

ESRS Amulsar Gold Mine # 37084

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Project Description

The Amulsar Gold Project (the "project") entails the construction and development of a greenfield open pit gold mine in southern Armenia. The project is being implemented by Lydian International Ltd. (the "company" or "Lydian") through its wholly-owned Armenian subsidiary, Geoteam CJSC ("Geoteam"). The total project cost is estimated at \$395 million and will be funded primarily by a \$325 million construction financing package provided by Orion Mine Finance ("Orion") and Resource Capital Fund VI L.P. ("RCF"). This package consists of \$160 million in senior debt, a \$60 million gold & silver streaming facility, and \$80 million in common equity, as well as a \$25 million stand-by debt facility available to finance potential cost overruns. The remaining balance will be funded through an equipment lease facility and by proceeds from a public equity offering completed by Lydian in May 2016.

IFC's proposed investment of \$40 million will represent part of the \$325 million construction financing package provided by Orion and RCF.

The Amulsar Gold Project is located in central south-east Armenia approximately 170 kilometres (km) from Yerevan. The closest town to the project is Jermuk, a spa town with a nearby ski resort, which is situated approximately 10 km northwest from the gold-silver ore deposit and 7 km from the closest Project infrastructure. There are also four rural communities in proximity to the project, namely: Kechut (a rural community associated with the town of Jermuk), Saravan (which includes the communities of Saralanj and Ughedzor) and Gndevaz in Vayots Dzor Marz; and Gorayk, located in Syunik Marz. Gndevaz is the community closest to the footprint of future mine infrastructure, which is the Heap Leach Facility (HLF) located at a distance of > 1 km from the outer edge of the village. The land within the project area is characterised by sub-alpine and mountain meadow landscape which typically supports grasslands used for summer grazing. At lower elevations agricultural use is more diverse and supports a range of crops. The wider area is characterised by mountains, undulating hills, river valleys and gently inclined plateaus at lower elevations. Surface water run-off from the slopes of the project area contributes to the catchments of the Arpa, Darb and Vorotan Rivers. The Vorotan River flows to the east of the

project and the Darb River flows to the south of the project, and joins the Arpa River flowing west.

The current proven and probable reserves include 96.7Mt grading 0.78 g/t gold and 3.6 g/t silver in Erato, Tigranes and Artavazdsdes. The future mine aims to produce 2.1 million ounces of gold and 0.7 million ounces of silver over an initial 10 year mine life. The construction of the project is estimated to take 18 months. Early works are expected to commence in September 2016.

The peak workforce to be employed during construction is estimated at approximately 1,300 people. The total workforce during mine operations is estimated at 657 employees. The bulk of the operational workforce, approximately 85%, will be employed in the mining and processing departments. Upon closure, the number of people expected to be employed in monitoring and maintenance activities will be around 20. The majority of the workforce (estimated at 95%) is anticipated to come from Armenia and about 30% from the local area.

The main project components are:

- Tigranes/Artavasdes and Erato open pits;
- Barren Rock Storage Facility (BRSF), with some barren rock also to be placed in the Tigranes/Artavasdes and Erato pits;
- Crushing plant (consisting of primary and secondary crushers);
- Run-of-Mine (ROM), crushed ore, and low-grade ore stockpiles;
- Topsoil stockpiles;
- Haul and access roads;
- Overland conveyor and truck load-out area;
- Heap Leach Facility (HLF) including:
- Heap leach pad (HLP);
- Solution collection pond and three storm ponds;
- Adsorption-Desorption Recovery (ADR) plant;
- Temporary hazardous waste storage facility;
- Offices, laboratory, maintenance shop and reagent storage warehouse;
- Sediment management ponds;
- Truck shop (maintenance workshops) and mine administration offices;
- Domestic waste water treatment facilities;
- Landfill for non-hazardous waste;
- Explosives magazines (two sites); and
- A temporary, 600-man construction workers' camp. During peak construction work, and also during the operations phase, additional workers' accommodation will be provided in Jermuk (hotel rooms and apartments).

Activities anticipated in the major phases of the project include:

Early Works: This phase is expected to start during the third quarter of 2016 and will include the construction of critical sedimentation and drainage control; upgrade or develop access roads into project work areas; establishment of a platform for construction offices, temporary warehouse, equipment parking and servicing facilities; temporary construction utilities for water,

power and sewage; installation of access control guard stations to project work areas; temporary water intake at the Arpa River for early construction activities; relocation of the irrigation pipeline that runs across the bottom of the HLF site (tie-in, install vales and install new pipe), and removal of the power line; and initial archaeological clearances including excavations in the HLF area.

Major Construction Phase: This phase will take approximately 2 years and will include cconstruction of the support infrastructure necessary for the operation of the mine, processing of the ore and refining of precious metals including the temporary construction workers' camp, water supply and sanitary facilities, access roads, a new electricity substation, and site water management infrastructure.

Operations Phase: This phase will have an estimated duration of 10 years. The design of the mine is based on operating 350 days per year, allowing 15 days in the schedule to accommodate downtime during the winter months due to inclement weather. Mining is scheduled to take place during two 12-hour shifts each day. Three open pits will be excavated to access the ore bodies of Tigranes, Artavazdes and Erato. These deposits will be extracted using conventional open pit mining methods using a phased sequence of extraction commencing with Artavazdes, progressing to Tigranes and in a separate open pit, the Erato ore body. The extracted ore will be crushed and transported using a combination of conveyor and dump truck haulage to the HLF where a dilute sodium cyanide (NaCN) solution will be applied to leach out the gold and silver. Gold and silver dissolved in the cyanide solution will be recovered from the solution at an Adsorption Desorption Recovery (ADR) plant. The recovered precious metals will be smelted to produce doré and exported from the Project for refining. .

Support infrastructure and activities: These will include: mine truck maintenance shop; truck wash facility with water / oil separator; plant warehouse and workshop; administration building; vehicle refuelling station with above-ground diesel and petrol storage tanks; plant operations laboratory, with onsite technician to run cyanide, pH and gold samples, and metallurgical testing; infirmary, with medical personnel; security checkpoint buildings; reagents store; chemical and hazardous substances storage; and temporary hazardous waste storage facility. Other support facilities include: additional accommodation facilities (hotels/apartments) in Jermuk; core storage facility located in Gorayk; security checkpoints; explosives magazines; non-hazardous waste landfill, waste sorting system, incinerator and main electrical substation.

Decommissioning, Reclamation, and Closure Phases: This phase is expected to have a duration of 2 years followed by 5 years of post-closure monitoring. The preliminary mine rehabilitation and closure plan includes removing all surface structures when no longer needed. At the end of the life of mine the HLF will be detoxified by rinsing and running a cyanide-destruction circuit until the leachate meets cyanide standards. For the post-closure period, all seepage will pass through a nitrate-reducing bioreactor and a sulphate-reducing bioreactor. This passive treatment system (PTS) will be sufficient to treat the water to meet water quality standards. The effluent from the passive treatment system will be discharged to the Arpa River or used for land irrigation.

The HLF and the BRSF will be re-profiled. The water emanating from the HLF and BRSF will be treated using the PTS and monitored and treated as required after closure until quality standards are met. The backfill within the pits will assist in reclamation and reduce the post-closure visual impact of the pits, reduce the overall volume, footprint, and impact of the BRSF, and minimize the formation of pit lakes. The pit rim will be made safe using a berm and then fenced on the outside to restrict access.

Overview of IFC's Scope of Review

IFC's environmental and social review of the project consisted of an assessment of current environmental, social and health and safety (ESHS) documents, including the project's technical and ESHS reports and records; review of the Environmental and Social Impact Assessment (ESIA) and associated studies related to the various physical, biological and social aspects of the project; documentation of the land acquisition process and stakeholder engagement, project engineering design specifications and contractor management documentation, and related ESHS management plans and operational procedures for construction, operation and decommissioning. In addition, IFC's review is based on several visits to the project site during the years of 2007 and 2015, interviews with key management and technical staff from Lydian and Geoteam, meetings with community members around the project site and with government representatives and other stakeholders in the capital, Yerevan.

IFC environmental and social specialists have worked closely with Lydian since its first equity investment in August 2007 providing guidance and advice on ESHS matters as the various phases of exploration progressed. As part of this involvement, IFC staff have participated in annual ESHS supervision visits to the project site and have assisted the company in defining its Environment, Social, Health and Safety and Human Resources Policies and related management plans and programs to manage exploration activities in line with IFC's Performance Standards (PS) and Good International Industry Practice (GIIP). In addition, IFC has assisted the company in developing the necessary ESHS documentation, systems and processes to take the project forward to development. As part of this work, IFC has worked closely with the international consulting firms that developed the ESIA that is fully aligned with the EIA submitted for the Mining Right in 2014 and 2016 for the Armenian Ministry of Nature Protection, as well as the ESIA for mine development disclosed in May 2016 for the construction, operation and closure phases. More recently, IFC has been working with the company to finalize a number of key deliverables prior to the start of construction activities, as noted in the attached Environmental and Social Action Plan (ESAP).

Identified Applicable Performance Standards

While all Performance Standards are applicable to this investment, IFC's environmental and social due diligence indicates that the Project will have impacts which must be managed in a manner consistent with the following Performance Standards:

PS1: Assessment and Management of Environmental and Social Risks and Impacts;

PS2: Labor and Working Conditions;

PS3: Resource Efficiency and Pollution Prevention;

PS4: Community Health, Safety and Security;
PS5: Land Acquisition and Involuntary Resettlement
PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources, and
PS8: Cultural Heritage.

Regarding PS7 (Indigenous Peoples), this PS is not relevant to this project because of the absence of Indigenous People located in or using the area of influence of the company's operations. If IFC's investment proceeds, IFC will periodically review the project's ongoing compliance with the Performance Standards.

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Environmental & Social Categorization and Rationale

This is a Category A project because it is a large, complex project with correspondingly significant social and environmental risks and irreversible impacts related to land take for the HLP and landscape transformation for developing the pits. Key issues to address during the various phases of the project include surface and ground water management, pollution prevention, biodiversity management, cyanide management, non-hazardous and hazardous waste management, community health and safety, impacts to livelihood, security, labor and strategic stakeholder engagement. Potential influx will be managed through the community health and safety management plan

In order to address the above identified issues and meet the requirements of IFC's Performance Standards, Lydian has developed a comprehensive ESIA, commitment register, an Environmental and Social Management System (ESMS) and an Occupational Health and Safety Management System (OHSMS). These Systems include the necessary management plans and operational procedures to address existing and potential risks and impacts from the project during its various phases. Upon implementation of the necessary mitigation measures described below and in the attached Environmental and Social Action Plan (ESAP), the project will meet environmental and social requirements, namely IFC's Performance Standards on Social and Environmental Sustainability and Access to Information Policy, and applicable World Bank/IFC environment, health and safety (EHS) guidelines and GIIP. All requirements are equally applicable to staff from Lydian, Geoteam, its Construction Management Consultant (Praetorian Construction Management) as well as its contractors and subcontractors.

Environmental and Social Mitigation Measures

IFC's appraisal considered the environmental and social management planning processes and documentation for the project and gaps, if any, between these and IFC's requirements. Where necessary, corrective measures, intended to close these gaps within a reasonable period of time, are summarized in the paragraphs that follow and (if applicable) in an agreed Environmental and Social Action Plan (ESAP). Through implementation of these measures, the project is expected to be designed and operated in accordance with Performance Standards objectives.

PSI Assessment and Management of Environmental and Social Risks and Impacts

Environmental and Social Management System (ESMS)

The company has developed Environmental, Community Relations, Health and Safety and Human Resources Policies as well as Whistle Blower, Anti-Corruption, Insider Training and Disclosure and Confidentiality Policies and a Code of Conduct which explicitly state the objective of compliance with Armenian Law and IFC's Performance Standards and EHS Guidelines. The company has also compiled a comprehensive Commitments Register (CR) which details all commitments made during the ESIA process, and has developed the framework of a comprehensive E&S Management System and a H&S Management System which are dynamic in nature and include the necessary elements of the plan-do-check-act cycle of continuous improvement which reflects the key elements of ISO14001 and OHSAS18001. Together with the policies, the programs which form part of these Management Systems include the identification of legal requirements, programs to identify environmental, social and health and safety aspects and impacts, risk assessment and risk management planning, processes to establish E&S & H&S MS objectives and targets, operational control, which includes ESHS management plans (Level 1 and 2 documents), organizational capacity elements, emergency preparedness and response, monitoring and measurement elements and stakeholder engagement and external communications elements. The company is also in the process of developing comprehensive "Level 3" E&S and H&S standard operating procedures (SOPs) including work instructions and method statements to make sure contractors and subcontractors adhere to the contract and ESIA.

IFC is working closely with the company to ensure that the E&S and HS& Management System and its corresponding Level 1 and 2 documents and management plans, and the Level 3 detailed standard operating procedures are aligned with GIIP in advance of construction (See ESAP # 1). The company will work with its contractors and subcontractors to make sure these companies are aware of all project commitments and requirements and include these in their proposals and cost estimates prior to commencing any work (See ESAP # 2).

Subsequently, IFC will also ensure the company has an adequate ESHS MS aligned with GIIP prior to starting its operational phase (See ESAP # 17).

Identification of Risks and Impacts

The updated ESIA for the Amulsar Project has been developed by Wardell Armstrong International (WAI) and released in May 2016. This builds upon an extensive number of technical reports and formal studies which began in 2007 and has continued through to 2016. The updated ESIA also builds on the information resulting from various changes to project design and layout, which, in many cases, have resulted in improvements in reducing environmental, social and health and safety impacts, most recently the Value Engineering exercise carried out by Samuel Engineering in 2015. The updated ESIA also incorporates responses to comments to previous versions of the ESIA provided by IFC and other Lenders in 2012, 2014 and 2015.

A key component of the ESIA process has been an iterative approach to allow for the integration of the identification and assessment of ESHS risks and impacts with the engineering studies and

design of the project to be able to avoid, mitigate and manage the most significant risks and impacts. As part of this process, WAI has worked closely with the company and its engineering consultants to identify these risks and “design out” and reduce those impacts which were identified as most significant. As part of this process, the company has also prepared an Engineering Design Criteria (EDC) document to make sure all design-related quantitative and qualitative ESHS measures are included in the project design. The iterative approach has allowed the project to achieve a reduction of project footprint from 687 ha to 609 ha, reduce the disturbed area from 1203 ha to 1,159 ha, reduce the impact on Natural habitat from 608 ha to 519.5 ha and reduce Greenhouse Gas Emissions from 140,344t CO₂e to 92,200t CO₂e. The annual power demand has decreased from 94,667MWh to 49,636MWh. Conversely, visual impacts will be greater with the revised project footprint, including from lights and vehicle movements at night, and the project will no longer be closed circuit (zero discharge) during operations. Passive Treatment Systems – PTS (engineered wetlands) will be developed to treat contact water (including any Acid Rock Drainage) from Year 5 onwards.

Based on the ESIA process and an evaluation of the impacts, these were determined to include: (i) Landscape and visual impacts to nearby communities and long term changes to the landforms; (ii) the potential for discharges to surface water and groundwater from mining infrastructure, particularly the HLF and BRSF, mitigated as necessary to ensure that runoff/effluent quality meets or exceeds requirements established by the Armenian authorities, IFC’s EHS Guidelines and the International Cyanide Management Code (ICMC); (iii) loss of land for grazing, foraging and agricultural crops; (iv) effects on 81 potential archaeological sites which may be affected by project development and which will require to be recorded, investigated and removed or excavated; (v) loss of Critical Habitat for *Potentilla porphyrantha* and *Ursus arctos* and other impacts to biodiversity, such as movement of fauna; and (vi) long-term management of non-hazardous and hazardous wastes generated at the site.

Management Programs

As part of the development of the ESIA, management and mitigation measures for the impacts identified during the various phases of the project have been developed. Also, as part of the existing Management System, the company has developed an Environmental and Social Management System Plan (ESMS Plan) which includes ESHS Management Plans and SOPs to avoid, minimize, and mitigate risks and impacts likely to occur during the various phases of development from early works, through construction to operations and subsequently mine closure. This Plan is designed to be periodically reviewed and updated in response to the changes that will occur in various phases of the Project life cycle.

A comprehensive number of Management Plans have been developed as part of the company’s ESMS to address the various environmental, social and health and safety risks of the project during the various phases; other plans that will be developed include a Carbon and Energy Management Plans, Security Management Plan, Local Recruitment and Procurement Plan and updated Stakeholder Engagement Plan to reflect the outcome of recent public consultation on the ESIA. Currently, all management plans are being operationalized (Level 3) for implementation prior to start of construction.

As mentioned above, Lydian will contract a Construction Management Consultant (Praetorian Construction Management) to secure a number of construction contractors to advance the various infrastructure works for the project. Both Lydian and Praetorian will ensure that the commitments for the project included in the ESIA and the ESMS and OHSMS are translated into the tendering documents and will require the winning bidder to abide by all required management plans and procedures for each of the relevant ESMS and OHSMS aspects related to their activities.

An additional issue that needs to be carefully managed during project construction and operation is that of influx related to people seeking opportunities created as a result of the expanding mine operations.

Organizational Capacity and Competency

The company's corporate organizational structure includes an Executive Chairman, a President and CEO, Chief Financial Officer (CFO), Managing Director Armenia and an Engineering project lead. The Executive Vice President Sustainability left the company in early 2016 and has now been replaced by a VP Sustainability who has more than 25 years of international experience in managing all aspects of environmental stewardship, health and safety programs, and corporate social responsibility. A Chief Operating Officer (COO) has also been appointed.

Based on the organizational chart for project construction, the VP Sustainability is supported at the project level by a Senior Manager for Sustainability and Permitting, an Environmental Manager, a Social Manager and a Health and Safety Manager which are in turn supported by 6 environmental supervisors and technicians, 9 community liaison officers and 2 health and safety officers. A total of 22 staff within Lydian and Geoteam are dedicated to ESHS aspects. The Company will put in place an adequate staffing program for ESHS personnel prior to the start of construction (See ESAP # 3).

Emergency Preparedness and Response

As part of its ESHS MS, the company has prepared an Emergency Preparedness and Spill Response Plan (EPSRP) to minimize the potential for incidents and accidents during construction and operation of the mine. The plan covers all in-country project phase activities including those undertaken at Geoteam's offices and employee accommodation facilities, storage locations, access roads as well as open pits and processing facilities. At this stage the Plan is generic and not tailored for use at site. As noted above, as part of the development of the Level 3 MS documentation, a comprehensive EPSRP will be developed which will include a process to engage with the local communities (such as the guidelines of the APELL process). (See ESAP # 1).

The Plan establishes an Emergency Response Team and specifies that all employees of the company together with all contractors and sub-contractors will undergo training on the EPSRP through camp inductions and periodic more specialized training on incident and accident scenarios and response. The EPSRP will also be further developed to incorporate risks associated with the transport, storage, handling and use of hazardous materials.

Monitoring and Review

As part of IFC's due diligence, the lenders group contracted an Independent Environmental and Social Consultant (IESC) in 2014 to undertake a third party review of the ESIA developed by WAI, against Senior Lenders' requirements. As part of this assessment, a number of gaps have been identified on ESHS aspects and design which have been addressed by the company and its consultants. Moving forward, and as part of the upcoming construction phase, the company will hire a qualified IESC to carry out regular ESHS audits of construction activities and the implementation of the ESMPs and ESAP for reporting back to the Lenders, and prepare monitoring reports for public disclosure (See ESAP # 4)

Extensive internal monitoring of EHS parameters is already underway as part of the existing Management System for the project (including pollution prevention, erosion control, water quality, health and safety, transportation, etc). Prior to the start of construction, the Environmental Monitoring Plan (EMP) will be implemented to capture all of the specific qualitative and quantitative monitoring needs identified in the ESIA for this phase, as well as from individual management plans and supporting SOPs, to assure compliance of the various environmental aspects with Armenian requirements, IFC's PSs, EHS Guidelines and GIIP.

PS2: Labor and Working Conditions

Working Conditions and Management of Worker Relationships

Geoteam currently has 40 direct employees in the head office in Yerevan and around 126 employees (excluding contractors) on site but are in the process of expanding the team in preparation for construction. During peak construction there will be approximately a total of 1300 workers including contractors of these about 400 will be workers from the local area. During the operational phase approximately 652 workers will be employed, most of these will be direct employees. Lydian currently has HR policies and procedures in place that are aligned with IFC Performance Standard 2 requirements. Prior to the construction and operational phases, the HR policies and procedures will be updated to adapt to the workforce composition for these phases (See ESAP # 7).

For the recruitment of staff Lydian will give preference to employees from the project impacted communities if they have the required competencies or can be trained to acquire the needed skills. In an effort to enhance the local capacity Lydian has given scholarships to local students for geology degrees for the last 5 years.

Grievance Mechanism

Lydian has a formal grievance mechanism in place as part of the current HR procedures and is communicated to all employees. For the construction and operational phase a grievance mechanism will be developed to cover both direct staff as well as contacted workers (See ESAP # 7).

Workers Engaged by Third Parties

The majority of the workers for the construction phase will be hired through local contractors. The contractors will be required to be in compliance with the requirements of PS2. Lydian will ensure that this occurs, by including the requirements in contracts as well as through regular monitoring and enforcement of company labor policies and procedures. Contracted workers will

be trained on the use of the company's Employee Grievance Mechanism. If required, capacity building of contractors to fulfill the contractual obligations will be provided by Lydian.

Protecting the Work Force and unionization

Lydian has a policy of not employing any forced labour or workers below the age of 18 years and will only employ people legally entitled to work in Armenia. The company will take all commercially reasonable efforts to ascertain that the third parties who engage contract workers are reputable and legitimate enterprises and have appropriate systems in place to ensure they operate in a manner consistent with the requirements of their HR policy. The HR policy recognises the rights of workers to form and join a workers' organization of their choosing and to engage in collective bargaining. To date the workers have not chosen to form or join a worker's organization.

Occupational Health and Safety

As mentioned above in the section on Management Plans of PS 1, the company has developed an Occupational Health and Safety Management Plan as part of the ESMS. The Company is also developing an OHSMS in line with OSHAS18001, although the two Management Systems may be merged when the final version of ISO 45001 is published in Q4 2016. This will allow for the seamless integration of the two Management Systems.

Health and Safety aspects are also included in the Contractor Management Plan and Praetorian Construction Management have been tasked with producing a draft Occupational Health and Safety Manual for the project. The existing OHSMP refers to a number of Standards which are currently under development. There has been a consistent level of improvement from IFC's initial involvement to the present time regarding health and safety awareness and performance at site. In 2013, the number of hours worked was not recorded so that Lost Time Incident Frequency Rate (LTIFR) and Severity Rate (LTISR) could not be reported, but 21 workdays were lost as a result of accidents. In 2014 the LTIFR was 1.04 and the LTISR was 3.1, with 3 lost workdays. In 2015, the LTIFR and LTISR were both zero. Training hours are not yet recorded accurately but Weekly Safety meetings lasting 1 hour are reported to attract round 25 attendees.

Specific protocols and procedures are established for site work, including no alcohol, use of PPE, specific and generic risk assessment for all work activities including winter working, standard safe operating procedures in place and regular H&S briefings are held. Basic First Aid is available at the site. In preparation for construction the company is in the process of advancing the level of medical support at the site. The company has an induction process for all employees and visitors.

In addition, all contractors will be required to be in compliance with the requirements of PS2 and it will be the responsibility of Lydian to ensure that this occurs, by including the requirements in contracts as well as through regular monitoring and enforcement of company protocols and procedures. Contracted workers will be trained on the use of the company's Employee Grievance Mechanism.

PS3: Resource Efficiency and Pollution Prevention

Climatic conditions within the area of the project site are described as Warm Summer Continental. Such a climate has significant precipitation (rain and snow) throughout the year and temperatures averaging over 10°C for four months of the year (June to September). The climate has a large difference between winter and summer temperatures because of the continental location. Variation of altitude plays a significant role within the project area. Snow generally falls in the project site region in all months except for July and August.

Resource Efficiency

A new main substation will be built for the project next to the existing 110kV power line that traverses the site, and will step down the voltage to 35 kV. Power lines will run from the main substation eastwards along the conveyor and then to an area substation at the crushing plant; and westwards along the conveyor to the truck load-out and then on to a second area substation near the ADR plant site. The 35 kV line will be stepped down to 6 kV at the local area substations for distribution around the mine site. From the local area substation 6 kV lines will provide power to the crushers and transfer conveyors, truck shop, offices, HLF, ADR plant, and river water supply pump house.

Diesel for on-site vehicle use will be stored in two locations, the truck shop and warehouse (near BRSF) tank farm (within a bunded and sealed area) and the ADR plant yard (located within a bunded and sealed area). Fuel will be contained in vendor supplied dual containment storage tanks. The fuel storage tanks will be a 580,000 litre capacity diesel tank and a 50,000 litre capacity petrol tank, both designed to catch any leaking fuel, overfilling or other spills from the fill area and associated piping. The fuel bay will be constructed so that fuelling will take place on a concrete surfaced refuelling pad. Tanks will be of standard steel construction and surrounded by a berm or concrete curb so that a volume of 110% of the largest tank can be contained within the containment area.

The Commitments Register contains a number of clauses relating to energy use: Energy-efficiency measures will be incorporated into engineering design. Energy-intensive uses, such as the crusher plant, will be assessed for further energy efficiency opportunities (CR: GHG3, GHG7); the use of energy-efficient technology such as CFLs or LEDs for lighting, which are more energy efficient than incandescent light bulbs, will be considered (if available in Armenia). Additionally, consideration will be given for motion sensor lighting in ancillary building to further provide energy savings (CR: GHG1); Consideration will be given to the use of ground and air source heat pumps for heating and cooling in buildings (CR: GHG4).

Water Management

Amulsar Mountain forms the hydrological boundary between the Arpa to the west and the Vorotan to the east, with the Darb, to which the Arpa is tributary, flowing to the south of Amulsar. The Arpa River flows south-westwards from Jermuk and the state-protected Jermuk Hydrological Area, feeds into Kechut Reservoir, and then flows on to the larger Darb river catchment to the south. Water from the Vorotan River and its catchment flows south-eastwards to Spandaryan Reservoir.

In terms of water quality, the Arpa River exceeds legislated Armenian maximum allowable concentrations (MAC) of several metals, including cobalt, iron, lithium, manganese, molybdenum and sodium. Water in the Vorotan River exceeds the Armenian MAC for cobalt, iron, lithium and manganese. Some surface water flowing in streams from Amulsar Mountain to the Vorotan and Darb Rivers exhibits naturally acidic conditions (low pH) and elevated metal concentrations, with parameters above MAC including the aforementioned metals plus aluminium, beryllium and copper. This chemistry results from the water coming into contact with the metal-rich ore body beneath Amulsar mountain. The Darb River tends to be slightly acidic, with some tributaries failing to meet the Armenian MAC for some parameters. During the summer months, when water flow reduces, the water becomes slightly more acidic due to a higher amount of groundwater contributing to the stream flow. Chemical analysis shows low or undetectable levels of organic chemicals that are usually associated with agricultural or other human-generated sources of pollution. Community domestic and municipal water supply is predominantly sourced from springs originating from shallow perched water or from groundwater. Jermuk's water is sourced from four groups of springs, one of which, the Madikenc group, is within the Project area. Kechut is also supplied by the Madikenc springs, which are located approximately 2 km east of the town. Gndevaz, Saravan, Saralanj, Ughedzor and Gorayk are supplied by springs located outside the Project's area of hydraulic influence.

In the project area, groundwater is present in several separate groundwater catchments defined by the rivers surrounding Amulsar Mountain. Groundwater feeds the rivers, particularly during the summer, autumn and winter when little rain falls. Surveys of springs throughout the Project area and in Jermuk, and water chemistry analysis (including major and minor ions and isotope testing) show that groundwater found beneath the footprint of the project does not supply Jermuk's renowned mineral spring waters. Surveys have identified that groundwater is not directly used for drinking water supply (from drilled wells) within the Project area or in nearby towns and villages.

The main objectives of water management for the project are to minimise water usage, recycle and reuse wherever possible, and to ensure that if water discharges are required, they are of suitable quality for release into the environment. A priority of project design has been to ensure that the Project does not significantly impact water resources. An extensive programme of water monitoring will be continued throughout all phases of the mine life. The monitoring programme will be designed to verify the mitigation measures outlined below, and will also identify any unforeseen impacts, allowing additional actions to be taken, if required.

Mine infrastructure will be designed to direct run-off water around the facilities. Water that falls directly onto the facilities will be contained and used as process water. The HLF will be lined (a leak detection survey will be completed before the facility starts to operate) and will be operated on a no-discharge basis; A basal drain overlying compacted soils in the BRSF will collect water percolating through the facility and convey it for use at the HLF; and pit dewatering will also be undertaken on a no-discharge basis, if water quality does not meet discharge limits.

All process water will be treated and recirculated through the HLF. Sufficient storage capability will be available in the event of extreme rain or snow-melt events. Storage ponds will be double-geo-synthetic lined with leak collection and recovery systems installed between the layers. Any

water collected on site will only be discharged to the local environment after being treated in sediment ponds and tested to ensure it conforms to discharge standards.

Water will be taken from the Arpa River for use during project construction and operation. Computer models predict that the flow in the Arpa will be reduced by less than 0.5% during construction and by less than 4% during operation as a result. The water will be taken from a point below (downstream of) the existing fish farm, which therefore will not be affected. Farmers downstream are predicted to be similarly unaffected. All water pumped from the open pits, seepage and run-off from the BRSF, and drainage from the truck maintenance facility will be captured and used in operations, until year 5 of operations. Thereafter, a proportion of the drainage from the BRSF will flow into a passive treatment (wetland) system. The discharge from the passive treatment system will conform to Armenian MAC's and discharge to ground and drain towards the Arpa River.

Some of the barren rock associated with the Amulsar ore body has the potential to be acid-generating when exposed to the atmosphere and water. The risk of generating ARD increases wherever fresh bedrock is exposed, and this will apply during construction and operational activities. This process occurs naturally on the sides of Amulsar Mountain, especially in the areas where exposed red-coloured bedrock is visible, and it is the reason many streams in the area are slightly acidic. Testing of Amulsar barren rock has shown that dissolved metals are not of significant concern, but elevated sulphate and decreased pH are common in Amulsar ARD. During the post-closure phase of the project, there is a risk of the generation of ARD from the Barren Rock Storage Facility (BRSF), which could impact surface water if not properly managed, therefore the drainage from the BRSF will continue to flow to the passive treatment system, following closure. These passive systems will require periodic maintenance and replacement of some treatment cells in the post closure phase.

The Site Wide Water Balance and Water Management Plan will be operated in conjunction with a Cyanide Management Plan. During operations, all solutions or effluents containing cyanide will be recirculated to the HLF. At closure, once the HLF is rinsed and drained down, solutions containing cyanide will be treated by a detoxification process to achieve a concentration of <0.5 mg/L weak acid dissociated (WAD) cyanide (CN_{WAD}) as per IFC EHS Mining Guideline limits and CN_{WAD} maximum permissible values of the ICMC.

GHG Emissions

There are a number of design elements and project commitments relating to GHG Emissions. These include: Operations will be optimized to limit the number of vehicle movements, minimize equipment idling and vehicle travel distances, and avoid double handling where practical; Climate change projections will be reviewed during detailed project design; Energy-efficiency measures will be incorporated into engineering design. Energy-intensive uses, such as the crusher plant, will be assessed for further energy efficiency opportunities; the use of energy-efficient technology such as CFLs or LEDs for lighting, which are more energy efficient than incandescent light bulbs, will be considered (if available in Armenia). Additionally, consideration will be given for motion sensor lighting in ancillary building to further provide energy savings. Consideration will be given to the use of ground and air source heat pumps for heating and cooling in buildings. Regular maintenance will be performed on mobile plant and

an emissions inventory reporting on all GHG emissions will be published annually. The project will continue to seek to reduce its GHG emissions throughout its lifecycle. In addition, the project will prepare a Carbon and Energy Management Plan (CEMP) prior to construction. This will report annual emissions back-dated to the commencement of exploration.

Air Emissions and Noise Emissions

There are no major urban or industrial centres near the project that give rise to significant gaseous and particulate emissions. Some gaseous emissions enter the atmosphere from the settlements surrounding the project because of vehicle exhausts, domestic heating and fires, and in the local vicinity of the Kechut landfill. Visually, the air quality in the project area and surroundings is clear and unpolluted, with no visible smog or haze caused by airborne pollution. Occasionally plumes of smoke from domestic fires can be seen; domestic fires are common in all settlements during the cold winter months.

The most common emission in the local area is dust or particulate matter. This is released when vehicles travel over paved and unpaved roads, or when wind erodes particles from open storage of loose solid materials, exposed soil surfaces and unpaved roads. Monitoring has shown that baseline concentrations of two gaseous pollutants SO_x and NO_x (oxides of sulphur and nitrogen) in the air around the project site are well below World Health Organisation (WHO) guideline levels. These pollutants are common in urban areas because of high volumes of road traffic, so the low concentrations in the project area are as expected.

During construction and operation of the mine, dust emission will occur during earthworks, drilling and blasting, loading and hauling and other activities. Also emission to air from combustion processes such as mobile equipment diesel engines, blasting and boilers are likely to include respirable small particulars (PM₁₀) and gases as SO_x and NO_x.

The project has been designed to incorporate several techniques to manage fugitive dust emissions from the site. The crushing plant will be enclosed in buildings, thus containing the dust generated by the crushers. Crushed rock will be conveyed in a covered conveyor, and water sprays will be used at the points where material is transferred from one conveyor belt to another. Fine sprays of water will trap fugitive dust and prevent it from dispersing. Haul roads and other access roads that have the potential to generate dust emissions will be sprayed with water or treated with non-hazardous chemicals to limit dust generation. Other dust suppression measures will include controlling vehicle speeds on mine roads, keeping the heap leach and BRSF moist, and the construction of vegetative barriers.

To control gas emissions from vehicles and other combustion sources, equipment will be regularly maintained, and built-in emission control equipment will be kept in good working order.

Existing sources of noise in the communities surrounding the project area are few. Industrial sources of noise are two water bottling factories, a milk factory and a petrol station. All of these sources are in Jermuk. Other noise sources in the area are from traffic along the M-2 and H-42, and agricultural activity.

Noise generated from the project will include noise generated from clearing soil and rock (including by blasting), preparing foundations, operation of concrete and aggregate batching plants, and heavy vehicle operation. During the operations phase, noise will result from drilling and blasting, movement of haul trucks transporting ore and barren rock along the haul roads, the action of the crushers, and operation of the conveyor, among others.

Modelling for conditions during construction (which will take place only during the daytime) suggests that noise from the project will not result in any increase over existing background levels at any of the local communities surrounding the project. Modelling for conditions during the operational phase in daytime hours suggests that although the maximum noise levels permitted by Armenian legislation will not be exceeded, noise levels in Gndevaz will increase by up to 2 dB(A). This increase will be noticeable but will not be sufficient to cause nuisance. At night-time (during operations only), noise levels are predicted to increase by up to 2 dB(A) in Gndevaz and by 1dB in Saralanj, Saravan and Kechut. Again, these increases will be noticeable but are not expected to cause nuisance. No increase in noise levels is predicted in the other communities.

The company has put in place several measures to reduce noise impacts during the various phases of the project, including the plan to build an enclosed crusher building and a covered conveyor to reduce noise. Noise barriers and baffles or enclosures will be used around noisy fixed equipment where required. Haul vehicles and other mobile equipment will be modern and well maintained. Particularly noisy activities will be scheduled during the daytime whenever possible. The blasting schedule will be communicated to neighbouring communities and stakeholders, so that affected people will know when to expect instantaneous air blast. Blasts will also be designed to minimise vibrations transmitted through the air and ground.

Process Water and Wastewater Treatment

Mine infrastructure will be designed to direct run-off water around the facilities. Water that falls directly onto the facilities will be contained and used as process water. All process water will be treated and recirculated through the HLF. Sufficient storage capability will be available in the event of extreme rain or snow-melt events. Storage ponds will be double-geo-synthetic lined with leak collection and recovery systems installed between the layers. Any water collected on site will only be discharged to the local environment after being treated in sediment ponds and tested to ensure it conforms to discharge standards.

All water pumped from the open pits, seepage and run-off from the BRSF, and drainage from the truck maintenance facility will be captured and used in operations, until year 5 of operations. Thereafter, a proportion of the drainage from the BRSF will be flow into a passive treatment (or wetland) system. The discharge from the passive treatment system will conform to Armenian MAC's and discharge to ground and drain towards the Arpa River.

A sanitary sewer bio-digester or septic system will be installed to treat domestic water at each of the following locations: worker accommodation camp; ADR plant/administration buildings; primary crusher and secondary crusher; and truck shop.

Bio-digesters, septic tanks and leach fields are assumed to be the preferred methods of sanitary waste disposal for the Amulsar Project. At this stage the design is conceptual only and text book examples were used for sizing a system such that a cost estimate could be made. Detailed survey and geotechnical / percolation testing will be required at the detailed design stage.

Solid Waste Management

For the management of non-hazardous and hazardous waste, the company will adopt a waste management strategy - operationalized through a Waste Management Plan - focused on prevention, minimization, reuse, recycling and final disposal. An onsite landfill will be developed for Non Hazardous waste next to the BRSF. The design is based on Republic of Armenia (RA), IFC/WBG and EU requirements. This landfill site will only contain non-hazardous materials and inert wastes. The small quantity of mercury collected in the ADR Plant will be safely kept in a closed container and disposed of at an appropriate certified hazardous waste disposal facility in country if available, or abroad. Waste disposal facilities will be operated in a manner that includes the regular covering of exposed refuse with soil or gravel. This will reduce risk of exposure of animals such a brown bear and birds such as Egyptian Vulture that regularly forage in waste dumps to potentially damaging waste products.

At present, there are no permitted hazardous waste treatment and disposal facilities in the country; limited formal recycling opportunities, and insufficient capacity to manage hazardous waste. For the management of hazardous waste generated by the project, this will be temporarily stored in an appropriate impervious impoundment adjacent to the HLF out of the Lake Sevan catchment area. The company is in the process of assessing and then purchasing an incinerator to treat hazardous and bulk wastes including oily wastes (including hydraulic hoses and oil filters), cyanide packaging, etc. Appropriate training of operators for this facility will also need to be provided.

Cyanide Management

Project components and processes (such as the off-loading and storage area, mixing/processing plant, HLF, solution ponds and associated pipelines) have been designed to comply with the requirements of the International Cyanide Management Code (ICMC). A Cyanide Management Plan has been prepared as part of the ESMS which puts in place specific requirements in line with GIIP. A few of these requirements include the purchase and transport of cyanide from ICMC authorized producers and transporters, the transportation of cyanide reagent as dry briquettes in dedicated stainless steel ISO delivery/mixing containers, the storage of high strength cyanide solution separate from acids or other reactive materials, the implementation of secondary containment for all cyanide solution transfer, mixing, leaching and detoxification tanks, avoidance of accumulation of cyanide gas, and day to day monitoring and management of the processing plant and the HLF in accordance with the HLF/ADR Plant Operations.

The company will become a signatory of and get certification by ICMC for the procurement, transport and handling of Sodium Cyanide during the operation of the mine (See ESAP # 9).

Hazardous Materials Management

Chemicals and fuels will be handled according to GIIP. Fuels and liquid chemicals will be stored in areas with secondary containment equal to at least 110% of the storage tank capacity.

Vehicles transporting chemicals and fuels will be well maintained and checked for leaks. Spillage kits will be available in all appropriate areas. Detailed procedures to handle chemicals and fuels will be incorporated into all relevant management plans.

A generic Health and Safety Standard for Hazardous Substances in the Workplace has been prepared but does not specify the types of hazardous substances that will be used at site. However, some of the hazardous materials to be used during the various phases of the project include, among others, diesel, petrol, ANFO and associated materials (detonators, cord), lubricants, hydraulic fluids, sodium cyanide, hydrochloric acid solution, sodium hydroxide solution, antiscalant, zinc powder and other chemical reagents and laboratory chemicals.

As part of its Management System, the company will develop a detailed Hazardous Materials Management Plan / Standard Operating Procedure to make sure transport, storage and use of petroleum products and hazardous materials comply with GIIP. (See ESAP # 1). The current Emergency Preparedness and Spill Response Plan will also be further developed to address emergencies related to the transportation and handling of these products

PS4: Community Health, Safety and Security

Community Health and Safety

The main community health safety and security impacts from the project include risks associated with hazardous materials and personnel transport, the potential for contamination of surface water, health issues exacerbated by influx and interactions between workers and local communities.

Armenia has a north-south road, the M-2, that runs from Georgia, through Armenia via Yerevan, passing close to the project and linking to Iran, and which is the main road route to the project from Yerevan. The road has a hard surface, and the condition is considered to be generally fair. This road will be the main access route for transporting equipment and supplies from outside Armenia to the project. On the main road junctions in the project area where traffic was monitored, the number of road vehicles was estimated to be less than 15% of the total amount of traffic that the roads could handle. The amount of road traffic travelling to and from the mine site will significantly increase, leading to an increased risk of road traffic accidents and noise. The road infrastructure has sufficient spare capacity to accommodate the increased traffic flow.

Infrastructure and Equipment Design and Safety

The project has taken into account the proximity of communities and their use of the wider site, for example for grazing and plant collection, in the design of the infrastructure and equipment. This includes underpasses beneath the conveyor and fencing around key areas.

The communities in the project area currently have sufficient medical services and hospitals for the number of people residing in the area. There is also a functioning ambulance system in place. Medication availability is limited in public health facilities, and the supply problem is made more challenging because there are few local private pharmacies. All communities studied have access to piped drinking water, but the quality of piped water in Gorayk and Saravan does not meet international drinking water standards. Sewerage systems in rural communities are usually

not present. Domestic waste collection is limited and has been supported by the project since early exploration activities began. In Jermuk, access to drinking water and domestic waste removal is better than in the more rural areas, but there are concerns in Jermuk and Kechut about the quality of drinking water. The waste water treatment plant in Jermuk has recently been upgraded with a design capacity for 22,000 people, far exceeding its current demand.

Hazardous Materials Management and Safety

A number of hazardous chemical substances may be used (produced) in (by) the project process or in ancillary services. The most important is cyanide, which will be used in the extraction process of the ore on heap leach pads. Cyanide will be managed within the framework of the International Cyanide Management Code (ICMC). A framework Cyanide Management Plan is in place; this and associated documentation and procedures will be further developed to meet the requirements of the International Cyanide Management Code which covers the transport and use of cyanide, including the involvement of communities through which the cyanide is transported and proximate to where it is used. Other Hazardous Materials management programmes will be in alignment with IFC PS3 requirements. A risk assessment will be undertaken of all hazardous materials on site and requisite programmes developed to safeguard employee and community health.

Community Exposure to Disease

The major health concerns in Armenia are associated with diseases that are not infectious and are not spread between people. In general, the burden of disease in the study area follows a similar pattern, with cardiovascular disease, cancers and diabetes reported as the most common health concerns. Levels of sexually transmitted infections are low in the area. Similarly, while tuberculosis is present in Armenia, the study area has had only a few reported cases. Elevated radon levels exist in the rural areas around the project, especially in Gorayk. The radon is unrelated to project activity and is a consequence of the underlying geology. The project is expected to bring about a number of community health improvements. These include reductions in the incidence of water, sanitation and waste-related diseases through structural improvements made to waste management and improved wellness education related to non-communicable diseases. It is also expected that the project could result in some community health, safety and security drawbacks. The most significant of these are an increased risk of sexually transmitted diseases, increased number of road traffic accidents during the construction period, and a potential risk of security conflict between the mining company and communities affected by the project. Accommodation of workers in a closed camp, which is under consideration if deemed necessary, can also present risks associated with communicable diseases, including tuberculosis.

The increase in salaries for workers employed in the mine may lead to an increase in social problems including sexually transmitted diseases (STD) and consumption of alcohol. The project will have a hybrid model for workers' accommodation with majority living in closed camps and about 1/3 of the workers will be accommodated in a hotel in the outskirts of Jermuk. The potential impact of housing workers in Jermuk has been addressed in the ESIA and will be managed through the Worker Accommodation Management Plan (WAMP) (ESAP # 1). There will be direct engagement with the workforce governed through codes of conduct, and education programs that encourage responsible and respectful behaviour in the host communities, and

prohibit sexual harassment. An HIV policy has also been developed for the Project. The sexual health and sexually transmitted infection programs will extend to long-haul truck drivers, with the support of the contractor responsible for goods delivery through the transport management plan. All accommodation used or constructed for workers will meet international standards to minimise the risk of communicable disease transmission. The project will ensure that available health services can adequately cater for the needs of the workforce in terms of occupational health and emergency care and will not impact the availability of health services for the communities.

Emergency Preparedness and Response

To address risk of an increased rate of accidents because of mining and associated activities, the project has developed a community health and safety management plan and will develop relevant specific standard operating procedures based on a risk assessment of planned activities including potential for influx (See ESAP # 1). This will include emergency preparedness and response plans for both community related accidents and also for the workplace. Lydian has published the Occupational Health and Safety Policy for the project and an associated management plan covers all aspects of the health and safety requirements that will be maintained during the construction, operational and closure phases. The Emergency Preparedness and Spill Response Plan acknowledges the importance of implementing an APELL type process (Awareness and Preparedness for Emergencies at Local Level) and the Commitments Register includes this as a commitment (CHS73) during the Pre-Construction phase. The EPSRP will be further developed to include all Hazardous Materials, not just cyanide.

Measures such as setting and policing speed limits for heavy goods vehicles making deliveries to the site, enforcing roadworthiness standards, through the transport management plan (See ESAP # 1) and enforcing the existing drug and alcohol policy, are some of the other measures taken to reduce project related risks to the communities.

Security Personnel

During the construction phase the company will hire unarmed private security for peripheral protection of the site. During the operational phase a limited number of armed security will be on site to protect the produced gold. Risk identification and management of private and public security personnel will be formalized through a security risk assessment and a Security Management Plan for the construction and operational phase in line with the requirements of PS4 (See ESAP # 10). This will include adequate training of security personnel. The Community Grievance Mechanism will be adjusted to address potential complaints on Security Personnel (See ESAP # 6). The closest distance to the public security posts in Jermuk is 10 km from the site.

PS5 Land Acquisition and Involuntary Resettlement

In 2015, Lydian International commissioned an external consultancy to develop a Land Access and Livelihood Restoration Plan (LALRP) and subsequently an addendum to the LALRP to reflect the changes from the Value Engineering. The LALRP and its addendum covered the acquisition of 135 ha of private land as well as impact on land owned by the state and municipality of approximately 5 ha used by seasonal herders (migrating from a two day travel

during the summer season). Daily herders use portions of land within the 30m wide conveyor's corridor by daily herders (Herders from the neighboring village Gndevaz). The company is committed to comply with International Standards, including IFC Performance Standard 5, by exploring alternative project design to avoid, or at least minimize, involuntary resettlement as feasible.

The LALRP addresses impacts related to land acquisition for mining pits and facilities directly associated to mining activities (such as barren rock storage, explosive magazine, water storage and camps) located on land owned by the state and the municipality. Around 50 seasonal herders are currently using this land for grazing livestock during the summer season (May-September). Land is currently accessed by the herders through rental agreements paid on a yearly basis to the municipalities. The HLF and gold extraction plant are located in an area of private ownership, characterized by arable plots mainly used for orchards (i.e. apricots). In this area, the project will require permanent acquisition of approximately 238 privately owned plots owned by 150 households (138.9 ha). In addition a 30 m wide conveyor corridor will impact 22 land plots (13 ha) owned by 20 households this land is mainly used for grassing. Finally, another 14 plots will be acquired from a wider area of the HLF: amounting to a total of 274 plots. Impacts on the conveyor corridor were reduced from 83 land plots and 45.3 ha as a result of the value engineering. Land for the conveyor corridor was initially proposed to be acquired through a lease or easement agreement for the duration of the mine life. However, through consultation with the land owners it was identified that their preference would be for the land to be acquired. The company will therefore acquire this land prior to construction

Site Selection

Selection for the mine infrastructures and HLF final location have been based on an alternatives analysis considering environmental and social impacts as well as the Government resolution (N 143-N adopted on July 18th 2013) requiring to maintain a 3,000 meter buffer zone on both sides of the Spandaryan-Kechut tunnel.

In October 2014, the project undertook a Feasibility Study based on an iterative process between project design and resettlement specialists. As a result, involuntary physical displacement has been avoided and considerable efforts were taken to minimize impacts on agricultural land.

Subsequently, a Value Engineering Study was undertaken in November 2015 to optimize and fine-tune project design and reduce capital costs. Footprint changes in this study are relatively minor, with layout and location of major facilities remaining unchanged from the original plan. However, some additional arable land will be required to accommodate minor changes in the layout of the conveyor and HLP facilities amounting to 22 additional land plots.

Displacement

The project formalized a road map for land acquisition and compensation in April 2015. The project has reached agreements with private land-owners through negotiated settlements, using expropriation only as a last resort in case where all reasonable avenues for negotiations have been exhausted. To date 252 plots have been acquired through negotiated settlement while the three (3) remaining land plots are going through a legal process of expropriation due to

complications related to current titles or difficulties in locating the owners. The acquisition of the 22 land plots for the conveyor belt will be acquired prior to construction.

Lydian has hired an international resettlement expert to advise the social development manager and the project team during the implementation of the resettlement process the international expert will be retained for the ongoing implementation and monitoring of the project.

After mine closure, land within the mine and associated infrastructures except for the pits will be returned to the landowners following the implementation of the mine closure and restoration plan as described in the ESIA.

Compensation and Benefits for Displaced Persons

Agriculture and animal husbandry are the main livelihood in the rural villages within the mine area of influence. Other livelihood activities include food and fodder production, livestock, produce-based small-scale businesses (e.g. cheese, butter). Formal employment such as education, health or government positions is limited.

The project hired two national experts to carry out a valuation of affected land plots and crops. Compensation for lost assets is based on an increase of 15 percent on market values as required in Armenian expropriation law. The valuation method for annual and perennial crops, following PS5 guidelines, was developed in consultation with the affected communities and resulted in slight adjustments in the valuation methodology relate to the maturity of the fruit trees (e.g. apricot trees) based on the input from community consultation.

Resettlement and Livelihood Restoration Measures

Although the LALRP makes provisions for 'land-for-land' compensation, landowners opted for cash compensation as they still have other unaffected land plots they can use. Initially, only five (5) households were interested in land replacement, but ultimately they also requested cash compensation. Twenty (20) vulnerable households have been identified during the livelihoods survey undertaken in 2015. These households have received targeted assistance and will be subject to ongoing monitoring.

Risks of cash compensation have been mitigated by the project through money management assistance, revenue management and entrepreneurship trainings, which were offered in October 2015. Based on demand from the project affected people they have continued the entrepreneurship training and this has been integrated into the livelihood restoration program. An independent interim audit of the resettlement process that took place in 2016 showed that the majority of households used their compensation to pay existing debts or build new houses.

Current livelihood restoration activities have been developed in consultation with the project affected communities and include the development of an irrigation channel, assistance to a fruit dryer and a cheese co-operative, an animal husbandry project, a gardening project, tree nurseries and entrepreneurship courses. Affected households have been able to harvest their crops in the 2015 season from land that has been acquired by the project. At the time of appraisal the first livelihood restoration activities had been initiated involving approximately 50% of the affected landowners. The livelihood restoration programs are offered on a voluntary basis and will be

provided based on demand for 3 years after acquisition took place. An outline of the LRP is included in the LALRP and additional information has been provided to communities through the monthly newsletters. Prior to construction Lydian will update the LRP based on the experience from the first round of livelihood restoration activities and will disclose the plan to the eligible community members (See ESAP # 11).

The company has supported seasonal herders that will be restricted from using communal land for grazing and hay collection in identifying alternative land for their economic activities. Alternative land with the required infrastructure (access roads and water) has been identified in consultation with herders at a shorter distance from the community and a rental agreement has been secured with the Municipality of Gorayk at the same rate the herders have been paying previously.

Daily herders from Gndevaz will maintain access to the section of their grazing land with restricted access through three under-crossings at the conveyor belt. The effectiveness of this mitigation measures will be closely monitored through the resettlement monitoring plan by the independent consultant.

A robust monitoring program has been developed for each affected household. All household profile have been developed to measure future impacts on livelihoods and the effectiveness of the livelihood restoration programs. The impacts on livelihoods and effectiveness of livelihood programs will be monitored on a yearly basis for at least three years after land acquisition. If the monitoring identifies that the objectives of the livelihood restoration have been met an independent close out audit will be conducted in year 3. If required the close out audit will be delayed until adequate improvements of livelihoods have been achieved (See ESAP # 4).

Community Engagement and Grievance Mechanism

Planning and implementation of land acquisition has been going through a sound process of public consultation and information disclosure. Although the final version of the LALRP has been disclosed only at the time of signing of compensation agreements, information has been disseminated to the communities via the Guide for Land Access and Compensation (GLAC), which was disclosed in the project area in July 2014. An independent audit, commissioned by Lydian International in 2015, also concluded that the information included in the GLAC was sufficient to meet requirements for informed participation.

A grievance process has been developed in the LALRP with staff been trained on its implementation throughout 2014 and grievance mechanism disclosed to communities in mid-2015. Few grievances have been raised during the land acquisition process to dates; however, engagement will be maintained to address grievances likely to peak during the construction phase.

PS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources

The project is located on the southern edge of the Caucasus Mixed Forest Ecoregion, as designed by the World Wildlife Fund for Nature, which is within the larger Caucasus Ecoregion. The project-affected area, however, does not support forests of the type prioritized within the

ecoregion, but scattered remnants occur in the surrounding landscape. The project is located in close proximity to two Important Bird Areas (IBAs), as designed by BirdLife International: Gorayk IBA located to the south about 700 meters away from the open pits and Jermuk Gorge IBA located to the northwest and <500 meters away from the HLP. The project design has been modified to avoid these areas (the physical footprint in an earlier project design partially overlapped the Gorayk IBA).

The project-affected area comprises 1,805 ha of what has been conservatively defined as “natural habitat” even though some of these areas contain patches of modified habitat and others could be considered “semi-natural” due to the occurrence of human activities such as grazing, which is a traditional land use of the area. The 1,805 ha also includes areas where dust deposition and pollution could be expected and areas where land uses and access will be restricted. Over half of the natural habitat is sub-alpine meadow with other habitats including montane meadow steppe, montane meadow and sub-alpine meadow with alpine elements and rocky outcrops.

The project will impact a portion of a population of the plant species *Potentilla porphyrantha* which is considered critical habitat. The project will affect natural habitat for the brown bear (*Ursus arctos*), which is classified as Least Concern by IUCN but listed as Vulnerable in the Republic of Armenia Red Book. There is a resident population of brown bears in the project area and its surroundings, including in nearby Jermuk National Park.

The site also provides some habitat for breeding and migratory birds, some of which are Endangered at the national and/or international level. These include species such as Egyptian Vulture (*Neophron percnopterus*) (Endangered), Black Vulture (*Aegyptius monachus*) (Near Threatened), Pallid Harrier (*Circus macrourus*) (Near Threatened), Greater Spotted Eagle (*Aquila clanga*) (Vulnerable), Eastern Imperial Eagle (*Aquila heliaca*) (Vulnerable) and Red-footed Falcon (*Falco vespertinus*) (Near Threatened). Although the Project is not expected to significantly impact on these species, options to minimize impact will be sought during detailed design. Mitigation measures such as waste management to avoid the risk of exposure to the Egyptian Vulture that forages in waste dumps, construction of earth banks to avoid impacts on breeding sites, insulation of power lines and installation of bird deflectors will be implemented. Monitoring will be undertaken throughout the Project lifetime to detect any potential unexpected impacts and to allow for adaptive management to be taken.

Extensive surveys and other biodiversity baseline data collection have taken place since 2008 with input from local, national and international experts. Preliminary baseline surveys were carried out between 2008 and 2011 and identified the need for more detailed surveys for some biodiversity attributes. Supplementary field surveys were carried out in 2012 to obtain further data about the plant species composition within the project-affected area. Detailed population surveys were conducted for *P. porphyrantha* in 2013 and in 2014 with the aim to obtain a full census of the species. Research on propagation techniques and population modeling was also undertaken for *P. porphyrantha*. During 2013, a detailed census of migratory raptors was also carried out. In 2014, further surveys of breeding birds, aquatic species and bats were also conducted. In 2015, a detailed baseline survey for Brown Bear was conducted on Amulsar Mountain and in the wider region that involved the use of non-invasive genetic tagging and

camera traps. Also in 2015, a supplementary amphibian and reptile baseline survey was undertaken.

A Natural and Critical Habitat Assessment (NCHA) has been prepared as part of the ESIA developed by WAI. Project siting and design has been informed by the results of ecological surveys, the NCHA, and the ESIA process. Avoidance and minimization measures were built in from an early stage. On-site biodiversity mitigation measures that will be implemented as part of the design, construction, operation and decommissioning are included in the project's Biodiversity Management Plan (BMP), which also specifies commitments to be undertaken by the contractors. This BMP will be implemented as part of the project's ESMS.

As identified in ESAP # 16, monitoring requirements will be included in the project's Biodiversity Monitoring and Evaluation Plan (BMEP), which will be developed with the aim of demonstrating the project's commitments of no net loss in natural habitat and net gain in critical habitat. As identified in ESAP # 16, while the long-term BMEP is under development, the project will continue its monitoring of bears and the various bird species in the near term.

A Biodiversity Action Plan (BAP) with the aim of achieving no net loss of natural habitat and net gains of critical habitat (*P. porphyrantha*) has also been prepared and will be implemented by the Project. The BAP includes the following: a set of overarching avoidance, minimization and restoration measures to be undertaken in natural and critical habitat; two Species Action Plans (SAPs), one for *P. porphyrantha* and the other for the Brown Bear; and a Biodiversity Offsets Strategy. The SAP for *P. porphyrantha* includes actions such as micro-siting of project roads and mine infrastructure to avoid concentrations of the plant; the use of conveyors instead of trucking to reduce dust; a set-aside of at least 20 percent of the population (and associated sub-alpine meadow habitat and other species), thus sterilizing part of the resource; progressive rehabilitation; a research and translocation program for the species; phased development of open pits to allow time for research on the environmental requirements of the species; and, habitat restoration post-mine closure. As indicated in ESAP # 15, the project will conduct a 5-year review to ensure the relevancy of the approach to secure net gains of *P. porphyrantha* as indicated in the BAP.

As described in the Biodiversity Offsets Strategy, significant residual impacts will be offset by contributing to the establishment of the currently proposed Jermuk national park. Proposals to develop a Jermuk national park have been promoted by WWF Armenia and are part of Government plans, contingent on resources and funds. The project has conducted initial baseline biodiversity surveys to establish the suitability of the proposed National Park for meeting its requirements for a natural habitat offset. Initial stakeholder mapping and engagement has also taken place to establish likely attitudes to a new National Park. The Project has also developed a metric to compare losses and gains of biodiversity.

Based on the results of the project's ESIA and subsequent assessments, it was established that the creation of the Jermuk National Park would provide a stable context for offset delivery, while also leaving a legacy for nature conservation in the Jermuk area.

In this sense, the project has committed to establishing the Jermuk National Park for a period of 5 years, after which the project will continue to fund its offset interventions for an appropriate period, currently proposed as 25 years, in line with the planned duration of mining activity. Offset interventions will be integrated within the National Park Management Plan, and Lydian will retain responsibility for their delivery and the monitoring of outcomes. The project's actions will be included in a dedicated Offset Management Plan as indicated in ESAP # 14. After the 5-year establishment phase, a review will take place on the long-term financing needs of the park so that a sustainable financing mechanism could be developed as indicated in ESAP # 15; the outcomes of which will be included in the Offset Management Plan.

Regarding ecosystem services, the project conducted a systematic review ecosystem services as part of the ESIA to identify priority ecosystem services. The most significant residual impacts identified on priority ecosystem services for the local communities relate to loss of access to grazing and hay meadows for seasonal and daily herders and local farmers. Some farmers from Gndevaz will also lose land currently used to produce premium quality apricots. Landscape changes due to project activities will also be significant, affecting primarily the village of Gndevaz. Impacts on livelihoods and on access to provisioning services will be mitigated through actions included in the project's Land Access and Livelihood Restoration Plan and Livelihood Restoration Plan, the visual impact has been reduced to the extend feasible during the project design and has also been considered in the mine closure and rehabilitation plan.

PS 8 Cultural Heritage

The project area has a rich history of occupation beginning from the Paleolithic Era (2.5 million years ago - 10,000 BC) and reaching to present times. The area carries traces of many civilizations' from Assyrians to Ottoman Empire. Based on the ESIA field reconnaissance surveys conducted by the Armenian archeological team, a total of 487 known or potential cultural heritage sites were identified. The majority of the cultural heritage sites are pinpointed as tombs, crypts, grave mounds or kurgans. 138 out of 487 potential cultural heritage sites were evaluated for their importance and none of them were recognized as critical cultural heritage sites. It should be noted that there is the possibility of additional undiscovered sites in the Project area. Based on the available studies, mine construction activities will substantially impact 81 archaeological sites, although none of the known artefacts are considered by either national or international cultural heritage experts to be of high importance to archaeology.

As part of Lydian's commitments on cultural heritage, the project redesigned a number of project components in order not to affect several sites. The project has developed a Cultural Heritage Management Plan (CHMP) which includes the avoidance and marking of known cultural heritage sites; continuity of the surface reconnaissance and excavations and archaeological evaluations, training of all contractor and service providers in regards to recognition of cultural heritage sites and implication of consultation process with relevant stakeholders including the local community leaders.

The CHMP will also comprise the implementation of a Chance Finds procedures and protocols to ensure the protection of a chance finds. This includes providing cultural heritage awareness training to project staff, incorporating independent cultural heritage consultancy to audit

construction activities and reports provided by the company's archeological team which will be present on site during construction and operations. Additionally, excavation of cultural heritage sites from the project area will be in compliance with relevant Armenian legislation and international standards and conventions, and in coordination with the Ministry of Culture of the Republic of Armenia under the supervision of a cultural heritage specialists.

Stakeholder Engagement

From the beginning of IFC's involvement in the project in 2007, the company has identified their key stakeholders and engaged with them throughout the exploration phase.

During the exploration, pre-feasibility and feasibility phases, the main objective of stakeholder engagement has been to establish two-way communication between the project and stakeholders at national, regional and local levels. Focus of the engagement has been on the impacts of the exploration activities, the potential for mine development and to ensure that stakeholder views are incorporated into the ESIA and project design. Good relationships with local communities have supported the development of exploration activities throughout the years. When initial exploration and prospecting for gold began in 2006, Lydian commenced informal engagement with interested stakeholders. As the Project developed, Lydian formalised the engagement approach

In 2010 Community Liaison Committees (CLCs) were created in the villages of Gndevaz, Gorayk and Saravan. In 2011 a CLC was also established in the town of Jermuk. The CLCs are structured to include representatives from different sectors of the community such as education, health and local government, and each includes both women and men and aims to ensure representation of different interests. The CLCs are intended to reflect the views and interests of the wider community and provide an additional channel of communication between each community and Lydian.

In 2011 a formal Stakeholder Engagement Plan (SEP) for the project was completed. The SEP is a document that is used to guide how Lydian communicates with stakeholders during the Project's development, operation and closure, and after the project has ended. The SEP is designed to be a "living" document. It is updated as the project develops and the needs of the project managers and stakeholders evolve. The latest version of the plan was updated in May 2016. The details of stakeholder engagement during the upcoming construction phase, including anticipation of when concerns and grievances are likely to peak, are included in this latest revision. The SEP is available at the company's information centre and can be downloaded from Lydian's website. Each month a Community Newsletter is distributed to Gndevaz, Gorayk, Saravan and Jermuk, providing updated information on the work being carried out at the project. A Media Newsletter is also made available regularly to a broad range of stakeholders outside the Project area. In April 2013, Lydian opened the Amulsar Information Centre in Gndevaz. At the centre, people from the local communities can access information and ask questions about the project. Information is available as videos, posters, booklets, and electronically. The centre is staffed during normal working hours by people familiar with the project and has free internet access for visitors. It is planned to establish a similar information center in Jermuk prior to the start of construction.

The first ESIA to international standards was published in May 2015 and public consultations took place in June and July 2015. An executive summary and a Q&A was available in addition to the full ESIA.

Key questions raised included impacts on the environment, water, air, biodiversity and human health and how these will be managed, timeline for construction phase, visual impacts, land acquisition and missing baseline information on reptiles. These concerns were incorporated in the next version of the ESIA.

The second ESIA reflecting the outcome of the value engineering was disclosed in May 2016 and public consultations were conducted on 30 May and 1- 2 June 2016 in Jermuk and Yerevan. Key concerns raised were related to project design, cyanide management, local employment, water management and land acquisition. The minutes of these meetings have been publically disclosed on the website of Lydian and shared with members of the project affected communities.

A participatory monitoring program focusing on water quality is at the initial stages of being established and will be an important component of the stakeholder engagement program as the projects progresses (See ESAP # 5).

A key expectation for all community members is to get jobs or business opportunity as a result of the mine development as the project is located in an area with very limited opportunities and many migrate to Russia for jobs. The project will manage these expectation through a transparent local recruiting and procurement process (See ESAP # 8)

The project has an effective Grievance Mechanism (GM) where records are kept of all grievances as well as of questions asked by the public through meetings on the information centre. The staff based at the information centre provide feedback to those who have asked questions, disclose further technical information as needed and liaise with the head office in Yerevan for support to respond to questions and grievances as necessary. A formal GM has been in place since 2013 and has been widely disseminated among affected communities. Grievances can be raised in person at the information centre or through the CLO, by phone, email or letter. Grievances are responded to within 14 days. The GM mainly received requests for community investments. In 2015, 20 requests were received for financial support and community investments.

Community Development Program

Between 2007 and 2011 Lydian has implemented rural infrastructure and community development programs as part of its community investment. Lydian developed the 'Amulsar Social Strategy 2012 – 2014', including an annual work plan, comprised of strategic approaches and parameters for community development, outlining broad areas of intervention, as defined through various assessments, and identified partnerships as a key means for Lydian to achieve best practice in community development. A new Social Investment Strategy was developed in late 2015 providing a brief summary of the social investment approach described in earlier Social Strategies. For the construction and operational phase Lydian has developed and disclosed a Community Development Plan (CDP). To date, the company has spent almost 2 million US\$ on

community development programs mainly focusing on education and income generating activities.

NGO relations

The project continues to attract the attention of local NGOs who are well known to the company. In 2014, two formal complaints were received by the IFC Compliance Advisor Ombudsman (CAO):

1) Ref. Armenia/Lyidian Intl3-01, received 16 April 2014 from two residents of Gndevaz and Jermuk, with support from nine NGOs, expressing concerns with regard to project impacts on the local water basins' quality, red-listed species and local tourism; criticizing the EIA; and alleging violations of IFC's Performance Standards and national regulations.

2) Ref. Armenia/Lyidian Intl3-02, received 25 July 2014 from 147 residents of Gndevaz, raising concerns about project impacts on livelihoods, the environment and community health; alleging lack of adequate project information about land acquisition and resettlement plans, potential environmental contamination from the project's cyanide leaching system, dust pollution, and employee healthcare; and alleging insufficient community engagement.

In April 2015, the CAO conducted a compliance appraisal of the first complaint, and concluded that a compliance investigation into IFC's investment in Lydian should be carried out. The second complaint was originally to be taken forward via a CAO-facilitated dispute resolution process, but the complainants' representative subsequently decided that it was not in the complainants' best interest to participate. The two cases have now been merged into a single compliance investigation, which is currently in progress. IFC is actively following up and providing support to the CAO process as needed

Local Access to Information

Lydian will make a copy of the ESRS, ESAP and related ESIA studies and reports available in the following locations near the project site for a period of 60 days starting XX [IFC to complete].

For inquiries

Lydian International Ltd.
Hanrapetutyán 37, 4th floor
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Attention: Bob Carreau
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Geoteam CJSC
Amulsar Project Office
Shahumyan Str., Building №20, 3701
Jermuk, Vayots Dzor
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Attention: Bob Carreau
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The full version of the ESIA can also be accessed at:
<http://www.lydianinternational.co.uk/reponsibility/esia>