Environmental Considerations and Capacity Building to Strengthen Local Cooperation Agreements

MERIT Workplans 17479-MON, 17480-MON

Submitted to MERIT Project

By Ross Eccles

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Introduction

This report presents the findings and recommendations for two MERIT workplans:

- 17479-MON
- 17480-MON

The requested deliverables for both workplans included:

- An outreach to and capacity building with Aimag and Soum representatives with regards to the environmental management of extractive resources (i.e., mining and petroleum activities)
- The development of a knowledge product and key topics that can support the ongoing inclusion of environmental protection initiatives in Local Cooperation Agreements (LCAs) with mining and petroleum companies;
- Recommendations for ongoing MERIT support in the area of environmental protection in relation to mining and petroleum activities

Limitations

With the exception of a summary on Mongolia Law on Environmental Impact Assessment provided to me in English by the MERIT Project, all information summarized in this report was gathered through the translation services of Naran-Undrakh Baatar (Naagii) and to a lesser degree, Amgalan Enkhbaatar (Amy), both Project Officers with the MERIT Project. At all meetings, my questions to attendees were translated into Mongolian by Naagii, and their responses to me were translated to English by Naagii to enable me to record their responses at the meetings. All of my final minutes of the meetings that appear on the Nas drive were reviewed by Naagii, and minor adjustments were made where necessary. This final report has also been reviewed by Naagii and by Ms. Erdenechimeg Regjiibuu (Chimga).

The 3-week timeframe for the completion of this assignment did not allow for the minutes of the meetings to be translated into Mongolian and sent back to meeting participants for their review to identify inaccuracies or omissions that may have resulted from translation misunderstandings. Therefore, this document should be viewed as a guide for strengthening the environmental content of Local Area Agreements, and for understanding the capacity building and training requirements of the Dornod and Tuv Aimag and Soum government agencies to strengthen their skills in environmental protection.

Methods

Activities undertaken to complete the workplans included the following:

- Review of existing regulatory legislation/guidelines pertaining to environmental protection and extractive industries
- Meetings with AIMAG/Soum government agencies to identify and understand:
    - their concerns on the key environmental effects from extractive industries,
    - their views on the role of Local Cooperation Agreements (LCAs) being developed between mining/petroleum companies and Aimag/Soum governments, and the need for environmental protection measures in those agreements
    - their views on capacity building and training needs for the Soum governments to assist their efforts in environmental protection and monitoring
- Site visits to mining/oil and gas developments to observe existing environmental effects and protection strategies

Results

Existing Environmental Legislation/Guidelines for Managing the Environmental Effects of Extractive Industries

Key pieces of environmental legislation reviewed for the workplans focused on the *Law of Mongolia on Environmental Impact Assessments* and related guidelines and orders. Current draft templates for LCAs that have been recently prepared by the central and Aimag/Soum governments were also included in the review.

It was not the intent of the assignment to critique the environmental assessment process in detail, and no translated environmental impact assessments produced under the Law were available or reviewed for content or rigor. Instead, the assignment focused on whether there were appropriate policies and procedures in place for assessing and managing the environmental effects of extractive industries, and if this information could be easily integrated into LCAs to better ensure project-specific environmental protection.

Table 1 provides a summary of the key steps and responsibilities that are in place in Mongolia to manage environmental effects associated with extractive industries.

Table 1 - Environmental Regulatory Responsibility Matrix for Managing Extractive Industries

Prepared for Merit Project

Workplans 17479, 17480

Regulatory Activity	**Party Responsible for Development**	**Comments**
Baseline Assessment	Paid for by license holder but prepared by certified assessment company	Work to be completed prior to exploration or development
General Environmental Impact Assessment (GEIA)	Developed by MET in 14 days at no cost to license holder	High level environmental screening document which determines one of the following: • Project not allowed to proceed • Project will have minimal environmental effects and can proceed as planned • Project may proceed with modifications recommended by MET • Project may proceed with detailed environmental assessment MET is required to update GEIA every 5 years

Detailed Environmental Impact Assessment (DEIA)	Paid for by license holder but prepared by certified assessment company	The DEIA is a key planning tool that: • Identifies and estimates a particular project's risks and impacts • identifies key mitigation measures to manage risks and impacts • provides a preliminary 1st year Environmental Management Plan The DEIA is reviewed and approved by MET
Environmental Management Plan (EMP)	Paid for by license holder but prepared by certified assessment company	The EMP translates strategic goals of the DEIA into concrete, budgeted, scheduled activities to mitigate and monitor identified environmental risks. The EMP consists of: • an environmental protection plan (EPP) • an environmental monitoring plan (EMP) The EMP must be updated annually to clearly demonstrate the license holders environmental commitments for the following year. It is the right of the governor to monitor the license holders' EMP. The initial and all subsequent annual EMPs are reviewed and approved by MET at the Aimag level.
Environmental Management Plan (EMP) Report	Prepared and paid for by license holder	This year-end report by the license holder identifies to what extent environmental objectives from the annual EMP were achieved for that year.
Evaluation of EMP Report	Completed by a working group established by MET	The success of the license holder at meeting annual EMP commitments is evaluated by the working group at the end of the year, based on selected performance metrics established by Ministerial Order. The working group typically consists of representative from Aimag government agencies, Soum government and community groups. The evaluation by the working group is submitted to the Aimag MET shortly after receipt of the EMP Report and before year end. The evaluation must show a minimum level of environmental compliance by the license holder before the subsequent year's EMP can be approved and implemented.
Local Cooperation Agreements (LCA)	Governor of Soum has largely been	The intent of LCAs between extractive industries and Mongolia is to "formalize company contributions to the

	responsible for negotiating existing agreements with companies Participation in negotiations should expand as LCA templates are finalized	Soum and Aimag governments, and through them, to the well being of Soum and Aimag residents" (Ingen-housz, 2017 (a)). Ideally, the development, implementation and monitoring of LCAs should involve: • Soum governor • Soum government agency representatives • Aimag government agency representatives (e.g., GASI) • Soum community representatives • NGO representative (possible Extractive Industries Transparency Initiative (EITI) • mining representatives This still evolving. In Dornod, a working group for the Aimag, including Extractive Industry Transparency Initiative (EITI) representatives (which includes Citizens Representative Council), has been appointed by the governor to oversee LCA template developments for the Aimag. The Soums would then be required to develop project-specific LCAs based on this template.
Compliance Monitoring	Conducted by General Authority for Special Inspection (GASI) at no cost to the license holder GASI is separate agency independent from MET	• Mandate of GASI is to monitor compliance with all Mongolian Environmental Laws, and specifically commitments set out in EMP • At the project level, most compliance monitoring responsibility falls to GASI representatives at the Aimag level • GASI capacity at the Aimag level is very limited both from a personnel and equipment perspective • GASI representatives have "shut-down" authority in the event of non-compliance
Site Monitoring	Conducted by GASI inspectors and Rangers at the Soum level. Rangers are MET employees, independent from GASI inspectors	• GASI inspectors monitor a broad range of health, safety and environment • Ranger monitoring activities currently include water/soil contamination, including drinking water quality, done by crude field measurements and limited analytical laboratory back-up. Other ad hoc visual observations are made on disturbances such as erosion and desertification

Compliance Auditing	Conducted by certified private companies, who are paid by license holder MET/SESMIN is providing the training and certification process for auditing	Mandate is to evaluate: • Completeness of DEIA based on terms of reference set by MET for the DEIA • Compliance with commitments made in annual EMP (audited every 2 years) • Compliance with environmental performance objectives (e.g., water quality objectives; audit team would rely on GASI information for field measurement data)

Detailed Environmental Impact Assessments

Mongolia has relatively comprehensive regulatory legislation for environmental impact assessments that covers all major mining and petroleum production activities. The EIA process was first developed and implemented in 1993-94 with the technical assistance of the Asian Development Bank. The law went through a number of amendments during subsequent years, and a revised law was approved in May 2012 (from Chimga's environmental legislation summary).

Five regulations were approved by the Minister of Environment and Tourism (MET) to support and implement the law:

- Regulation of environmental impact assessment
- Regulation on strategic impact assessment and cumulative impact assessment
- Regulation on public participation in EIA
- Regulation on monitoring and administering the fund for environmental protection and mining rehabilitation
- Regulation on formulation, approving and reporting of the environmental management plan

In addition, sanctions (e.g., termination of activities, suspension and revocation of mining licenses) were included in the amended law to deal with non-compliance of commitments set out in the EIA process. The latter two regulations and the sanctions are of particular relevance to LLAs.

Under EIA law, a detailed environmental impact assessment (DEIA) is to be developed for all major extractive projects by a MET-accredited assessor company that is retained by the license holder. The DEIA is a key planning tool that identifies particular project risks and impacts, and must include an Environmental Manage Plan (EMP) that "translates strategic goals of the DEIA into concrete, budgeted, scheduled activities to mitigate and monitor identified environmental risks" (from Chimga's environmental legislation summary). The license holder is required to provide an updated EMP every year to clearly document proposed environmental protection activities for the coming year.

The license holder is also required to submit to MET an annual EMP Report, which reports on the company's performance at meeting EMP commitments for that year. Progress reports on

rehabilitation/reclamation, offsets, and hazardous material disposal for the year and any independent third party audit reports must also be provided by the company for review.

A working group, generally consisting of Aimag and/or Soum representatives from MET, GASI, Investment and Policy Development Division, community representatives and/or NGOs, is appointed by the Aimag governor to evaluate the EMP Report and associated support documents. The working group uses evaluation criteria provided in the *Regulation on formulation, approving and reporting of the environmental management plan* to complete the review.

Evaluation criteria include:

- Implementation of mitigation measures plan
- Implementation of rehabilitation plan
- Implementation of offset plan
- Implementation of resettlement and compensation plan
- Implementation of historical and cultural heritage protection plan
- Implementation of chemical risk management plan
- Implementation of waste management plan
- Implementation of management and organizational plan
- Implementation of public consultation and reporting plan
- Implementation of environmental monitoring program, consultation on monitoring results, and reporting on the consultation

Each of the evaluation criteria receive a rating ranging from 1 (worst) to 10 (best), allowing for a maximum total evaluation score of 100. If the company does not achieve a minimum evaluation score of 80, then the EMP for the following year should not be approved, and sanctions against the project (i.e., termination of activities, suspension and revocation of mining licenses) are to be implemented and enforced.

Under the current evaluation system, all of the criteria have an equal weighting (each criteria gets 10% of the evaluation score), which weakens its effectiveness at identifying inadequate environmental performance. For example, a company can do almost nothing in terms of meeting rehabilitation and waste management commitments for the year and still get a passing grade if it has addressed the other criteria reasonably well. Considering that rehabilitation and waste management are perhaps the most important of the criteria at protecting and restoring the environment, this “loophole” that allows for poor environmental performance needs to be closed. This can be easily achieved by assigning much higher weightings to rehabilitation and waste management (e.g., rehabilitation could account for 40% of the total evaluation score, waste management could account for 20%, with the remaining 40% of the score being appropriately distributed among the remaining 8 criteria. This would force companies to devote greater attention to the most important environmental protection criteria, and strengthen their overall performance.

Environmental Offsets

Recently, the concept of using ecological offsets as a mitigation tool for compensating for ecological damage at mining or petroleum sites has been considered by the government. Presumably, any commitment to offsets as a mitigation tool would be included in the EMP prepared for the project.

MET has recently developed a draft regulation providing guidance on the application of offsets as a compensation tool for companies. This regulation is currently being reviewed by the Ministry of Justice and Home Affairs. The release date is unknown.

MET is also working with The Nature Conservancy on methods for measuring and costing ecological equivalency to ensure that the ecological benefits of enhanced sites are adequately compensating for the ecological values lost to mine or petroleum footprints.

Local Cooperation Agreements (LCAs)

Conceptually, the intent of LCAs between extractive industries and Mongolia is to "formalize company contributions to the Soum and Aimag governments, and through them, to the well being of Soum and Aimag residents" (Ingen-housz, 2017 (a)). LCAs are not a new concept, and articles under both the Mineral Law (2006, amended in 2014) and the Petroleum Law (2014) require licence holders to establish these agreements, generally with input and approval of the governor of the Soum affected by the project. For example, under Article 11.2.17 of the Petroleum Law (2014), petroleum companies are required to "make an agreement on voluntary provision of support to environmental protection and local development with a governor of the soum or duureg where the exploration license area is located." Similarly, under Article 42.1 of the Mineral Law 2014), "a license holder shall work in cooperation of the local administrative bodies and conclude agreements on issues of environmental protection, mine operation, infrastructure development in relation to the mine site development and job creation". A critique of the current legislative situation on LCAs is provided by M. Ingen-Housz 2017 (b).

LCAs should typically include "commitments and obligations that help enhance environmental protection, local content, and infrastructure investments" (Byambajar Dailabuyan 2018). However, to date, the structure and content of these agreements has varied widely among Soums and projects, and greater clarity around the core objectives and principles of LCAs is required from the central governments. In addition, in LCA templates reviewed to date, the suggested content related to the protection of the environment has been limited to broad references for compliance with Mongolian laws, rather than a requirement for clearly defined commitments for such key issues as rehabilitation and reclamation, groundwater and surface water conservation and protection, and hazardous waste management.

In 2016, the Mongolian Government issued a template for a "Model Agreement for Protecting the Environment, Developing Infrastructure related to Mine Operation and Plant Construction and Creating Jobs". However, this template was narrow in scope, provide limited guidance on environmental protection, and led to more confusion that clarity (Byambajav Dailabuyan 2018). Revised draft LCA templates attempting to improve clarity around the content of these agreements are now being circulated by MET, but final versions were not available at the time of this report preparation.

A recent draft LCA template (as of May 11) has been developed for the proposed Shin Shin base metal mining project. In that template, under Rights and Obligations of Shin Shin, Clause 4.2, reference to environmental protection is again limited to high level commitments to Mongolian Law: *To protect the local environment during the mining operation by ensuring the implementation of Environmental Protection Law of Mongolia, Law of Mongolia on Water, Environmental Impact Assessment Law, Environmental Management Plan, and other related laws and legislation*.

Information Gathered from Aimag/Soum and UB Meetings

The following meetings were held with Aimag/Soum government representatives:

- Vice Governor, Choibalsan, Dornod Aimag
- MET Department Head, Dornod Aimag
- Governor and representatives, Bayandun Soum, Dornod
- Chairman, General Authority for Special Inspections (GASI), Choibalsan, Dornod Aimag
- Mr. Gentsogt, non-government organization representative, Choibalsan
- Governor and representatives, Khalkhgol Soum, Dornod
- Investment and Policy Division, Choibalsan, Dornod Aimag
- Acting Met Department Head, Choibalsan, Dornod Aimag
- Head, Investment and Policy Division, Choibalsan, Dornod Aimag
- MET Director of Environmental Assessment and Auditing, UB
- SESMIN Country Director
- MET Department Head, Zuunmod, Tuv Aimag
- Investment and Policy Division, Zuunmod, Tuv Aimag
- Extractive Industries Transparency Initiative (EITI), UB

For all meetings at the Aimag and Soum level, our agenda focused on three lines of questioning:

- What were their key environmental concerns related to extractive industries
- What environmental protection measures did they want to see in LCAs
- What areas of capacity building would help the Soums improve environmental protection and management

Minutes of the meetings have been provided to MERIT in the TA folder on the Nas Drive (no minutes were recorded for the SESMIN and EITI meetings). Common issues and key points coming out of the meetings are summarized below.

Key Environmental Concerns

In a previous Merit review on extractive industries in Dornod (M. Ingen-housz 2017 (a)), environmental concerns raised at the Aimag and Soum level included:

- Groundwater and surface water usage/contamination by industry
- Incomplete mine reclamation
- Chemical and fuel handling, storage and disposal
- Landscape disturbance, dust pollution and desertification from roads/tracks

All or a portion of these issues were raised at every meeting. In addition, consistent concerns were expressed about soil contamination problems, the lack of standards around managing and disposing of these contaminated materials, and effects of dust on air quality .

A significant proportion of the meeting discussions centered around broader communication and cooperation problems between the Soum/Aimags, central government ministries and extractive companies. Concerns included:

- Extractive industries are generally mistrusted by the public and Soums because of a lack of meaningful consultation and communication with community by the companies
- There is poor coordination and cooperation between Aimag governments, Soum governments and the central government ministries on environmental enforcement issues. On a number of occasions, poor company performance related to EMP commitments has been reported by working groups responsible for annual EMP evaluations. However, their concerns and recommendations have been ignored by the Aimag and/or central government agencies that have the authority to suspend operations or financially penalize non-compliant companies.
- There is a lack of understanding and enforcement of reclamation bonding procedures required of the companies by law.

Environmental Content of LCAs

Many of the meeting participants have had limited involvement with the development of LCAs, as to date these agreements have been largely developed between the Soum governors and the companies. In addition, draft templates from UB central government on LCA structure and content were just starting to be developed and circulated for review and comment. As a result, at most meetings, meeting attendees were just formulating their views on the environmental content of LCA, and where opinions were expressed, there was some variability between the Soum and Aimag levels. Key opinions on LCA content were as follows:

- The majority of the meeting participants saw a clear benefit to including key environmental protection and monitoring commitments from the EMP in the LCAs, or appending the entire approved EMP to the LCAs.
- Participants with this view thought that the inclusion of the EMP would increase Soum access to and understanding of the companies' environmental commitments. This would likely improve company compliance with and government enforcement of environmental commitments because of increased Soum public and government awareness of company obligations and commitments under Mongolian environmental laws.
- Several participants stressed the importance of local community representation during the development and implementation of LCAs to make these agreements more meaningful to local residents.
- One Soum government representative emphasized the need for a clear commitment from the companies in the LCA on the timing, location, activity details and budget for proposed reclamation activities committed to in the annual EMP.

Training and Capacity Needs

Feedback from the meetings overwhelming emphasized the need for capacity building and training in:

- Rehabilitation and reclamation of disturbed sites
- Hazardous material management systems, including the transportation and storage of hazardous materials
- Hazardous waste disposal systems, including contaminated soils, drilling wastes

Other issues raised less frequently included the need for training modules in:

- Surface and groundwater protection and monitoring systems

- Localized air quality monitoring, particular for dust pollution near residences
- Steppe fire prevention and control
- the DEIA and EMP processes, which are not well understood at the Soum community level
- petroleum and mine life cycle phases, to provide Soum government and community representatives with a better understanding of the activities and regulatory commitments associated with extractive industries.

One Aimag representative identified that the majority of the governments expertise in mining and petroleum development resides in central government Ministries in UB. He felt that expanded mining and petroleum expertise was required at the Aimag level to more efficiently deal with extractive industries. At a UB meeting, another government representative expressed concerns that EMP working group members may lack the mining/petroleum and environmental assessment experience to effectively evaluate companies' environmental performance, and that some cross-training in mine/petroleum life cycle phase and associated project environmental effects would be beneficial.

Observations Gathered from Site Visits

Site visits were conducted at 4 locations, including:

- **Gyn Undur Bulag Placer Mine**. This was a small-scale (artisanal) (i.e. < 20 ha disturbance; governor approval only) placer gold operation in a small valley that has been abandoned with no reclamation. No Environmental Management Plan or reclamation bond would have been required under the regulations for small scale mining operations. Eight to 10 m deep ditches that were excavated to recover gold-bearing fluvial gravels and associated spoil piles from the excavations dominate the disturbed landscape, and there is limited evidence of salvaged topsoil for use in future reclamation. Fortunately, the spoil piles are comprised of relatively fine textured material with some organic content and no obvious contamination. Reclamation of this site should be relatively straight forward and successful, if it ever occurs.

Small scale, abandoned placer mine north of Bayandun village

- **Jamp Gold Placer Mine**. This was a relative large placer operation that is still active. It would have submitted a DEIA for approval and should be submitting annual EMPs, although none were available for review. We visited a portion of the mine site that has been resloped and reclaimed, although cover soils are rocky and coarse textured, and there is little sign of vegetative cover. The degree of topsoil salvage done at the site to support reclamation was unknown. The main excavation pit to access the gold bearing gravels has not been backfilled, and has naturally filled by groundwater seepage. There is some discussion about leaving the basin as is, and developing the waterbody into fish habitat.

Reclaimed portion of active placer mine north of Bayandun village

- **Petro-China Production Site 21**. This major oil production facility, located approximately 150 km west of Kharkhgol, is comprised of a large central administrative, camp and oil storage/transfer facility, surrounded by an extensive distribution of individual wellsites. The oil is transported by truck along a northeast trending transportation corridor to China, the eastern portion of which has been paved by Petro-China. General observations on site environmental performance are provided in the May 8 site visit report in the TA folder on the Nas drive. Key poor performance issues that were observed included the lack of stockpiled topsoil for future reclamation at the central operational facility and wellsites, and the current above-ground waste management and disposal practices being followed. In addition, liquid drilling wastes are being disposed of in lined sumps, which are covered with spoil and a thin topsoil layer, rather than being pumped into trucks for transport to an approved disposal facility. The long-term fate of these toxic materials is not well understood (e.g., seepage to the surface), potentially leaving a long environmental risk.

Current, temporary waste holding facility at Petro-China Site

Sump being used for permanent disposal of liquid drilling waste.

- **Mongolian National Operators (MNO) Placer Mine northwest of Zaamar Soum, Tuv**. This large-scale placer operation is located on the floor of a moderate-sized valley. Gold bearing gravels are approximately 40-50 m below the natural valley floor, necessitating the removal and temporary stockpiling of large quantities of overburden. Approximately 30 cm of topsoil overlying the overburden was stripped from areas to be excavated and stockpiled for future

reclamation. Extraction of the gold-bearing gravels had largely been completed for the portion of the mine that we visited, and current activities are now focused on pit backfilling, resloping of landforms and the re-distribution of the stockpiled topsoil (i.e., technical rehabilitation) and revegetation (biological rehabilitation). At the Governor's request, the reclaimed sites are being seeded down to a tame grass/legume mix to hopefully provide more productive grazing conditions for local herders using the area, and the revegetation success looks very positive to date. However, problems are arising with livestock occupying recently revegetated areas and damaging the re-establishing vegetation. The mine is working with local herders to hopefully correct this situation.

Topsoil replacement at MNO placer mine northwest of Zaamar

Recommendations on Environmental Considerations and Capacity Building to Strengthen Local Cooperation Agreements (LCAs)

Environmental Content in LCAs

As discussed above, Mongolia has a relatively comprehensive regulatory legislation for environmental impact assessments that covers all major mining and petroleum production activities. The baseline assessments and subsequent Detailed Environmental Impact Assessments, **if done properly**, provide a key planning tool that:

- Identifies and estimates a particular project's risks and impacts
- identifies key mitigation measures to manage risks and impacts
- provides a preliminary 1st year Environmental Management Plan

The Environmental Management Plan (EMP), in turn, translates strategic goals of the DEIA into concrete, budgeted, scheduled activities to mitigate and monitor identified environmental risks. As such, the EMP, **if done properly**, provides the most relevant environmental protection and monitoring commitments that could be included in the LCAs. Therefore, the LCAs should contain a commitment by the license holder to strictly adhere to the protection and monitoring measures in the EMP, and the approved annual EMP should be amended to the LCA. If the EMP document is too large to easily attach to the LCA, then clauses covering the key protection and monitoring aspects of the plan, including nature of activities, timing, and location should be embedded into the main body of the LCA document to provide greater transparency around the commitments of the license holder.

At one meeting, there was particular mention of the need to include in the LCA a clear commitment from the companies on the timing, location, activity details and budget for proposed reclamation activities committed to in the annual EMP. At the same meeting, it was suggested that license holders must commit to notifying Aimag/Soum inspectors in advance of sensitive mitigation activities scheduled for that year (e.g., topsoil salvage, contaminated site remediation, etc.) to allow the appropriate inspectors to travel to the site for monitoring purposes. Such a commitment could be part of the annual EMP commitments but should be re-emphasized as a clause in the LCA.

There was generally strong support for inclusion of the EMP in the LCAs at both the Soum and Aimag levels of government for the following reasons:

- To date, community consultation by the license holders has been inadequate, and most affected residents at the Soum level have a poor understanding of the typical life cycle phases of a mine or petroleum development. Community residents primarily see disturbance of their land base with no resulting benefits, which has led to a general distrust of the extractive industries.
- Most affected residents at the Soum levels have a poor understanding of the environmental management planning process, and the associated environmental protection commitments that are required of license holders. Under the current requirements of the Law of Mongolia on Environmental Impact Assessments (Clause 8.7), only 1 copy of the DEIA and EMP is to be made available at the Soum level. This has resulted in very little public access to this information.
- The LCAs should be publicly reviewed and available documents, and information dissemination plans include local community information sessions, postings on publicly accessible bulletin boards, and postings on Soum websites. With the inclusion of annual EMP commitments in the

LCAs, the public will have a much-improved understanding of the government controls over extractive industries, and the commitments of these companies to environmental protection.
- Company performance on environmental matters will become much more transparent to the community under such an LCA structure

A small number of meeting attendees suggested that the environmental laws of Mongolia were strong, that the development of approved EMPs were part of those laws, and that because extractive industries were required to comply with these laws, the inclusion of specific EMPs in LCAs was not required. However, based on the findings of this report, a simple reference to compliance with Mongolian Law in the LCAs is inadequate to ensure the protection of the environment, for several reasons:

- Such limited environmental content in LCAs will not get the necessary information to Soum residents on the companies' environmental commitments.
- License holders are able to better "mask" their poor environmental performance from the community, since community members are largely unaware of the companies' environmental commitments.
- Licence holders are currently not complying with their requirements under existing environmental laws (i.e., failed EMP evaluations), so a simple reference to these laws in the LCAs will not improve the existing degree of compliance.

Ecological Offsets

Once an approved policy on the use of ecological offsets has been developed and inserted in Mongolian Environmental Law, it is assumed that details on the proposed offset for any project in question will be provided in the approved annual EMPs for the project in question. As with reclamation commitments, there should be clauses included in the LCA that provide a clear commitment from the companies on the timing, location, activity details and budget for proposed offset activities committed to in the annual EMP.

Although the concept of using ecological offsets to mitigate project damage to environmental values has been used internationally for more than a decade, it should not be viewed by license holders as an easy compensation vehicle to avoid acceptable environmental performance on-site. Before offsets are agreed to by regulators for any given project, the company in question should have demonstrated a willingness to employ best available technology (within economic limitations) to restore original ecological values within the project footprint. Offsets should only be considered for the residual effects and lost ecological values left after these best efforts. In addition, the following conditions should also be met before offsets are approved:

- A defensible method must be identified for measuring and costing ecological equivalency to ensure that the ecological benefits of enhanced sites (i.e., offsets) are adequately compensating for the ecological values lost to mine or petroleum footprints.
- There must be a method for guaranteeing the protection of enhancement areas (offsets) used to generate offset values from future land use disturbance
- Non-environmental offsets (e.g., money for infrastructure development) should never be used to compensate for loss of on-site ecological values.

Access Road Management

Concerns over the proliferation of unofficial access trails and tracks on the steppes, and the resulting damage to steppe vegetation was one of the most consistent concerns raised by meeting participants during the completion of these workplans. Many of these tracks were developed by the government or public as i) access routes to Soums from more official Aimag roads, ii) routes between Soums and other Soums /Bags and iii) routes to individual residences. It would appear that none of these routes have approved surveyed alignments, although the approximate locations of some are now showing up on GPS databases and mapping products. Because of the flatness and low vegetation of the steppe terrain, few if any of these routes originally received surface improvements, and few receive regular surface maintenance. During the spring break-up and heavy precipitation events, drivers avoid any soft wet areas forming on the tracks by simply driving on the more stable conditions in the adjacent vegetated areas. For most moderately to heavily used routes, this has lead to multiple parallel tracks within a 30 to 100 m-wide corridor, and expanded damage to the stabilizing grass sod and soils. Localized drifting sands and associated desertification is occurring in some of the more severely disturbed areas (e.g., road to Zamaar; Petro-China road to Production Site 21).

Extractive industries are developing a new network of approved roads and unofficial trails leading from public access routes to mining or petroleum sites. Under current government approval procedures, licence holders are required to apply to the Aimag Governor for access routes to their properties, with supporting documentation from a road engineering consultant. However, there appears to be no requirements for detailed surface improvement plans along the route, and roads continue to be a combination of limited graded improvements on steeper terrain and simple tracks across the flatter steppe vegetation. Consequently, every year sees expanded trails and tracks and associated steppe damage as trucks attempt to avoid soft of rutted areas during wet conditions, and no penalties are being levied against off-road trespass violators because of weak monitoring and enforcement. The damage created by heavy trucks was particularly evident along Petro-China access road to Production Site 21 (see Photo below).

Uncontrolled truck damage to vegetation and soils on route to Production Site 21.

Control of road-related damage to the steppe ecosystem can only be achieved with the cooperative efforts and buy-in of the Aimag/Soum governments, the public and the extractive resource companies. The Soums/Aimag governments must do more to develop approved, surveyed road alignments with the necessary surface improvement and maintenance to eliminate the need for drivers to deviate into vegetated areas to avoid soft or rough road conditions. From the industry side, it would seem that the EMPs and LCAs are both appropriate planning documents that could be used to inform and direct companies on access road management. Long-term access management plans by companies should be a component of EMPs. The LCA, in turn, could then be used to control and monitor those long-term plans on an annual basis. Clauses could be included in the LCAs requiring companies to apply for and provide detail on any new access routes that they required to their sites in the following year. Information required by the LCA could include a geo-referenced alignment for the route, road specifications (i.e., topsoil salvage, width of graded surface), and any proposed road surface improvements (imported road fill for wet areas, etc.). The LCA could also include clauses requesting details on any roads no longer being used by the licence holders, and rehabilitation activities scheduled for the following year. Penalties for not adhering to the access management plan could also be included in the LCA.

Participants in LCA Development (working groups)

As stated by several meeting participants, the LCAs cannot be effectively developed and implemented without meaningful input from Soum government representatives and community members. In Dornod, a working group for the Aimag, including Extractive Industry Transparency Initiative (EITI)

representatives (which includes Citizens Representative Council), has been appointed by the governor to oversee LCA template developments for the Aimag.

In the recent draft of the agreement between the Shin Shin mine development and the Governor of the Dashbalbar Soum, three clauses in the agreement discuss the structure and role of the Collaboration Committee (i.e., working group) appointed to the agreement:

Clause 5.1: The Collaboration Committee, which is responsible for signing of local cooperation agreement and monitoring its implementation, will be established from representatives of the Soum Governor's office, the mining company, and the local community.

Clause 5.2: The Collaboration Committee will consist of 9 persons with equal involvement of the parties. Members of the Collaboration Committee will be appointed and excused by the Soum Governor.

Clause 5.3: The Committee is responsible for monitoring the contracting process and the implementation of this agreement.

It is assumed that similar working groups will be appointed by governors to assist in future project-specific LCA development. As outlined in the Shin Shin agreement, these collaboration committees or working groups should include roughly equal representation from:

- Soum and/or Aimag government
- Soum community or NGO representatives (e.g., Extractive Industries Transparency Initiative (EITI))
- The mining company

As previously discussed in the DEIA section above, similar working groups are already being established to complete the yearly evaluation of a company's EMP Report. Definite benefits and efficiencies would be realized if similar members of the working group involved in EMP Report evaluations were retained for the development, implementation and monitoring of the LCA being developed and annually renewed with the same company. They would be the appropriate entity for ensuring that the environmental commitments of the license holder are clearly identified, included and effectively monitored at the LCA level.

At one of the information gathering meetings, it was suggested that such a working group could also provide consultation services at the community level, disseminating information on LCA commitments to residents such as herders that may not have internet access. The group could be responsible for structuring, scheduling and delivering regular consultation meetings in affected communities (i.e., "town hall meetings") to improve the transparency of the EMP/LCA process and to hopefully reduce the current level of distrust that the community has for extractive industries.

Assigning EMP, LCA and consultation responsibilities to a single working group will not be successful without the adequate support from government and license holders. Government and company working group members with such expanded roles will have to be given the mandate and flexibility to devote a considerable proportion of their working hours to working group responsibilities. In addition, community residents and NGOs involved in the working group (not under the employ of the government or license holder) must be provided with reasonable financial compensation to provide them with the incentive to contribute meaningfully to the group. The license holder is a possible and appropriate

source for such compensation, and their commitment to this financial support could be incorporated in the LCA.

Compliance Monitoring and Enforcement

Currently, there appears to be poor coordination and cooperation between Aimag governments, Soum governments and the central government ministries on environmental enforcement issues. On a number of occasions, poor company performance related to EMP commitments has been reported by working groups responsible for annual EMP evaluations. However, their concerns and recommendations have been ignored by the Aimag and/or central government agencies that have the authority to suspend operations or financially penalize non-compliant companies.

One several occasions, late submissions of the EMP Report evaluation by the working group were partially responsible for the lack of enforcement actions for that year. However, late delivery of the evaluation shouldn't be a loophole that allows companies to avoid penalties and to continue to operate with sub-standard environmental protection practices.

To ensure that the environmental protection measures committed to in an LCA are implemented, there must be strictly enforced financial and operational consequences for poorly performing license holders. In the recent draft of the agreement between the Shin Shin mining development and the Governor of the Dashbalbar Soum, Clause 7.2 states that:

In the case of a serious breach of their obligations under this agreement, the Parties are liable in accordance with applicable law, taking into account the proposal of the Collaboration Committee for this violation.

Further, Clause 7.3 states that:

Any disputes between the Parties arising out of, or in connection with, this Agreement will be settled by the Parties first attempting in good faith to negotiate a resolution. If a dispute is not settled by negotiation, it will be resolved by legal action.

If the environmental commitments of the annual Environmental Management Plan are clearly part of the license holder's obligations under the LCA, it would appear that these clauses will increase the likelihood of both enforcement actions by the government and remedial responses by the license holder in the event of poor environmental performance, and similar clauses should become standard content of all LCAs. It is recommended that the strength of these enforcement clauses be monitored by MERIT as templates are finalized to ensure that enforcement policies are moving in the right direction.

Capacity Building and Training Needs

During a meeting with a local NGO, the meeting participant, when asked about his thoughts on capacity building in the Aimags and Soums to improve environmental protection, commented that no additional training would be needed if companies were simply shut down for environmental non-compliance. He felt that companies would suddenly improve their environmental performance with such enforcement measures, and that more assessment/inspection training would not be necessary.

While the NGO was likely only partly serious, his point was a good one. Before MERIT progresses on capacity building agreements, MERIT needs to be assured by the Mongolian Government that appropriate financial penalties and/or activity suspensions will be applied against companies with poor environmental performance on a consistent basis, as permitted under Mongolian Laws and Regulations.

Assuming this will occur, there appear to be three areas where capacity training at the Aimag/Soum level would provide immediate and valuable benefits for environmental protection. These are:

- Rehabilitation and reclamation of disturbed sites
- Hazardous material management and waste disposal options
- Project life cycle phases and associated environmental effects and their management

Rehabilitation and Reclamation of Disturbed Sites

In spite of the fact that Mongolia has develop several national standards on rehabilitation and reclamation, performance in these areas by extractive industries varies widely among projects and Soums. Exemplary planning and reclamation performance was observed at the MNO placer mine northwest of Zamaar, less impressive results were observed at an active placer operation north of Bayardun and at the Petro-China Production 21 Site 21, and no reclamation attempts were observed at an abandoned “small scale” placer operation north of Bayardun.

Meeting participants interviewed during this workplan invariable emphasized the need for training in rehabilitation and reclamation. One participant stated that they have no actual site references of good vs poor reclamation success, which makes their site evaluations difficult. As a result, this should be a training priority for MERIT, as it would assist in the strengthening inspection and compliance monitoring for one of the most important environmental protection measures associated with extractive industries.

To be effective, this should be a “cradle to grave” training module addressing the following issues:

- Pre-disturbance, natural soil identification (i.e., topsoil depth, horizon structure, nutrient/organic content)
- Topsoil salvage, stockpiling and stabilization prior to and during mine operations
- Surface and groundwater management prior to and during mine operations (to protect down-gradient aquatic resources)
- Closure drainage, and landform contouring and stabilization during technical rehabilitation
- Topsoil re-distribution on recontoured landforms, and soil stabilization measures (e.g., straw crimping) to reduce wind erosion
- Revegetation, including discussions on species selection

A field component to allow training participants to see reclamation performance at various sites would be valuable. Mr. Tuvshintugs Ishtsend, Project Manager at the MNO Placer Mine northwest of Zaamar,

offered the MNO site for on-site training and demonstrations of reclamation practices, which would provide trainees with a clear picture of responsible reclamation efforts.

Hazardous Material Management and Waste Disposal Options

Company performance in hazardous material management and waste disposal varies widely among projects and Soums, and clearly defined national standards in this field appear to be lacking. Similar to reclamation and rehabilitation, meeting participants interviewed during this workplan invariable emphasized the need for training in this area.

If MERIT proceeds with training, it is recommended that the following issues be addressed in the training material:

- Transportation of Dangerous Goods (to and from the site)
- Data base management for on-site hazardous materials
- On-site handling and storage of hazardous materials (secondary containment, spill response)
- On-site handling, reduction, storage and disposal of non-hazardous wastes (e.g., construction waste, camp domestic waste, etc.)
- Hazardous waste disposal systems, including contaminated soils, drilling wastes, chemical wastes, etc.

Project Life Cycle Phases-Environmental Effects Cross Training

Relatively senior Aimag and UB government meeting attendees raised the issue of the lack of technical expertise at the Aimag and Soum levels related to the life cycle phases/activities of extractive industries, and the associated effects on the environment from each of these phases. This lack of experience potentially reduces the effectiveness of government inspection activities, as those involved may not fully understand the links (pathways) between extractive activities and environmental risks, or the effectiveness of environmental management measures to reduce those risks. If a similar level of inexperience occurs within working groups assigned with evaluating company EMP performance at the end of each year, then the effectiveness of the evaluation is undermined. Therefore, it is recommended that cross-training in these closely related areas be considered as a priority by MERIT. Such training should include:

Part 1: Life Cycle Phases of Extractive Industries:

At a meeting with SESMIN, their Country Director (M. Zwierwink) indicated that SESMIN had prepared a public education module on mine life cycle phases. Consequently, discussions should be held with SESMIN on this module before any proposed training materials are prepared by MERIT. However, for both Mining and Petroleum developments, it is recommended that the training modules address the following life cycle phases:

- Access Planning and Management for Exploration and Development
- Exploration
- Camp and infrastructure development
- Site preparation for resource production (e.g., production drilling for petroleum; topsoil and overburden removal for mines)
- Resource extraction and on-site processing

- Closure and reclamation
- Post-closure activities (e.g., monitoring), where applicable

Part 2: Project Effects Pathways and Key Effects Mitigation

In their 2018 workplan, SESMIN does has a workplan component related to environmental impact assessment. However, their focus is higher level legal, regulatory and management initiatives to strengthen the policy, regulatory framework and rigor of the EIA process to move future assessments towards international standards. Consequently, their anticipated objectives are much different from those being proposed here. Nevertheless, discussions should be held with SESMIN on this module before any proposed training materials are prepared by MERIT.

This portion of this training module would focus on the identification of potential key adverse environmental effects associated with extractive industries. The training should involve:

- Methods for identifying site-specific environmental components particularly vulnerable to project effects
- the pathways/linkages responsible for those effects
- key mitigation strategies to reduce the risk of those effects
- key monitoring strategies to track level of effects and effectiveness of mitigation

Table 2 (at end of report) provides an example of potential training content that could be used for this module.

Secondary Capacity Building

Three additional areas of capacity building were raised at several of the information-gathering meetings.

Groundwater Assessment and Monitoring Systems

The ability to assess baseline groundwater resources and to implement appropriate monitoring systems to measure changes in resource quantity and quality resulting from extractive industries is particularly important for:

- petroleum production, where fugitive leaks and spills from hydrocarbon production, handling, storage and transportation can contaminate shallow and deep groundwater resources
- metal and coal mines, where water requirements for washing or processing concentrates can deplete local Groundwater reserves
- metal and coal mines, where acid rock drainage and seepage from tailings ponds can result in long term metal contamination and acidity issues in groundwater resources
- selected placer and open pit operations, where pits can intercept and disrupt natural groundwater flows and distribution patterns, potentially affecting regional groundwater users

The importance of groundwater protection cannot be over emphasized. There is groundwater monitoring expertise within the Ministry of Environment and Tourism (MET) in UB that presumably is available to Soums where larger projects are developed. The General Authority for Special Inspection (GASI), in cooperation with MET, has established a network of monitoring wells at the Petro-China Production Site 21 to test for hydrocarbon contamination, and measurements are taken twice per year. Additional training at the Soum level would undoubtedly help local inspectors to understand monitoring

options where groundwater risks are likely. However, training in this area would likely be more effective after the completion of the life cycle/effects cross-training discussed in the previous section.

Air Quality Monitoring

Air quality issues related to fugitive dust from roads and mine sites and associated capacity building in air quality monitoring were discussed at several information gathering meetings. The importance of air quality protection cannot be over emphasized. However, there is air quality monitoring expertise and mobile monitoring equipment within the Ministry of Environment and Tourism in UB that presumably is available to Soums where larger projects are developed. The General Authority for Special Inspection (GASI), in cooperation with MET, conducts monitoring at the Petro-China Production Site 21 to test for NOx, SOx, PM and other air constituents, and measurements are taken twice per year.

Providing training and capacity building to address more localized dust-related particulate matter (PM) issues around Soums and herder residents would be of questionable value for several reason:

- dust pollution from most Soum roads is an infrequent (given the low traffic loads), short-term event, and the majority of the fugitive dust mass settles out within 100 m to 200 m of the source
- less noticeable but likely more consistent dust pollution occurs naturally on the steppes from the wind-born transport of fine soil particles
- emissions from coal burning stoves associated with Soum residents are a far more dangerous and, for much of the year, more consistent source of PM than dust.

Because of these confounding factors, a PM monitoring system established near a Soum would only indicate total PM values, and would not permit the relative contribution from different sources to be separated easily. However, should Soums wish to implement a monitoring system, there are relatively inexpensive systems that can be installed to track PM loads over the year (see PurpleAir website : map.purpleair.org.).

Laboratory Availability

Currently, a lack of laboratory facilities at the Soum level has limited the ability of inspectors and rangers to identify and monitor soil and water contamination. A lab in Choibalsan only deals with bacterial content and safety of drinking water and food products. A larger, well equipped lab capable of more widespread organic and inorganic analyses is only available in UB, which makes sample transfer and quality assurance difficult from outlying Soums. At this time, it is my understanding that MERIT is not in a position to support new lab facilities.

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Company:
Project Name:

Table 2. Environmental Effects Summary Table

A	B	C	D	E	F	H	I	J
Valued Component (VC)	**Interaction (Y/N)**	**Description of Interaction(s)** **(If no interaction is predicted, provide a justification)**	**Status of VC-specific study or survey (complete, underway, date expected, or N/A)**	**Description of Potential Effects**	**Mitigation to be implemented to resolve potential adverse effect**	**Residual Effects after Mitigation (Y/N/U (Uncertain))**	**Description of the Cumulative Effects**	**Monitoring Plan/Details**
Air Emissions and GHG Emissions								
Acoustic Environment								
Visual Environment (e.g., aesthetics, light pollution)								
Sensitive Terrain Features								
Soil and Soil Productivity								
Vegetation								
Water Quality and Quantity								
Fish and Fish Habitat								
Wetlands								
Wildlife and Wildlife Habitat								
Species at Risk, and related habitat								
Protected Ecological Areas (e.g., strictly protected areas)								
Human Occupancy and Resource Use								
Heritage and Paleontological Resources								
Human Health or Aesthetics								
Other, please specify								