

Undai River Diversion Complaint
Independent Expert Panel
Final Work Plan and Methodology for Joint Fact Finding Process¹
Phase 1 (October 2013 – May 2014)

(Signed off on December 6, 2013)

Introduction and general provisions

In February 2013, local nomadic herders and community members living close to the Oyu Tolgoi mine (the “Project”) in Mongolia’s South Gobi desert, with support from local NGO Gobi Soil and national NGO OT Watch, filed a complaint to the Office of the Compliance Advisor Ombudsman (“CAO”)² regarding the Project’s planned diversion of the Undai River and relocation of the Bor Ovoo Spring. As part of the CAO’s Ombudsman/Dispute Resolution process an Independent Expert Panel (the “IEP”) has been recruited to study these issues, along with issues relating to the diversion of the Haliv-Dugat River,³ an important tributary of the Undai River to inform CAO and the parties of the case, the Elected Herder Team (“EHT”) and Oyu Tolgoi LLC (“OT”), about their findings and recommendations. This document is an attachment to the Terms of Reference for the Independent Expert Panel agreed by all stakeholders (namely CAO, EHT and OT) at the joint meeting on August 9, 2013). The workplan is aimed to provide more clarity to the Parties of the Complaint regarding the work to be done by IEP.

Process objectives

The objectives of the IEP’s work in the Joint Fact Finding Study are to assess:

- a) Project impacts on three important water sources—the Undai River, the Bor Ovoo spring and the Haliv-Dugat River—and
- b) How those impacts will affect the herders’ pasture resources, access to water and water quality.

The assessment will determine:

1. Whether the information and analysis provided by Oyu Tolgoi LLC is correct regarding the impacts of;
 - a) the Undai River main stem diversion,
 - b) the relocation of the Bor Ovoo spring and
 - c) construction and operation of the tailings storage facility and waste rock piles, and
2. Whether there are\were any alternatives, modifications or additional mitigation measures that could avoid or reduce impacts on the herders’ pasture resources, access to water and water quality.

The Joint Fact Finding Study is undertaken in two phases.

In **Phase One**, the IEP will study and provide conclusions and recommendations related to:

¹ Joint Fact-Finding is a process for conducting scientific studies or reconciling existing studies in ways that better ensure the credibility and accuracy of the studies in the eyes of all stakeholders.

² CAO is the independent recourse mechanism for the International Finance Corporation (IFC) and Multilateral Investment Guarantee Agency (MIGA) of the World Bank Group. For additional information, please see <http://www.cao-ombudsman.org/>

³ Some of the herders know this river as the Haliv River, while others know it as the Dugat River. For the sake of clarity, we refer to it throughout as the “Haliv-Dugat River.”

The construction and design of the Undai River main stem diversion, in particular:

- Whether the diversion of the Undai River main stem is designed and has been constructed to function as needed to return the quality and quantity of water to the herders that the Undai previously provided;
- The direct, indirect and cumulative impacts on herders' pasture, access to water and water quality resulting from the diversion of the Undai River main stem; and
- Any feasible alternatives or modifications to the diversion of the Undai River main stem or associated monitoring and/or mitigation plans that would avoid or reduce impacts on the herders' pasture, access to water and water quality.

The planned relocation of the Bor Ovoo spring, in particular:

- The appropriateness of the proposed design for the relocation of the Bor Ovoo spring and any alternatives or modifications that would better replicate the ecological, cultural and social functions of the original spring; and
- The direct, indirect and cumulative impacts on herders' pasture, access to water and water quality resulting from the relocation of the Bor Ovoo spring.

At the completion of Phase One, the IEP will also develop recommendations and plan the implementation of **Phase Two** of the Joint Fact Finding Study. Based on Phase One findings, the panel will make recommendations regarding the feasibility and planning of Phase Two; including, but not limited to:

Impacts to the Haliv-Dugat River and cumulative impacts in the Undai River basin, in particular:

- Whether the Haliv-Dugat river has been diverted or will be diverted in the future, and the potential cumulative impact of the diversion of Undai river main stem and Haliv-Dugat on the water and pasture resources in this region;
- Whether the tailings storage facility is currently leaking, the risk of such leakage in the future and what impact(s) such leakage would have on the Haliv-Dugat River or any other source of drinking water for the herders and their livestock; and
- The feasibility of modifying the Project's tailings storage facility or related monitoring and/or mitigation plans in order to avoid impacts on the Haliv-Dugat River.

Approach

The IEP will carry out its work in a way that establishes mutually credible information for all stakeholders involved. Thus, the joint fact-finding methodology of the IEP rest on several core concepts:

- Transparency and inclusivity of the IEP evaluative process to maintain confidence of all stakeholders
- Clear and culturally appropriate communication regarding both methodology and outcomes
- Neutrality and scientific rigor with respect to the substance of the issues and evaluation of findings

The work is guided by the CAO with respect to its dispute resolution mandate, and jointly financed the IFC and the OT mine. IEP payment is managed by the CAO to ensure independence.

In addition, the IEP will maintain internal alignment among its team of experts, serving as one voice on the issues. At present, stakeholders have elected two IEP members -- Steve Buckley and Sabine Schmidt - - with the possibility of the IEP itself recommending the addition of a third expert when and if any capacity gaps are identified.

Note: a terminology and definitions appendix, created by the IEP, has been added at the end of this document to ensure shared understanding of the IEP work context.

Process

Key elements for assessment process include:

- a) prior agreement by the parties on the key steps of the assessment, and
- b) cycles of document review, site visits, stakeholder interviews, assessment by the IEP, and joint review of findings.

Due to the complexity of the issues, it is anticipated that joint fact finding will progress at different pace on different issues.

Technical Reviews

The assessment will include the evaluation of scientific data and technical reports as well as of local knowledge and experience of natural resources systems, their condition and trends, and their management, utilization and significance for local livelihoods.

Scientific and technical

The assessment requires in-depth studies of all relevant and available engineering; water, soil and plant monitoring and testing; management and mitigation plans and reports, including:

- monitoring data held on record with local (Soum and Aimag) and national government agencies, held by research institutions and undertaken on behalf of/by stakeholders on hydrology/geology, range land and desert ecology and related fields
- All impact assessment reports prepared to date
- Reports by companies contracted to undertake construction
- Climate records, and projections on climate trends will also have to be considered to assess impacts of the planned/ongoing construction
- All audits prepared following the ESIA. (Note: OT will make audits available to the IEP)

Local Knowledge and Livelihoods

The assessment will review and produce conclusions and recommendations studying the practices related to livestock husbandry production and herders' livelihoods in the Undai river basin. The assessment will also study changes to local practices of natural resource use, namely pasture and water, and address cultural impacts resulting from any changes in river conditions as a result of diversions as well as information on livelihoods and local customary practices of conservation, worshiping and management of natural and cultural values and sites (taking into consideration socio-economic factors (such as inflation) influencing the life of herders).

Sources for this information include:

- Records at local government and baseline studies and impact assessments undertaken for the project and specific construction plans.
- Knowledge of local herders themselves, and meetings with groups and individuals from the local herder community and EHT will be an important means to understand local livelihoods and pastoral practices and the significance of pasture and water resources.
- Video / image records of the Bor Ovoo spring in its previous condition, before constructions began in the area. OT LLC will make these records available for viewing.
- Consultation with the Soum hydrological technician, and hydrological records pertaining to the Bor Ovoo spring held on Soum and Aimag level, and material that may be available at national level (NAMEM, water department).

Site Visits

The objectives of field visits are to gain a common understanding of:

- Previous and current practices of the nomadic livestock herders that maintain the customary mobile pastoralist management of natural resources required to sustain their livelihood and culture
- Implemented and planned constructions related to the OT mining operation, and
- Projected possible and probable impacts -- considering both local knowledge and scientific data and
- Technical options of the construction projects in question.

Field visits will cover:

- The Undai River main stem diversion area, the mining site and specific sites of ongoing and planned constructions, as well as areas of seasonal pasturelands, grazing resources and water sources utilized by the effected herders.
- Sites of the diversion dam construction, diversion channel, the Western channel, and the sites of the planned Southern embankment and river crossing, and of the waste rock dump area.
- The Bor Owoo spring site, and the proposed relocation site for the spring.
- The downstream stretches of the Undai river, as an important grazing resource with extensive elm populations, should also be visited to assess their significance and potential impacts.
- For phase 2 design and implementation, the Haliv-Dugat river, and the areas of the planned tailings storage facility and waste rock dump will be visited.

Stakeholder Participation, Roles and Responsibilities

The proposed process will consult with stakeholders to clarify relevant issues – specifically:

- the local community of nomadic livestock herders;
- local government representatives and organizations;
- non-government organizations (Gobi Soil, OT Watch)
- elected representatives (EHT) to formally represent their complaints,
- OT LLC, in particular relevant officers tasked with compliance, impact assessments, community relations and planning.

Draft work plans and methodologies for both phases will be presented to stakeholders for clarification.

It is proposed that following the desk review and brief introductions at national level institutions take place: such as the Ministry for Environment and Green Development (MEGD); a visit with the OT headquarters in Ulaanbaatar; and the national NGO OT Watch. The IEP team then proceeds to Khanbogd Soum to visit the sites and work closely with herders and on-site OT staff to address the issues in question. This first field visit will enable the IEP team to gain understanding of the key issues and positions of the stakeholders and develop a working relationship with them.

Local stakeholder consultations and participation in the fact finding process will include: meetings with the EHT, with other local herder household members and with aimag and local government representatives.

The field visit will provide first hand insights before the team returns to further document reviews and to meetings at central/national level agencies and organizations, and OT headquarters in Ulaanbaatar.

Methodology

Methodologies for activities include:

- Review of scientific/technical reports to assess validity of methodologies and findings on projected impacts, and options that may not have been covered in planning of river main stem diversion and mitigation planning.
- Discussions/clarifications with technical experts/scientists.
- Tools and methods of participatory action research for joint fact finding, to develop a common (same) understanding of local livelihoods and production systems, and of social science research to gain a comprehensive understanding of local socio-economics. [These may include additional focus group discussions, semi-structured interviews as well as visualization tools such as natural resource and social mapping, changes and trends of natural resources/environment, threat analysis, livelihood analysis, and others.]

Communication and Documentation with Stakeholders / Media Interactions

The IEP will provide regular updates to stakeholders based on its progress. Those updates will take place through both in person and email communication – in both English and Mongolian.

The CAO mediation team will produce written summaries (in English and Mongolian) of each IEP event so that there is a cumulative record and narrative of events for use in follow-up processes and in a final IEP decision on key questions it is answering.

The IEP may face media inquiries during its work. The IEP will not invite media interaction. The CAO mediation team will respond to media inquiries as much as possible on behalf of the IEP. Media will not be invited to public meetings between the IEP and stakeholders.

Common Hydrologic Terms/Definitions

Channel: Generic term, can be man-made or natural, but generally composed of a bed and banks, an open conduit.

Active Channel: that portion of the channel that flows during the most frequent times of the given hydrologic cycle. Not usually vegetated.

Bankfull Channel: the channel defined by the channel-forming flows (generally corresponds to the 1.5 year flood). Though this is not as often as flow in the active channel, but when the channel is full to its banks and doing the most work moving bedload (below flood stage). Parts of the bankfull channel can be vegetated.

Low-flow Channel: the minimal flow within the bankfull channel, this will vary depending on flow regime.

Man-made Channel: designed to convey water via a defined bed and banks.

Diversion Channel: designed to divert all or part of the flow from another channel, can be temporary or permanent.

Floodplain: that area adjacent to, and outside, the bankfull channel. The form and function of the floodplain varies with stream type and flow regime. The floodplain is inundated when the flow exceeds the bankfull discharge.

Terrace: an abandoned floodplain, constructed in a different climatic flow regime. Usually characterized by a flat surface, a meter or more above the bankfull channel elevation.

Diversion: The taking of water from a stream or other body of water into a canal, pipe, or other conduit.

Diversion Dam: Any artificial barrier which diverts water.

Partial Diversion: A diversion of only a portion of the water flow.

Temporary Diversion: A diversion that will be of limited duration.

Ephemeral Stream: A stream that flows only briefly after rainfall events.

Main Stem: The principle channel of a stream system.

Tributary: A smaller stream that flows into a larger stream.

Braided Stream: Characterized by successive division and rejoining of streamflow with accompanying islands. A braided stream is composed of anabranches.

Anabranch: A diverging branch of a river which re-enters the main stream.

Spring: A discrete place where groundwater flows naturally from a rock or the soil onto the land surface or into a body of surface water.

Seep: slow flow of groundwater to the land surface or body of water.

Restore: repair or renovate so as to return to its original condition.

Reconstitute: to build up again from parts, reconstruct.

Replace: to take the place of or find a substitute for something that is broken, old, inoperative.

Re-create: to create again, reproduce.

List of Attachments:

1. Joint Fact Finding Process

Key Steps, Sequencing of Activities, and tentative Timeframe for Joint Fact Finding Study, Phase 1

#	Activity	Deliverables and Outcomes	Timeframe
PHASE 1			
1	Desk review of documents and reports (focusing on Undai river main stem diversion and Bor Ovoo spring)	Draft Work Plan and Methodology for Phase 1	October – mid-November 2013
2	Introductory meetings and courtesy calls at central level to inform about work plan and set appointments for follow-up, and to ensure all relevant stakeholders and information sources are included in and informed of the process	Stakeholders, and all relevant agencies, organizations and information resources are informed of and included in the process.	Mid-November 2013
3	First field visit with local stakeholder consultations, meetings with local government representatives and joint site visits. Site visit will focus on phase 1 sites (Undai River, diversion dam, Western channel, Southern embankment and crossing, and Bor Ovoo Spring current and potential relocation site. Preliminary visit to phase 2 sites (Haliv-Dugat river watershed, tailings storage facility areas, waste rock dump areas).	Positions of stakeholders are defined and details of differences clarified. Needs for explanation and clarification among stakeholders are determined.	Mid-November / Second half of November 2013
4	Meetings with officers of relevant line agencies (Environmental department, water authority/agency, agricultural department) and data/information collection at Aimag (provincial) level.	Relevant agencies, organizations and information resources on Aimag level are informed of and included in the process	Second half of November 2013
5	Meetings at national level with representatives of Ministry for Environment and Green Development, relevant agencies (Water authority, State Specialized Inspection Agency, NAMEM (National Agency for Meteorological and Environment Monitoring) and relevant departments, research institutions (Institute for Geo-Ecology, Desertification Research Center, and others tbd.), national and international non-government organizations involved in research and impact assessments (WCS, TNC, and others tbd.), consultants/consulting firms that were involved in impact assessments and/or baseline studies and monitoring, and contractors/firms involved in design and/or implementation of constructions.	Technical information/data is completed, confirmed and reviewed/clarified with technical experts/scientists.	End of November/early December 2013
6	Evaluation of first round of field visit and meetings; and preparation of preliminary report.	Preliminary Report including summary of findings, needs assessment (information gaps, needs and opportunities to engage with stakeholders, information sharing and clarification and explanation, critical technical issues that need to be addressed to assess impacts) and next steps.	End December 2013 / early January 2014.

7	Translation of report into Mongolian language and preparation of presentation(s) to translate technical findings / issues into non-technical language. Distribution of draft report/presentation to stakeholders prior to next round of meetings	Mongolian language report; presentation in non-technical language.	Mid-January 2014
8	Second field visit: presentation of findings to stakeholders, discussion and clarifications; joint meeting with stakeholders for planning forward. Second site visits to “phase 1 sites”	Preliminary Report and findings are explained and clarified to stakeholders.	Mid-February, after Tsaagan Sar/Lunar New Year)
9	During same field trip: Joint visit to “phase 2 sites” (Haliv-Dugat River, Tailings Storage Facilities areas) to commence assessment of potential impacts on Haliv-Dugat river, on pasture resources, access to water and water quality, and overall cumulative impacts of all three activities (Undai river main stem diversion, Bor Ovoo spring relocation, Tailings storage facilities and waste rock dump).	Key issues to be addressed in Phase 2 are determined, Scope of Work for phase 2 defined.	Early March 2014
10	Preparation of Phase 1 final report/recommendations	Phase 1 final report/recommendations. 1. Draft to stakeholders.	Late March 2014
11	Review of reports/documents relevant to Phase 2 issues. Commence preparation of roadmap/study design for Phase 2.	Roadmap/study design for Phase 2.	Early April 2014
12	Third joint field visit – a) finalizing findings and planning implementation of recommendations/agreements phase 1; b) visit phase 2 sites (Haliv-Dugat river, TSF areas, WDR areas) and discussions/clarifications with stakeholders on phase 2 key issues, information gaps; planning joint fact finding in Phase 2.	Workplan and Methodology for Phase 2. (1. draft for stakeholders)	April 2014
13	Stakeholder meetings to discuss Workplan and Methodology for Phase 2	Workplan and Methodology for Phase 2. (up-dated following stakeholder discussions)	April 2014
14	Preparation of final report/recommendations Phase 1 and Plan for Phase 2.	Final report Phase 1 and agreed Workplan and Methodology for Phase 2	May 2014

JOINT FACT-FINDING (JFF) PROCESS⁴

What is it?

Joint Fact-Finding is a process for conducting scientific studies or reconciling existing studies in ways that better ensure the credibility and accuracy of the studies in the eyes of all stakeholders. JFF is recommended when parties can reasonably anticipate that their science will be challenged by stakeholders who may be opposed to or skeptical of the use of the science in controversial decisionmaking processes. JFF is an antidote to “advocacy science” – the selective use of science to support or oppose a controversial position or action.

“Advocacy science” (as opposite to JFF) ultimately leads to hard-fought debates that play out in legal and regulatory forums where expert witnesses testify to the “soundness” of their science and the obvious weaknesses in the opposition’s science and/or their scientists. Most often, neither side trusts the other side to do credible and objective scientific inquiry. The result is usually deep skepticism about the accuracy of the science and whether data, analysis, and interpretation have been distorted to arrive at a pre-determined outcome. The unbiased public is left to conclude that “science” doesn’t provide an answer.

The tendency towards advocacy science is the result of what psychologists refer to as confirmation bias – the search for or interpretation of information in a way that confirms one's preconceptions or beliefs. Confirmation bias is a cognitive process wherein people actively seek out and assign more weight to evidence that confirms their hypothesis, and ignore or discount evidence that could disconfirm the hypothesis.

JFF is a process wherein the parties work with scientists to jointly identify research questions, design and carry out scientific inquiry, and analyze and interpret data. How this occurs and the extent to which it occurs depends on the level of trust between the parties. High trust means that stakeholders are generally comfortable with unilateral scientific inquiry and do not require participation in JFF. Low trust means that stakeholders are generally uncomfortable with unilateral scientific inquiry and may want greater involvement.

Because it is a flexible process that brings scientists, decision-makers and citizens into more positive interaction, it improves communication and reduces factual

disagreement. The procedure requires that those who are affected by a decision also be involved in framing the research question(s) and identifying, generating, analyzing and interpreting the scientific and technical information that will be used to inform a decision or action.

JFF procedures are flexible but have **six critical characteristics**

- (1) They involve multiple stakeholders who may have very different viewpoints;
- (2) they are collaborative and require people to work together;
- (3) they are structured, meaning, JFF processes and meetings are not left to chance but are well designed and highly focused dialogues;
- (4) they are inquiry based and require a robust exploration to understand the problem from all angles;
- (5) they are interest-based study processes and not forums for arguing political positions; and
- (6) they are integrative and multidisciplinary. They bring different types of knowledge, information and data to the table.

⁴ Adapted from “*Humble Inquiry. The Practice of Joint Fact Finding as a Strategy For Bringing Science, Policy and the Public Together*” by Peter S. Adler, PhD; Todd Bryan, PhD; Matthew Mulica, MS; Julie Shapiro, MS