

Appendix 1.3

Update of Chapter 20 of the Technical Report (published November 2015).

20.1 Environmental and Social Impact

An Environmental and Social Impact Assessment (ESIA) was developed in 2014 for the Amulsar Project in accordance with IFC Performance Standards and Guidelines, and EBRD Performance Requirements. The ESIA includes a suite of management plans, a Commitment Register and the foundation for the Environmental and Social Management System (ESMS) and the Occupational Health and Safety Management System (OHSMS). It is recognized that the scope and layout changes developed in the Value Engineering Optimization work have changed some of the Project parameters that were previously assessed; Lydian intends to update the impact assessment and disclose an ESIA Amendment during 2nd quarter 2016.

The ESIA developed for the Amulsar Project fully describes the policy, legal and administrative framework under which the Project will be developed and under which the assessment was completed; as well as a description of the Project covering geographical, ecological, social and temporal considerations. The ESIA includes a detailed analysis of the baseline data that provides an accurate description of the physical, biological, cultural and historical conditions of the land within the Project footprint and those areas that would be affected during the course of the development (the Project Affected Area). The ESIA also reports the environmental and social impacts associated with Project implementation. The mitigation measures that are needed to minimize or control potential impacts to an acceptable level are presented, together with an analysis of feasible alternatives. Key management plans covering environmental, biodiversity, safety, social management and community development among others, have been formulated and presented, for the delivery of the Project from construction to operation and mine reclamation, closure and rehabilitation.

For the development of the mine, several permits and licenses will be required, outlined in Table 1.7.

Table Error! No text of specified style in document..1 RA Permits Required for Development of Amulsar Mine		
License/Permit Title	Application/Provision	Status Comment
Mining Right	To permit extraction of ore	Granted. Valid until 2034. The Mining Right needs to be amended based on the outcome of the Value Engineering and Optimization work.
Rock Allocation Area	Change in land use from agriculture to industrial required to accommodate all mining infrastructure and get construction permit	Granted for the whole infrastructure. Valid until 2034.

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RA Permits Required for Development of Amulsar Mine

License/Permit Title	Application/Provision	Status Comment
Water abstraction & discharge license	To permit the use and the discharge of water.	No application has been made as yet. The company has a water extraction permit for exploration activities.
Air emission permit	To permit the emissions to the Air.	Not yet applied for. The company has air emission permit for exploration activities.
Explosives permit (store, transport, use)	To permit the use and the storage of the explosives material.	The Company will contract a company that will have both blasting and storage permits. As such, Geoteam will not need to get these permits.
ICMC cyanide supplier compliance	Company is committed to become ICMI compliant, thus the transporter and the producer should be compliant as well.	The Company will purchase CN from a producer that is ICMC compliant, or working on becoming compliant, taking professional advice from an ICMI Lead Auditor to ensure that viable options are in line with the ICMC.
Red Book Plant Translocation	The Decree allows Lydian to translocate Red Book listed Plants to three locations – a) botanic gardens, b) National Parks (protected areas) and, c) to other known listed habitats.	The Company was granted a permit in August 2015 to translocate 1,500 Potentilla porphyrantha plants located in the footprint of the pits. These plants have been planted at the new glasshouse located at the Sevan Botanical Garden.
Mining Haul Roads	The Armenian Mining Decree on Ramps previously allowed designing haul roads within the Mine plan with a nominal grade of 7%. That Decree was based on previous Soviet regulation.	In March 2014, a new Mining Decree was enacted that increased the maximum slope for mine haul roads and ramps to a nominal 10% grade. This considered the fact that modern trucks are designed for mine haul roads with steeper grades.
Construction and Architecture permits	To get the approval that all the design corresponds to Armenian Standards and Norms.	Not yet applied for.
Gas and power use designs and construction expertise and permits	To permit the gas and power use.	Not yet applied for.
Waste Passports	To give the class of hazard to the different waste types and permit the locating of the waste and its disposal.	Not yet applied for.

The Project footprint within the Rock Allocation Area will be approximately 599 ha. The Project footprint constitutes the area that will be directly disturbed by placement of new infrastructure and groundworks, including land required for the construction of the mine.

An additional disturbed area that comprises the Project footprint plus the immediately adjacent land that is considered likely to be affected during both construction (disturbance of topsoil) and operations (as a consequence of dust deposition on vegetation, thereby reducing the value of the land for agricultural use). The project disturbed area incorporates 922 ha including the following buffer zones:

- 100m adjacent to the open pits;
- 50m adjacent to the BRSF, conveyor and haul roads;
- 30m adjacent to the HLP; and
- 15m adjacent to mine access road.

The main elements of infrastructure will be fenced, for security, although not all land within the fenceline will be subject to disturbance, amounting to a further 62 ha of land in addition to that identified as disturbed.

Additional areas of land will either be subject to ecological disturbance or restricted for other land users and wildlife. This restricted area amounts to 478 ha of land.

In total the Project would result in the land take, disturbance or restricted use of 1765 ha of land.

There are two Important Bird Areas (IBAs) in the vicinity of the Project, Jermuk and Gorayk. The IBAs constitute “Key Biodiversity Areas” (KBA). The current design is avoiding the IBAs; however, the Lesser Kestrels, which are the primary designated feature of the Gorayk IBA, hunt in the Project Affected Area.

The closest National Park to the site is the Sevan National Park located approximately 44 kilometers to the north-northwest of the Project. Three specially protected State Sanctuaries are located in the vicinity of the Project: Jermuk (2.9km north), Her-Her Open Woodland (5.1km, west) and Jermuk Hydrological (6.4km, north).

Most land within the concession area is “natural” habitat (albeit with many anthropogenic influences such as grazing). Habitat type and vegetation distribution has been analyzed using satellite imagery and further details of the density of vegetation within each of the Project components has been considered. The upper slopes of Amulsar are located in Critical Habitat per IFC’s requirements for *Potentilla porphyrantha* (*P. porphyrantha*), a rare plant, and Critical Habitat for *P. porphyrantha* and Brown Bear per requirements of PR6.

The Project may also further affect biodiversity as a result of land use change, disturbance, induced demographic and social changes and other environmental changes that affect a wider area.

Depending on their exposure and sensitivity to impacts, specific mitigation measures were identified in the ESIA for impacts on these receptors. Mitigation measures were also identified for impacts on other biodiversity receptors considered to be relatively widespread and resilient in order to achieve "No Net Loss" of biodiversity overall as a result of the Project.

The Project is expected to have a residual longer-term impact on native and natural vegetation and on certain fauna species; therefore a biodiversity offset is considered for the entire footprint of the Project for impacts on natural vegetation due to its species richness and the presence of regional endemic plants. The Project also affects *P. porphyrantha*, an Armenian Red Book Plant which has part of its population within the mine pit areas. Residual impacts are also likely on animal populations including populations of breeding and migratory raptors, and the Brown Bear (and Bezoar Goat, Lynx and Wolf) known to use habitat on Amulsar Mountain. The Project will not have direct effects on Jermuk or Gorayk IBA, but does provide feeding area that supports the bird species for which these areas are designated. Land use changes throughout the Project affected area could affect availability of prey items for birds of prey. The availability of undisturbed hunting habitat for Lesser Kestrel and feeding habitat for Egyptian Vulture and other raptors is being monitored as part of plans to develop offset opportunities to ensure that the Project does not cause irreversible declines in species or habitats in the longer term. To that effect it is proposed to establish a Biodiversity Offset project in the proposed Jermuk National Park-area where preliminary surveys and assessments carried out in 2015 suggest that it could be suitable to meet many of Lydian's requirements for a natural habitat offset.

Protection to a proportion of the remaining population of *P. porphyrantha* has been afforded through a Set-Aside located in an area named Arshak (southern part of Amulsar), within which no Project activities are authorized. This incorporates the southern part of the Critical Habitat, and will be protected to safeguard the remaining proportion of the *P. porphyrantha* population on Amulsar as well as other important biodiversity receptors, mainly fauna. Research, plant translocation and field trials have been initiated in partnership with the Academy of Science of Armenia and the Institute of Botany and Cambridge University Botanic Garden (UK) to establish effective techniques for restoring the vegetation types affected by the Project.

During exploration activities and stakeholder engagement, it has become apparent that local people are generally supportive of the Project. The potential benefits from employment are welcomed, however in all settlements (Gorayk, Gndevaz and Saravan) community expectations are high.

Other positive impacts relate to improvements in local livelihoods through direct employment by the Project, as well as knock-on economic growth; and macroeconomic growth through taxation, land rent and other revenues paid by Lydian. Positive impacts range from minor to moderate; provided enhancement measures are implemented.

Effective implementation of the mitigation measures defined in the ESIA will be essential to derive and maintain positive benefits associated with the Project through the construction and operational

phases. Lydian's social policy and strategy and on-going community development measures are expected to provide additional benefits to local communities, over and above the Project impacts.

Social impacts at mine closure stage have also been assessed; depopulation, economic decline and breakdown of some community services are the main impacts expected. Mitigation measures have been identified and involve progressive social investment, community development, economic diversification and capacity building activities within the operational stage.

The details of mitigation and enhancement measures are considered in the ESIA; the associated management plans have been defined and will be incorporated into operational controls, as well as Lydian's ESMS and OHSMS.

Although the Amulsar Project has the potential to create environmental and social impacts, the ESIA demonstrates that potential impacts are manageable and can be avoided, prevented or reduced in magnitude such that the Project will be constructed and operated to acceptable levels, in accordance with IFC Performance Standards, EBRD Performance Requirements and all applicable Armenian and international standards. By adopting a wide range of impact management and mitigation measures, it is considered that any potential residual environmental impacts will be reduced to a moderate or low (or below) level. Mitigation measures include GHG controls, reduction of fugitive emissions by active dust control, biodiversity offset measures, controlling blast vibration by design, water management and treatment, consultation and monitoring programs, implementing good waste management practices, and progressive rehabilitation. Mitigation measures that formed part of the design incorporate ESIA commitments and have been included in the development costs, by establishing Environmental Design Criteria (EDC) and management plans.