SPP-NA
Year: 2018
Period Time: from 1-Sep to 30-Sep

Equipment Tool and Machine Inspection

Equipment and Tool Inspection			
No:	Names	Total	Remark
1	Power Plug	12	
2	Welder	4	
3	Drill machine	1	
4	Metal bar cutting machine	1	
5	Grinder	7	
6	Diesel generator	1	
7	Electrical generator	2	
8	Concrete vibrator	2	
9	Air compressor	1	
10	Bjaaw cutting machine	1	
11	Hand saw	2	
12	Battery drill	5	

Heavy Machine Jasion			
No:	Nisues	Total	Remark
1	Bobcat	2	
2	Trench compactor	2	
3	Hand Operated Mini Road Roller Compactor	2	
4	Carriage	1	
5	AWD	2	
6	Fuel Oil Delivery Truck	1	
7	Truck Mounted Crane	4	
8	Truck	1	
9	Dump Truck	1	
10	Excavator	2	
11	Groundwork Tractor	1	
12			
13			
14			




SERMSANG
SHARP
MCSinternational
HSE Prestart & Safety Share


SERMSANG
SHARP
MCSinternational
New Employee
Orientation &
Induction


SERMSANG
SHARP
MCSinternational
Project Team Weekly Meeting
(Sharp, TenuunGerel Construction, MCSI)


SERMSANG
SHARP
MCSinternational
Site visit by Vice-President for Finance and Risk Management of the
Asian Development Bank (ADB)


SERMSANG
SHARP
MCSinternational
EH 01
Visit by Energy Regulatory Commission
of Mongolia (Renewable Energy Inspector)


SERMSANG
SHARP
MCSinternational
Combiner Box
Training by
Watanabe, Sharp


SERMSANG
SHARP
MCSinternational
Installed Road Sign for Safe Driving


SERMSANG
SHARP
MCSinternational
Site Main Cleaning


SERMSANG
SHARP
MCSinternational
All E-House Installed safe


SERMSANG
SHARP
MCSinternational
Busbar installation is going safe at windy day


SERMSANG
SHARP
MCSinternational
Smoking area is not for refueling place!!
Informed to person who is in charge!


SERMSANG
SHARP
MCSinternational
New Company office installation


SERMSANG
SHARP
MCSinternational
Safety Patrol
Ventilations team tools checking
Inspected Grinder without protective guard & Removed from the Site


SERMSANG
SHARP
MCSinternational
Safety Patrol
Informed and Installed
No guard rail
Workplace and PPE


SERMSANG
SHARP
MCSinternational
Safety Patrol
DAILY OPERATION 02ND SEPTEMBER
Workplace and PPE
Started using Safe Scaffolds


SERMSANG
SHARP
MCSinternational
Safety Patrol
DAILY OPERATION 03RD SEPTEMBER
Workplace and PPE


SERMSANG
SHARP
MCSinternational
Safety Patrol
DAILY OPERATION 03RD SEPTEMBER
Done
Workplace and PPE


SERMSANG
SHARP
MCSinternational
Safety Patrol
Informed about safety glass and started using
No safety glass
Workplace and PPE

Safety Patrol

Removed Oil Stains

Safety Patrol

Good attitude
at work place

Safety Patrol

Installed Prohibition Signs

Safety Patrol

Be careful when
setting fire!!

Do not place firewood
and flammable items
close to stove!!

Safety Patrol

All Four Lightening Tower
Installed safe at Switch Yard

Equipment Inspection

Good Attitude
Welder Protective Clothing
& Generator condition

SERMSANG SHARP MCSinternational

Equipment Inspection

Stools and other items inspection

Passed

For office use only!!
Informed and removed from site

SERMSANG SHARP MCSinternational

Equipment Inspection

Tools and Equipment check

All passed

SERMSANG SHARP MCSinternational

Machine inspection

Passed

SERMSANG SHARP MCSinternational

Machine inspection

Passed

SERMSANG SHARP MCSinternational

Machine inspection

Passed

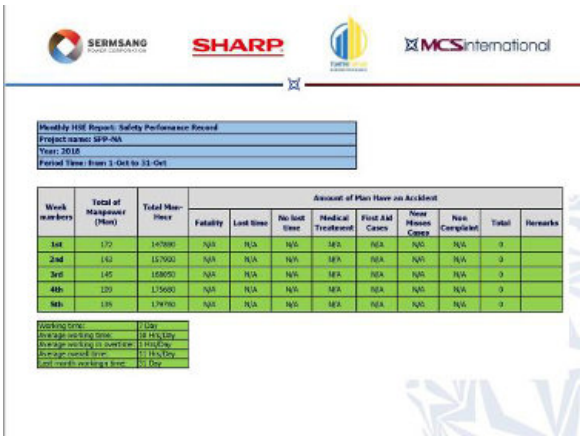
SERMSANG SHARP MCSinternational

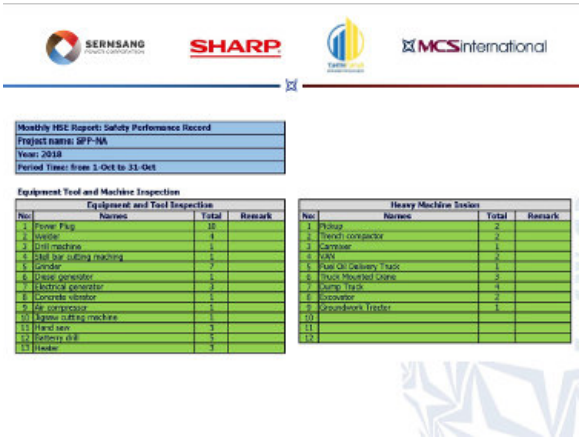
Machine inspection

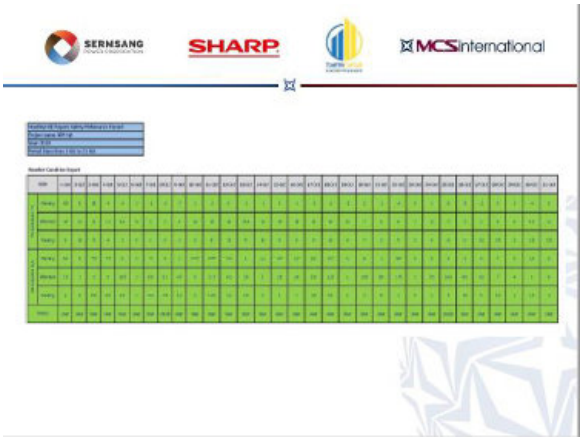
Groundwork tractor inspection

Passed

5. October Monthly Report








SERMSANG
SHARP
MCSinternational
HSE Prestart & Safety Share


SERMSANG
SHARP
MCSinternational
Monthly Campaign
Reward for Good Attitude
at OSHA
Your Reward For
Working Safely


SERMSANG
SHARP
MCSinternational


SERMSANG
SHARP
MCSinternational
Visit by delegates JCM (Joint Crediting Mechanism)
of Mongolia and Asia
Environment and Climate Found


SERMSANG
SHARP
MCSinternational
Site visit by delegates Ministry of Energy and
General Agency for Specialized Inspection, Mongolia


SERMSANG
SHARP
MCSinternational
Visit by Energy Regulatory Commission
of Mongolia

Site Scheduled Main Cleaning








After cleaning
site road watering

Cold stress: Checking weather condition in the Construction area

LOW TEMPERATURE + WIND SPEED + WETHESS = INJURIES & ILLNESS

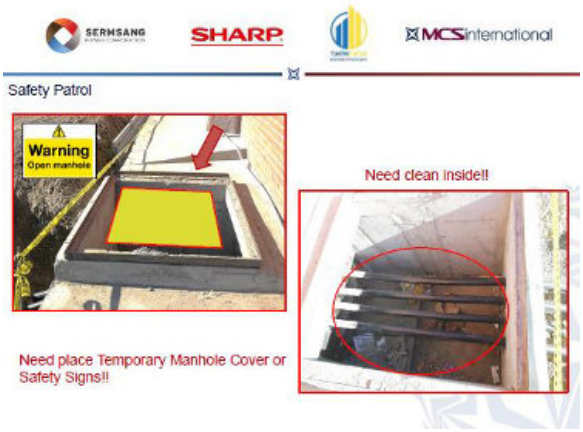

All Voltage and Current Transformer
transported at site safe


Caution: Trips and Falls

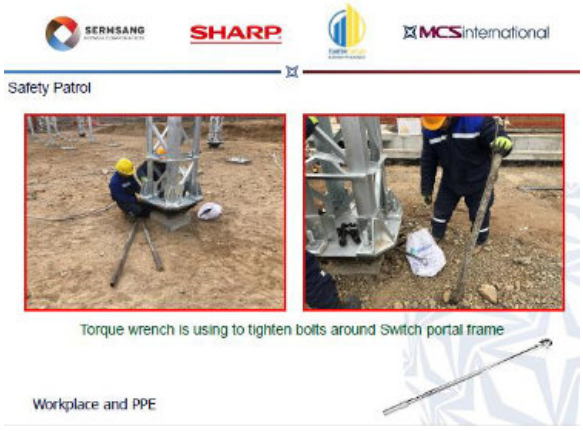
It is not right
way to transport
cables!!

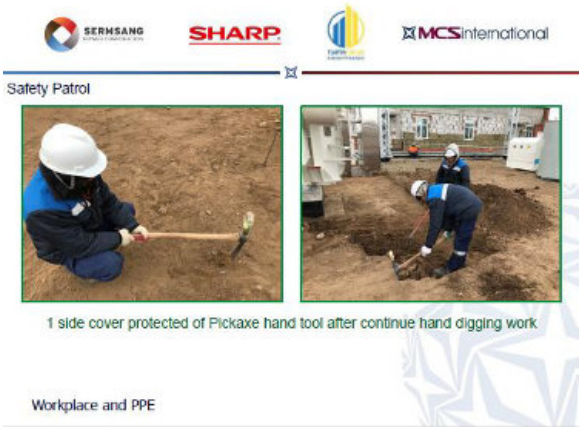
Use right
transportation!!


SERMSANG
SHARP
MCSInternational
Loader is not for passenger transportation!!


SERMSANG
SHARP
MCSInternational
Safety Patrol
Warning
Open manhole
Need clean inside!!
Need place Temporary Manhole Cover or
Safety Signs!!


SERMSANG
SHARP
MCSInternational
Safety Patrol
Used wrong scaffolding at masonry brick wall for Control building outside
Informed to use proper scaffolds
Workplace and PPE


SERMSANG
SHARP
MCSInternational
Safety Patrol
Torque wrench is using to tighten bolts around Switch portal frame
Workplace and PPE


SERMSANG
SHARP
MCSInternational
Safety Patrol
1 side cover protected of Pickaxe hand tool after continue hand digging work
Workplace and PPE


SERMSANG
SHARP
MCSInternational
Safety Patrol
Informed the provision
of fresh air to building
After using glue & paint thinner,
too much chemical smell!!!

SERMSANG SHARP MCSinternational

Safety Patrol

Installed warning tape for Ground System Under Test tubes

SERMSANG SHARP MCSinternational

Safety Patrol

Installed OSHA Safety Sign

Workplace and PPE

SERMSANG SHARP MCSinternational

Safety Patrol

Attention:
When lifting heavy loads, use two or more people to lift the load!

SERMSANG SHARP MCSinternational

Safety Patrol

Spotter at his workplace ☺

SERMSANG SHARP MCSinternational

Safety Patrol

Use standard work gloves

Using unsuitable gloves for site area

SERMSANG SHARP MCSinternational

Safety Patrol

Crane boom is having danger to touch this 380V power cable
(Electrical risk hazard)

Arrangement lift up power cable and cable tying in portal frame


SERMSANG
SHARP
MCSinternational
Equipment Inspection
Informed and placed protection
Unsafe grinders is using at working area


SERMSANG
SHARP
MCSinternational
Equipment Inspection
Informed and installed Safety Protection

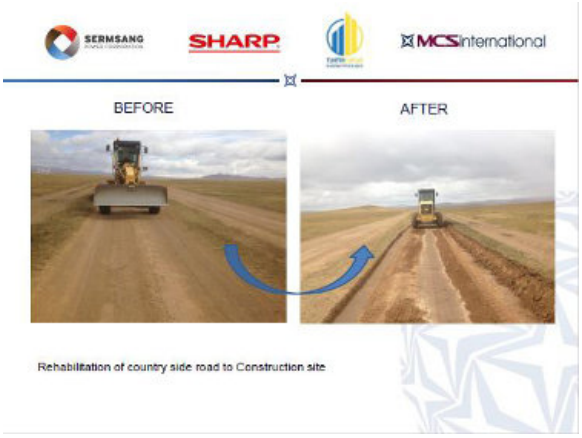

SERMSANG
SHARP
MCSinternational
Machine inspection
New Arrival
at Site
Passed


SERMSANG
SHARP
MCSinternational
Machine inspection
New Arrival
at Site
Passed


SERMSANG
SHARP
MCSinternational
Machine inspection
New Arrival
at Site
Passed


SERMSANG
SHARP
MCSinternational
Зохион байгуулагч: MCSI
Happy Family Day
Visited all company's family

6. Environment Rehabilitation Report



Appendix 2 – List of the solar power plants SOPs and other policies and procedures related to environmental, social, health and safety

A. Norm

1. Electric Facility Operational Safety Norm
2. Technical Operation Safety Norm
3. National Electric System Norm
4. Energy Sector Workers Main Norm
5. National Energy Facility Norm
6. Environmental Management Plan of TGC
7. IESE - Initial Environmental and Social Examination
8. EIA - Environmental Impact Assessment
9. ESMP - Environmental and Social Management Plan

B. Rule

1. The Rule of Buhug-15MW SPP of TGC
2. Dispatcher Shifting Rule of Buhug-15MW SPP
3. National Description for Profession and Labour
4. Emergency Response Rule of Buhug-15MW SPP
6. Rule of Inspection of Substation of Buhug-15MW SPP
7. Grievance Redress Mechanism of TGC
8. Primary Rule of Staffs at the Buhug-15MW SPP
9. Electric Failure Quick Response Rule of Energy System
10. The Rule of Central Grid Code
11. The Safety Rules of Following for Operating in Electrical Facilities
12. The Rules of Technical Usage for Power Equipment and Facilities
13. Instructions of Comparison for Operation in Buhug-15MW SPP
14. Basic rules for safety work on energy personnel

C. Standard

1. Standard for 110kV Substation workplace
2. Safety Uniform Standard of Mongolia
3. HSE standard of 110kV Substation
4. Security Operation Standard of Buhug-15MW SPP
5. Environment Protection Standard for Buhug-15MW SPP
6. Transformer Oil Removal/Change Standard
7. Water Well Management Standard
8. Waste Management
9. Sanitary Management

Appendix 3 – CONTENTS OF MET-APPROVED ENVIRONMENTAL MONITORING PLAN ACCORDING TO MONGOLIAN LEGISLATION

Approved by MOE

Батлав.

БОАЖЯ-ны Хүрээлэн буй орчин, байгалийн нөөцийн удирдлагын газрын даргын албан үүргийг түр орлон гүйцэтгэгч, байгаль орчны үнэлгээ, аудитын хэлтсийн дарга

/А.ЭНХБАТ/

Зөвшөөрч, хэрэгжүүлэх үүрэг хүлээсэн:

"Тэнүүн Гэрэл Констракшн ХХК"-ийн захирал

/С.ОДБААТАР/

ТӨВ АЙМГИЙН СЭРГЭЛЭН СУМЫН НУТАГТ БАЙРЛАХ "БӨХӨГ- 15МВт НАРНЫ ЦАХИЛГААН СТАНЦ" ТӨСЛИЙН 2019 ОНЫ БАЙГАЛЬ ОРЧНЫ МЕНЕЖМЕНТИЙН ТӨЛӨВЛӨГӨӨ

Хянасан:

БОАЖЯ-ны ХБОБНУГ-ын мэргэжилтэн /М.ТУЛГА/

Боловсруулсан:

"Тэнүүн Гэрэл Констракшн ХХК"-ийн байгаль орчин хариуцсан ажилтан

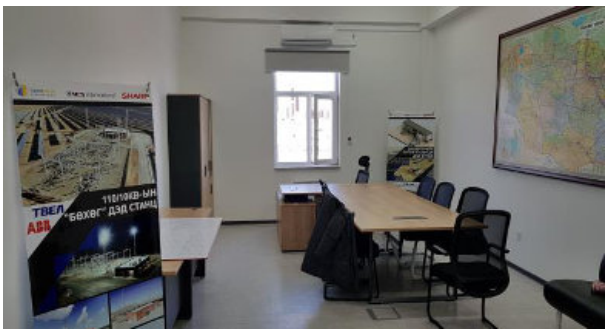
/Б.АМАРСАНАА/

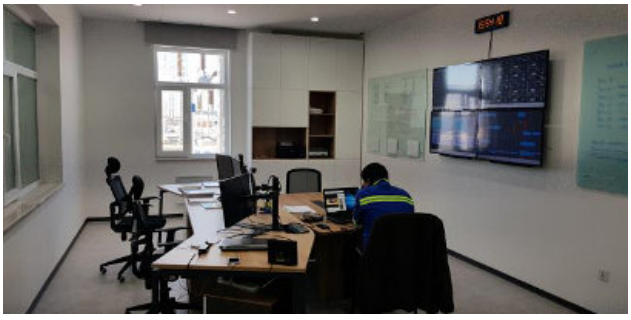
2019 он

Contents of the EMP:

FIGURE and TABLES

Appendix 4 – Solar Power Plant Photos





Appendix 5 – Water quality analyses

ШИНЖЛЭХ УХААНЫ АКАДЕМИ
ГАЗАРЗҮЙ - ГЕОЭКОЛОГИЙН ХҮРЭЭЛЭН
УСНЫ ШИНЖИЛГЭЭНИЙ ЛАБОРАТОРИ

Усны химийн шинжилгээний тодорхойлолт

Сорьц авсан: 2019 оны 05 сарын 09 өдөр
Шинжилгээ хийсэн: 2019 оны 05 сарын 10 өдөр
Сорьц авсан газрын нэр: Төв аймаг, Сэргэлэн сум
4-р баг, Бөхөгийн хөндий
Сорьц шинжлүүлсэн байгууллага, хувь хүн: "Тэнүүн гэрэл конструкшн" ХХК
Солбицлол X= Гүн : 91 м 2018 он
Y= Ундарга: л/с
Уст цэгийн төрөл ба дугаар: Худаг

Тодорхойлсон нь:

Анион	1 дм^3 -д байгаа			Катион	1 дм^3 -д байгаа		
	мг	мг-экв	мг-экв%		мг	мг-экв	мг-экв%
Cl^-	10.7	0.30	6.54	$Na^+ + K^+$	19.2	0.84	18.22
SO_4^{--}	25.0	0.52	11.36	Ca^{++}	49.1	2.45	53.43
NO_2^-	0.0	0.00	0.00	Mg^{++}	15.8	1.30	28.35
NO_3^-	4.0	0.06	1.41	NH_4^+	0.0	0.00	0.00
CO_3^{--}	0.0	0.00	0.00	Fe^{++}	0.0	0.00	0.00
HCO_3^-	225.7	3.70	80.69	Fe^{+++}	0.0	0.00	0.00
Дүн	265.4	4.59	100.00	Дүн	84.1	4.59	100.00

HCO_3^- ийн хагасыг хассан анион катионуудын нийлбэр: 236.6 мг/ дм^3

Анион катионуудын нийлбэр: 349.5 мг/ дм^3

Ерөнхий хатуулаг: 3.75 мг-экв/ дм^3
pH: 7.26

EC: 422 µS/cm
TDS: 211 ppm

ПИЧ= 1.6 мг/дм^3

Физик чанар:

Тунгалаг: 30 см
Өнгө: үгүй
Үнэр: 0 балл
Амт: 0 балл
Тунадас: үгүй

$HCO_3^-81\ SO_4^{2-}11$

Усны найрлагын томъёо: $M_{0.35}$

$Ca^{2+}53\ Mg^{2+}28\ Na^+ + K^+18$

Дүгнэлт

Химийн бүрэлдэхүүнээрээ гидрокарбонатын ангийн, кальцийн бүлгийн, 2-р төрлийн, чанарын хувьд цэнгэг, зөөлөвтөр ус байна. Шинжилсэн үндсэн үзүүлэлтүүд нь "Ундны ус. Эрүүл ахуйн шаардлага, чанар, аюулгүй байдлын үнэлгээ MNS 0900:2018"-н шаардлага хангаж байна.

Жич: Энэхүү уст цэгээс сорьц авах үйл явцыг шинжлүүлсэн байгууллага, хувь хүн хариуцан гүйцэтгэсэн болно.

Шинжилгээ хийсэн:
ЭШДА: Магистр (M.Sc) _____ /Б.Оюун-Эрдэнэ/

Шалгаж, дүгнэсэн:
УШ лабораторийн эрхлэгч: Доктор (Ph.D)_____ /Ч. Жавзан/

Appendix 6 – The English copy of official letter from The Institute of Archeology of Mongolia.

Translation from Mongolian into English

(Logo)

MONGOLIAN ACADEMY OF SCIENCE
INSTITUTION OF HISTORY AND ARCHEOLOGY

Ulaanbaatar 13343, Bayanzurkh district
Jukov street 77, Tel: 45 50 28, Fax: (976-11) 45 83 05
E-mail: info@history.mas.ac.mn

April 17, 2019 No. 2/159

TO: TENUUN GEREL CONSTRUCTION LLC

Giving a clarification

We are submitting the following clarification based on review of the official letter No. 068/019 dated on April 15, 2019 submitted by your company. Here includes:

1. The rescue and digging survey will not make any negative impact to the power transmission airlines, its columns (Casting and iron columns) and normal operation of the solar power plant.
2. The Monument-02 which was marked as "0" m, is located between turning points of UG-7 and UG-8 and under the 2-string lines of 110 kvatt power transmission airlines. This monument is located between 2 poles with metal columns or at 225 m from the south east of the UG-7 turning point, at 98 m from the north-west of the UG-8 turning point. (Please see the 1st annex, Location figure of the Monument-02)

Thanks to the director and colleagues of the company for your cooperation with us in accordance with the applicable laws and regulations of Mongolia.

SCIENTIST SECRETARIAT
PhD, Professor (signed & sealed) KHISHIGT N

Translated & verified by the translation bureau of
***"CHAMIN UNGU"** LLC*
*Address: Room #11,**"Silver"** Business Center,*
khoroo-4, Chingeltei district, Ulaanbaatar city

ЧАМИН ОНГӨ ХХК-ИЙН ОРЧУУЛГЫН ТӨВ ЧОО
CHAMIN UNGU TRANSLATION BUREAU
УЛААНБААТАР ХОТ

Tel: 89443883
E_mail: chaminungu11@gmail.com
Translator: Khishigbuyan. N
Date: April 19, 2019

Translation from Mongolian into English

(Logo)

MONGOLIAN ACADEMY OF SCIENCE
INSTITUTION OF HISTORY AND ARCHEOLOGY

Ulaanbaatar 13343, Bayanzurkh district
Jukov street 77, Tel: 45 50 28, Fax: (976-11) 45 83 05
E-mail: info@history.mas.ac.mn

April 08, 2019 No. 2/143

TO: TENUUN GEREL CONSTRUCTION LLC

Giving a clarification

We are submitting the following clarification based on review of the official letter No. 061/019 dated on April 02, 2019 submitted by your company. Here includes:

3. The survey includes rescue and digs of following monuments in the 25m areas by pulling straight lines from the center (0) of lines (based on coordinate points on the ground) which connect turning points (from UG-0 point to UG-10 point) to the two sides along the Power transmission airlines. Here includes:

A. Monument-02 is located in 0 m or under the power transmission lines
B. Monument-04 is located in 21m.
C. Monument-03 is located in 13m.
D. Monument-06 is located in 14m.
E. Monument-07 is located in 4m. The monument-07 has a circular frame and has 8 satellite graves inside and outside. These satellite graves are located in 3-19m areas from central point of the line. (Please see the brief introduction of above mentioned monuments from the 1st annex)

4. We are planning to conduct rescue and digging survey in the 3rd quarter of 2020 in accordance with request of your company. We shall mutually agree and sign the contract for required time and costs of the digging works before starting the digging works.

Thanks to the director and colleagues of the company for your cooperation with us in accordance with the applicable laws and regulations of Mongolia.

SCIENTIST SECRETARIAT
PhD, Professor (signed & sealed) KHISHIGT N

Translation from Mongolian into English

The annex to the official letter No. 2/159 by the Institution of History and Archeology of the Mongolian Academy of Sciences dated on April 17, 2019

Scheme of the ancient grave mound with square frames which was marked as Monument-02

(Outside shape of the monument is shown above)

MONUMENT -02

/Scheme/

The annex was prepared by:

Scientific worker of the Institution of History & Archeology

(signed) Lkhundev G

The 1st annex to the official letter No. 2/143 by the Institution of History and Archeology of the Mongolian Academy of Sciences dated on April 08, 2019

BRIEF DESCRIPTION, REQUIRED IN THE ARCHEOLOGICAL RESCUE AND DIGGING SURVEYS

No	Monument number	Size /cm/	Distance	Photo
1	Monument -02	Diameter-800cm Outside frame-3200*3000cm	0m	Photo
2	Monument-04	500*250cm	21m	Photo
3	Monument-05	400*300cm	13m	Photo
4	Monument-06	150*300cm	14m	Photo
5	Monument-07 (including 8 satellite graves)	Diameter-1200cm Outside frame is unclear	4m	Photo

The annex was prepared by:

Scientific worker of the Institution of History & Archeology

(signed) Lkhundev G