Recommendations to Stakeholders

Regarding Monitoring of Water Sources

- Improve transparency of water monitoring and reconcile findings by OT and observations by herders. Jointly review methodologies and findings. IEP suggests to jointly (IEP and both parties) review herders' observations as a first step towards improving participatory monitoring and planning forward.

Stakeholders: Local Government (Bag Governor, Soum Hydrological Technician), OT and local herders discuss their respective monitoring methods, undertake field visits, agree on monitoring methodology, develop monitoring schedule and implement it.

- Following the presentation of IEP preliminary report (April 2014), the company made water available (in tanks, trucks) to herders within a radius of 20 km of the MLA. These efforts should be continued and increased as necessary if water scarcity continuous to effect households in the Undai River Basin

Stakeholders: Bag Governor, relevant officers of Soum Livestock Unit and Soum Land Officer responsible for annual pasture land planning, with local herders, determines water needs of herders, and work with relevant department at OT to coordinate company assistance. Local government responsible to coordinate with Aimag/Central Government in water sources (deep wells) development.

Regarding Pasture Monitoring

- With regard to monitoring, the Joint Pasture Assessment undertaken by Nutag Partners should include monitoring sites along the Undai River. Monitoring sites maintained by OT within the MLA should also be incorporated in the system.

    - The intent of participatory (pasture) monitoring should be more than just make people "feel better", but serve as a tool for joint decision-making and for effective measures in mitigation.
    - The contractor is well qualified to ensure that herders' knowledge and methodologies are fully included according to their validity and relevance as proven by several scientific studies (Kakinuma and Takatsuki (2012)[1], Tumenjargal S. (2012)[2], Fernandez-Gimenez, ME (2000)[3], Marin, A. (2009)[4]).

- The additional monitoring sites along the Undai River should then be maintained by the local NAMEM officer; funding and approval should be provided by NAMEM at national level.

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[1] Kakinuma and Takatsuki (2012): Applying local knowledge to Rangeland Management in Northern Mongolia: Do "Narrow Plants" reflect the carrying capacity of the land? Pastoralism: Research, Policy and Practice 2012, 2:23 Page 2 of 10, http://www.pastoralismjournal.com/content/2/1/23

[2] Tumenjargal S, (2012): Local Understanding of Hydro-Climate Changes in Mongolia; thesis submitted in partial fulfillment of the requirements For the Degree of Master of Science Colorado State University, Fort Collins, Colorado

[3] Fernandez-Gimenez, ME (2000): ME. The role of Mongolian nomadic pastoralists: Ecological knowledge in rangeland management. Ecol. Appl. 2000;10:1310–1326

[4] Marin, A. (2009): Riders under storms: Contributions of nomadic herders' observations to analysing climate change in Mongolia; Global Environmental Change-human and Policy Dimensions - GLOBAL ENVIRON CHANGE 01/2010; 20(1): 162-176. DOI:10.1016/j.gloenvcha.2009.10.004).

Both the joint assessment and the ongoing pastureland and livelihood improvement strategy should strengthen and work within established Bag and Soum level processes of monitoring, evaluation, planning and implementation of pasture management defined by the legal and regulatory framework. (this includes monitoring by local NAMEM officer as well as pasture quality assessment by land officer and 5 yearly assessment by professional organization on behalf of ALACGAC)

Stakeholders: Nutag Partners, relevant OT department, and Soum government officers of livestock department, NAMEM (meteorological technician) and ALACGAC (land officer) collaborate with herders to enhance participatory monitoring protocols and implement monitoring. Local NAMEM officer to prepare proposal and rationale to national NAMEM agency; national NAMEM office to assess and process proposal, and provide funding for annual monitoring.

- Central government through relevant line agencies (ALACGAC, NAMEM, MIA) of Soum level officers involved in pasture and livestock monitoring and management need to give their full support in these efforts; investments and other support programs for the Soum by the company are not a substitute for government support but need to work together.

Stakeholders: Relevant departments in MIA, NAMEM and ALACGAC

Regarding All Environmental and Compliance Monitoring

- Local monitoring capacities of government (Soum and Aimag level) and non-government/civil society organizations need to be strengthened in order to more effectively evaluate impacts of the project as well as compliance of environmental monitoring and management by the company.

Stakeholders: OT, local and central government agencies, donor organizations/NGO in collaboration with government

Part 2

Regarding Quantifying Effects on Pasture and Livelihoods

- To quantify the effects on pasture through the diversion, the methodology developed by CPR to assess pasture pressures could be applied to estimate the additional pressure on pastures.
- Livelihood losses and damages to (resettled) households were previously not quantified (in company study 2012) as project construction was progressing fast (CPR 2012 a); as an increasing number of households is being effected, the need to recognize, define and agree on losses and damages is increasing and remains a prerequisite to move forward.

  It is recommended to undertake a study to define traditional herding livelihood losses (loss of income, reduced livestock productivity) on household level, and adequately address the complexity of overall impacts on the lives of local herders using a) available records on demography and livestock, b) indicators of the livestock program, c)

household level information provided by/with consent of households, and other indicators developed with herders and local government.

The study should be designed to also examine reasons for a declining numbers of herders' households (higher than national average) and herders' decisions to shift to other economic activities. This should be examined in the context of loss of access to pasture and declining water resources as a result of cumulative impacts on the surface and ground water resources in the Undai River basin.

Stakeholders: OT and EHT to contract experts to undertake study; study to be undertaken in close cooperation with local government officers and herders

Regarding Assessment of Losses of Ecosystem Services

- The economic value of the previous ecological services of the Undai River basin should be assessed in order to quantify the losses occurred to the local herding community through the effects on water and access to water. (Economic valuations are an economic exercise, therefore such an assessment can be undertaken for a previous status).

Stakeholders: OT to contract experts to undertake specialist study on "Economic Value of Ecosystem Services of the Undai River"

Regarding Assessing and Quantifying the Effects on Livestock Productivity

- Livestock productivity is affected through cumulative impacts (degraded pasture, dust) and insufficient intake of water due to loss of springs and slow recharge in wells is contributing to stresses on livestock. IEP could not obtain (by mid November 2014) multi-year data on indicators on livestock productivity collected on Soum level under the Mongolian Livestock Program for review and to determine whether they allow quantitative conclusions. Available data sets may be not complete (as the Mongolian Livestock Program is still in early years of implementation) A detailed study is necessary to document effects on livestock productivity, and on household livelihoods.

Stakeholders: OT and EHT to contract experts to undertake study; study to be undertaken in close cooperation with local government officers and herders

Regarding Alternatives for Diversion and Options for relocated "Bor Ovoo" Water Source

- The relocation of the Bor Ovoo spring should be driven by the priorities of the stakeholders. Its design is to be developed using the hydrologic information gained at the temporary diversion outlet at the south fence of the MLA. The location and specific design should be tailored to the needs of the users, and include considerations for wildlife, livestock and flushing flows from periodic stream flow. (the IEP Final Report and records of Joint meetings (August 2014) of IEP, EHT, CAO have outlined the features that a re-created water source should entail. While rehabilitation of some of the features can be achieved, it should be kept in mind by stakeholders (local government and local herders) that the original functions and settings cannot be re-built exactly, and that a

rehabilitation process takes years. The current construction at the end of the diversion pipeline delivers water, however it does neither replicate the functions for livestock herding nor the ecological functions of wildlife habitat. No water source to be reconstructed will be able to truly replace Bor Ovoo spring.
Wherever a new water source will be built, more changes to herders' movements will be required; the general water scarcity will attract many livestock, and potentially more conflicts would occur.

Stakeholders: Local government (Bag Governor, Livestock Unit, Land officer responsible for preparing annual pastureland management plan), and local herders to determine whether and where new "Bor Ovoo Spring" is to be created, and develop agreements on pasture and water use and seasonal movements, and determine needs/locations of additional animal watering points (wells, tanks).

OT to contract experts to design and implement spring re-construction, and to provide water assistance to herders as practiced in 2014 (20 km radius); government (Soum/Aimag and Central) to address water needs of herders and coordinate long-term with OT to secure water sources for herders.

With continuing mine and infrastructure development it is unlikely that any solution for a replacement water source and agreements on seasonal movement patterns among households, will be a viable solution for the long term as cumulative impacts will render traditional local livestock husbandry unfeasible in the broader vicinity of the mine site and the various infrastructure corridors.

Regarding Mitigation of Impacts on Pastoral Resources and Herders' Livelihoods

- The assessment of pasture impacts documents that the impacts are on community level and effecting all herder households; the process of disturbance of moving patterns is ongoing; the loss of access to pasture, and fragmentation and degradation of remaining pasture land are undermining the basis of traditional livestock practice and herding livelihoods.

  Therefore, transition to other livelihood sources has to be prioritized in local development planning. For a long term solution to mitigate impacts on pastoral resources and herders' livelihoods, a comprehensive Soum level development strategy is required; the strategy and resources for its implementation should be jointly agreed by stakeholders; it should recognize current and future impacts and limitations to herding as it was practiced customarily, include investments to support a new strategy for livestock production, processing and marketing, and provide opportunities for the next generation in education and in the pursuit of livestock or non-livestock based livelihoods.

  For the short to mid-term, support to establishing and strengthening Cooperatives should be increased, providing support in accessing loans, training in cooperatives management.

- Cumulative impacts on the long term can be expected to make traditional livestock husbandry not feasible in much of Khanbogd Soum, particularly in Javkhalant Bag.

Therefore, compensation and support to shift to other livelihoods (other than traditional herding), or move to other areas to practice herding there, , needs to be scaled-up to adequately address the impacts affecting the community as a whole; the livelihood impacts on the herding community are still expanding as herders' movements in search of water and pasture continue to change as a result of the loss of summer pasture and water sources.

Stakeholders: Local Government, with support from Aimag/Central level government to develop strategies to support alternatives in herding practices and other livelihoods. For the short/mid term, provide support to cooperatives development (organizational, processing, marketing, loans). Central government to provide funding support. OT, through relevant programs/departments, to assist in capacity development and funding.

Regarding Assessment of Cumulative Impacts on the Undai River Basin:

- In order to complete the assessment as outlined in the ToR, specifically to assess cumulative impacts in the Undai River Basin, it will be necessary to further review impacts of infrastructure development in the drainage system of the Undai River basin; and to address the impacts on the Haliv and Dugat Rivers (the ToR provide for an expanded study under Phase 2). Observations during phase 1 on construction of roads, establishment of quarries and initial discussions on diversions measures related to the tailing storage facilities, as well as information gathered in stakeholder consultations on the significance of the Haliv Dugat water sources for traditional local herding merit further study and impact assessment to better understand cumulative impacts.

Stakeholders: OT and EHT to determine/agree on need for assessment; OT to allocate funds if parties agree on moving forward with cumulative impact assessment.