Environmental and Social Impact Assessment (ESIA) Summary Document

Okvau Gold Project

Chong Plas Commune, Keo Seima District, Mondulkiri Province, Kingdom of Cambodia

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Background

The Environmental and Social Impact Assessment for Okvau Gold Project was finalised in July 2017 and approved by the Ministry of Environment (MoE) in November 2017. The ESIA was prepared by Cambodian and Australian consultancies:

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This document discloses a comprehensive summary of each Chapter within the ESIA.

Chapter 1: Introduction

Renaissance Minerals (Cambodia) Limited (RNS) has been granted two licenses for metallic mineral exploration (Okvau and Ochhung, 192km^2 and 182km^2 respectively) located in Chong Plas commune, Keo Seima district, Mondul Kiri province. After almost ten years of exploration, RNS has developed a firm prospect at the Okvau deposit and is proposing to develop a gold mine at the site, referred to as the Okvau Gold Project (hereafter, the 'Project'). The Cambodian Ministry of Environment (MOE), through Sub-Decree No. 72 (1999), has determined that the Project requires a full Environmental and Social Impact Assessment (ESIA), which will require MOE approval prior to further Project development.

The ESIA aims to predict and assess the potential impacts of the Project and ensure that appropriate mitigation measures have been incorporated into Project design, planning and management to eliminate, reduce, avoid, and where appropriate compensate for, these impacts. The ESIA strives to engage all concerned stakeholders in order to share their opinions and concerns regarding potential impacts, and to ensure that the public have the opportunity to participate in decisions regarding the Project from the assessment stage through to Project closure.

The Project proponent, RNS has legally contracted local registered firm E&A Consultant Co., Ltd. and Australian based Earth Systems (herein both known as the 'Consultant') to undertake the ESIA and associated studies in compliance with Cambodian regulations and international standards.

Project Overview

The Project is located in Mondul Kiri Province, approximately 90 km east of the town of Kratie. The Project will be an open cut gold mining operation with an annual production target of up to 100,000 oz of gold over an initial mine life of 8 years. Conventional open pit mining methods will be used for mining, comprising drill and blast, and diesel-powered excavation, load and haulage operations. Gold is to be extracted using a conventional cyanide carbon-in-leach process. The Project will be constructed over 18 months and rehabilitated and closed over a 5-year period post-mining. It is possible the operations phase may be extended through the discovery of additional gold resources.

The Project lies within the Phnom Prich Wildlife Sanctuary (PPWS) outside of the core conservation zones. It is understood that the project will be located in a designated Sustainable Use zone. RNS plans for the proposed Project to play a major role in expanding the extent of effective conservation in the PPWS.

The Project lies entirely within the catchment of the Prek Te River, which joins the Mekong River approximately 100 km downstream near the town of Kratie. The Prek Te River flows east to west approximately 800 m north of the proposed pit along the northern boundary of the Project.

Topography consists of hills and valleys, and rainfall occurs primarily in a pronounced wet season from May through to October. The region is accessible by roads of variable quality and is currently affected by illegal settlements, logging and poaching activities.

Artisanal gold mining has been conducted (illegally) for many years in the proposed pit area of the Project, with a transient population of a few hundred at the height of artisanal mining activity decreasing to 140 persons based on a July 2016 census.

Key components of the Project will include:

- Single open pit;
- Process plant;
- Tailings Storage Facility (TSF);
- Waste Rock Dump (WRD);
- Access roads;
- Permanent accommodation camp;
- Mine services facilities, including fuel storage, administrative offices and workshops; and
- Process plant support facilities and services.

ESIA Objectives

The objectives of the ESIA are to:

1. Provide a description of the proposed Project and alternatives;
2. Describe the physical, biological and socio-economic setting of the proposed Project;
3. Identify key environmental and social management issues associated with the construction, operation and closure of the Project;
4. Describe how RNS will plan, construct, operate and close the Project to prevent and mitigate adverse environmental and social impacts;
5. Describe how RNS will monitor and manage residual environmental and social impacts;
6. Assess the risk of any significant environmental and social hazards associated with the Project; and
7. Engage regularly with concerned stakeholders, from village to national levels, for their inputs in the planning and development of the Project.

Chapter 2: Scope and Assessment Methodology

The scope of the assessment covers any associated impact within spatial, temporal and technical boundaries, as defined below.

Spatial Boundaries

- The Project footprint, representing the construction area required for the establishment of proposed mine infrastructure and ancillary facilities as well as areas potentially directly affected by the Project, including buffer zones.
- The Project Development Area (PDA), representing the area encompassing the physical footprint of the main Project components (Mine Pit, Process Plant, Mine Services Area, Tailings Storage Facility, etc.) and a buffer area, but excluding Project access roads.
- Okvau settlement, comprising the Project-affected people living within the illegal settlement at Okvau and associated livelihoods and assets that will be directly affected by the Project.

- Socio-economic study area, representing communities in the Prek Te River catchment that could be indirectly impacted by Project activities, both upstream and downstream.
- Physical and biological study areas, comprising areas where physical or biological impacts could occur (e.g. noise, water quality and dust impacts) due to Project activities, both within and external to the PDA.
- Cumulative impact area, representing areas potentially impacted by the cumulative impacts of the Project in combination with other planned and existing projects of significance within the wider area.

Temporal Boundaries

The ESIA assesses Project activities proposed during the construction, operations, and closure phases of the Project, as well post-closure impacts, in line with the 'General Guideline for Initial and Full Environmental Impact Assessments' (DGGIFEIA, 2009). Potential environmental and social impacts and risks in each of these phases have been considered. The phases are defined as follows:

- Design Phase – The Design Phase follows exploration and is initiated as part of the feasibility study for the Project. The Design Phase lasts approximately 12 months.
- Construction Phase – The Construction Phase starts upon Project approval (includes licensing, investment convention, board approval, financing, completion of relocation and community engagement processes), and is considered to end with the first full-scale processing of ore. The Construction Phase will last approximately 18 months.
- Operation Phase – The Operations Phase will start upon full-scale processing of ore, and end at the completion of ore processing. The estimated length of the Operations Phase is 8 years. Operations will be conducted 24 hours a day, 7 days a week.
- Closure phase – The Closure Phase starts upon the cessation of ore processing, and ends with the successful relinquishment of the mining lease. The Closure Phase is expected to last between 3 to 5 years.

Technical Boundaries

The DGGIFEIA (2009) requires this ESIA to consider the physical, biological and socio-economic contexts in which the Project may impact directly and indirectly, as listed below.

A. Physical components

- Air quality, noise and vibration
- Hydrology and hydrogeology (surface water and groundwater quality)
- Waste rock and tailing geochemical characterization
- Climate and meteorology

B. Biological components

- Flora assessment
- Fauna assessment
- Aquatic biodiversity and fisheries

C. Socio-economic components

- Resettlement and livelihood
- Socio-economic assessment
- Health impact assessment
- Transportation assessment
- Cultural heritage and archaeology

Technical Studies

Field assessments were conducted in the vicinity of the Project to support the impact assessment and to collect information on existing (baseline) conditions. These assessments covered both dry and wet seasons to capture any potential seasonal variations. Initial assessment was carried in February–April 2015, with further field assessments conducted in September–November 2015 and June 2016. Experienced and qualified experts participated in collecting and assessing the data. The methodologies for each technical component are provided in the supporting technical studies attached to this ESIA.

Cumulative Impact Assessment

A cumulative impact assessment (CIA) was undertaken to provide a comprehensive understanding of the significant activities in the region that need to be considered with respect to the Project, and the potential for cumulative impacts.

Impact Significance Assessment

The ESIA process involves identification and prediction of potential impacts, and assessment of the risk level associated with those impacts considering the mitigation measures included in Project design, plans and management. The assessment of potential impacts involves the following steps:

- Baseline assessment of the existing environmental and social context and how this would develop in the absence of the Project;
- Assessment of potential impacts on receptors based on the Project design;
- Mitigation of impacts by Project design measures to avoid, reduce, mitigate or compensate for adverse impacts and to enhance benefits;
- Assessment of residual impacts after application of mitigation measures.

The assessment of risk is conducted according to international standard practice based on the ISO 31000 and International Council on Mining & Metals (ICMM) risk assessment frameworks, in which impact/risk is classified according to likelihood and consequence level (i.e. Low, Moderate, High).

Public Participation and Consultation

In both Mondul Kiri and Kratie provinces, potentially affected residents and local authorities were regularly engaged through formal and informal consultations in the assessment process. Other important stakeholders consulted for the Project include the Provincial Department of Environment (PDE) who is managing and overseeing the PPWS Unit and the World Wildlife Fund (WWF), who is an active participant in conservation of the PWWS.

The consultations conducted prior to ESIA submission are as follows:

- District governments participated in a consultation meeting in Keo Seima district on 28 July 2016 to discuss Project impacts and future collaborations.
- A provincial consultative ESIA workshop was conducted on 21 September 2016 in Mondul Kiri province with diverse participations including relevant provincial departments and the WWF to disseminate Project information and provide a platform for all representatives to discuss and consult regarding the preliminary ESIA.
- A formal consultation was held with the provincial authority on 29 July 2016 in Mondul Kiri province to address the issues of resettlement of the Okvau people.

Chapter 3: Legal Framework

This ESIA has been prepared in consideration of and accordance with all relevant laws and sub-decrees in Cambodia and applicable international policies, guidelines and standards, as listed below.

Cambodian regulations:

- Constitution of Kingdom of Cambodia (1993)

- Law on Environmental Protection and Natural Resource Management (1996)
- Law on Mineral Resource Management and exploitation (2001)
- Law on Amendment to the Law on Investment of the Kingdom of Cambodia
- Law on Land (2001)
- Law on Land Management, Urban Planning and Constructions
- Law on Forestry (2002)
- Law on Fishery (2006)
- Law on Labor (1997)
- Law on Expropriation (2010)
- Law on the Management of Weapons, Explosives and Ammunition (2005)
- Law on Social Provision Fund (2002)
- Law on Taxes (1997)
- Law on Traffic (2015)
- Law on Road Transport (2014)
- Law on Cultural Heritage Protection (1996)
- Sub-Decree on Environmental Impact Assessment Process (1999)
- Sub-Decree on Air Pollution and Noise Disturbance Control (2000)
- Sub-Decree on Solid Waste Management (1999)
- Sub-Decree on Water Pollution Control (1999)
- Sub-Decree on Management of Mining Exploration and Industry (2016)
- Sub-Decree on River Basin Management (2015)
- Sub-Decree on Environmental and Social Fund (2015)

International standards:

- International Financial Corporation (IFC) – Policy on Environmental and Social Sustainability and associated IFC Performance Standards (2012)
- The World Bank – General Environmental, Health and Safety Guidelines (2007)
- International Cyanide Management Code – International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (2014)
- International Union on the Conservation of Nature (IUCN) – World Heritage Advice Note: Environmental Assessment; and World Heritage Advice Note: Mining and Oil/Gas Projects (2013)
- International Council on Metals and Minerals (ICMM) – Sustainable Development Framework (2003)
- USA and UK Governments – Voluntary Principles on Security and Human Rights (2000)
- UN – Guiding Principles on Business and Human Rights (2011)

Chapter 4: Project Description

Overview

RNS proposes to develop an open cut gold mining operation with an annual production target of up to 100,000 oz of gold over an initial mine life of 8 years. The Project will target gold within a series of

arsenopyrite-rich sulfidic shears that pass through an igneous intrusion. The mine will be developed as an open pit by conventional open pit mining methods (drill, blast, excavate and haul). Ore will be processed by ultrafine grinding and carbon-in-leach (CIL) gold extraction, with gold recovery and doré smelting conducted on site.

Current estimates indicate that the mine will produce approximately 11.6 Mt of ore and 90 Mt of waste rock over the life of mine. Process tailings are to be stored in an unlined tailings storage facility (TSF) established on a low-permeability basement with a design capacity of 14.2 Mt (16 Mt inclusive of water). Waste rock is to be stored in a waste rock dump (WRD), which has a design capacity of 92 Mt.

Tailings will be subject to cyanide detoxification prior to transfer to the TSF. All available process and pore water will be recovered from the TSF via decant and other recovery systems for re-use in processing. There will be no planned discharge from the TSF during operations. The TSF will be designed and operated with a minimum freeboard of 1.5 m, sufficient to accommodate a 1-in-100 year annual rainfall sequence (wet season) or 1-in-500 year rainfall event. Any water exceeding this capacity will report to the Mine Pit via a spillway for containment and management.

Process water supply (~2,500 ML/y) will be sourced from the TSF and site water storages, supplemented by pumping from the Prek Te River for approximately 6 months of the year (~700 ML/y). Water for dust suppression (~450 ML/y) will be met by pit dewatering and contained surface runoff, supplemented as needed by pumping from the Prek Te. To minimise impact on downstream water levels, Project water extraction from the Prek Te River will be subject to a voluntary Cease to Transfer Order to guarantee a minimum downstream river flow of 160 L/s (below which abstraction will cease).

The site is to include a permanent accommodation camp with a capacity of 250 people (during normal operations), mine services facilities including fuel storage, administrative offices and workshops, access roads and process plant support facilities and services. Other key components will include sedimentation ponds and drainage capture and recycling infrastructure. Similarly, sewage and water treatment plants, laboratory, stores, crib room and ablution facilities, diesel storage, chemical storage and an explosives magazine will be key constructed components.

Project Schedule

The Project is anticipated to begin construction in 2017[1] and to continue for 18 months. The operations phase is planned to continue for 8 years. It is possible the operations phase may be extended through the discovery of additional gold resources. Closure, including rehabilitation works, is expected to last 5 years, from 2026 to 2030.

Project Access

The principal access route to the Project (the Project Access Road[2]) is to the southeast via Saen Monourom. Two existing routes west from the Project to Kratie (via Snoul and via a logging road through Antrong) will also be used as secondary routes.

Project Development Area (PDA)

The primary purpose of the Project Development Area (PDA) is to restrict the footprint and the majority of potential physical impacts to a spatially confined area. The PDA allows strict controls on access to the mine site, ensuring personnel, wildlife and community safety. The size of the PDA has been reduced through an iterative design process to ensure that impacts to land and the PPWS are minimised. The area of the PDA as delineated is 1,150 ha, approximately half of which will be utilised for the Project.

The following security measures will be enforced to ensure the safety of visitors, personnel and wildlife:

[1] Schedule changes have Okvau Gold Project achieving first gold production in 2020.

[2] The access road forms part of a pre-existing road being upgraded by the Department of Rural Development (DRD). Since Okvau Gold Project ESIA approval in 2017, an ESIA for the road upgrade was commissioned by the DRD and approved by the Ministry of Environment early 2019.

- Fencing and/or other physical barriers will be erected around high security installations and other areas where there are potential safety risks;
- There will be restricted access to the PDA, including areas around the TSF, WRD, Mine Pit, and Process Plant, and the Mine Pit will be surrounded by a berm to prevent access;
- There will be a 500 m buffer around the Mine Pit to assist in maintaining the fly rock exclusion zone during blasting, and a 50 m exclusion zone around the Mine Pit at all other times;
- The TSF will be surrounded by security fencing to exclude access; and
- Community use of Project roads may be permitted, where appropriate.

Project Phases

Construction Phase

The Construction Phase will involve the following principal activities:

- Construction and/or upgrade of the Project Access Road and site security (fencing, checkpoints);
- Installation of water, air, noise, vibration, light, security, safety and health monitoring stations, equipment and facilities;
- Construction of water management controls (e.g. culverts, sedimentation dams, sediment control structures) prior to all other site development;
- Construction of accommodation, offices, workshops, stores, laboratories and waste management facilities (sewage and solid waste);
- Construction of site roads and hardstands;
- Construction and securing of the explosives magazines;
- Initial development of the mine pit, including blasting and hauling, for winning of construction materials and initial ore production and stockpiling;
- Construction of the TSF embankment, base and cut-off drains;
- Preparation of the WRD area, ROM pad and MWS pad, including base preparation, grading, compaction and drainage works;
- Construction and commissioning of the Processing Plant, reagent storage facility, process water storage and associated facilities;
- Preparatory earthworks, including vegetation clearing/grubbing and topsoil removal and stockpiling, in other areas flagged for immediate development;
- Resource and exploration drilling;
- Installation of groundwater monitoring bores around the TSF embankment.

Operations Phase

The key activities of the Operations Phase are described below.

- Mining: The Mine Pit will be developed in multiple stages by conventional methods of drilling, blasting, loading and hauling using standard industry equipment. Mining will commence during construction several months before the Process Plant is scheduled to be commissioned in order for adequate ore feed to be stockpiled and to provide subsoil material for construction of Project components. Safety around the Mine Pit will be controlled by the construction of an earthen bund around the pit perimeter, the installation of appropriate signage at key access points, and the enforcement of a 500 m flyrock safety exclusion zone around the pit during blasting times.
- Ore Processing: Mineral processing will involve crushing, grinding, flotation and carbon-in-leach (CIL) gold extraction, with gold recovery from pregnant carbon by elution and electrowinning. Doré smelting will be conducted on site.

- Tailings Management: A single tailings stream will be produced by ore processing. The tailings will be transferred by pipe to the adjacent TSF. Cyanide detoxification will be incorporated into Process Plant operations to ensure that weak acid dissociable (WAD) cyanide concentrations do not exceed 50 mg/L in tailings slurry (as per the International Cyanide Management Code guidelines) before transfer to the TSF for disposal. All available water in the TSF will be reclaimed via decant and other recovery systems for re-use in processing. TSF embankments will be constructed to international standards from inert overburden with a clay core keyed into local basement and/or a bituminous geomembrane (as required) on the embankment footprint to control seepage. The northern embankment will be buttressed against the WRD for enhanced stability. Cut-off trenching and recovery bores will be installed around the toe of the embankment for additional seepage control.
- If discharging to public water areas, the effluent pollution standard for free cyanide (CN-1) must be less than 0.2mg/L as per Annex 2 of Sub-decree on Water Pollution Control of MoE in 1999. Moreover, cyanide and their components have to be less than 50mg/kg (for dry cyanide) as per Annex 1 of the Prakas no. 387 on the Determination of Pollutant and Hazardous Materials Standard Allowed for Disposal (released on 30 September 2015) of MoE.
- Waste Rock Management: A single WRD will be established adjacent to the open pit and TSF. The WRD will be constructed by conventional end dumping in 10 m benches with 15 m berms and batter angles of 35° or as otherwise determined by slope stability assessment. All drainage and seepage from the WRD is to be contained and reused during operations. Waste rock will be segregated, and arsenic-bearing and potentially acid forming waste rock encapsulated by a significant layer of non-acid forming, oxygen-consuming waste rock to minimise potential for salinity and metal release.
- Water Supply and Management: Process water demand is estimated based on ore throughput of 2 Mtpa to be approximately 2,500 ML/y. This water demand will be met by reclamation of process water from the TSF (~30%), incident rainfall on the TSF and water contained surface runoff (~40%), and pumping from the Prek Te River (~30%). Pumping from the Prek Te River is expected to be required for approximately 6 months of the year (~700 ML/y). Water extraction from the Prek Te River will be subject to a voluntary Cease to Transfer Order to guarantee a minimum downstream river flow of 160 L/s (below which abstraction will cease). Pit dewatering will be required during operations. Pit water, including groundwater, incident rainfall, pit wall and WRD drainage, and overflow from sedimentation ponds in the process area will be pumped to the process water pond for use in metallurgical processing. Water for dust suppression (ca. 450 ML/y) will be principally met by pit dewatering and contained surface runoff when water quality permits, supplemented as needed by pumping from the Prek Te. There will be no offsite discharge of groundwater. Sedimentation dams will be constructed on tributaries to the east and west of the PDA to contain all runoff from Project operations. These dams are to be sized to accommodate a 1-in-20-year average recurrence interval rainfall event.
- Power Generation: Project electrical power will be provided by 12–14 units of 1 MW, 11 kV diesel generator sets (total installed power of 12–14 MW).[3] Diesel fuel will be stored centrally on-site in bunded, above-ground 110,000 L tanks.
- Wastewater and Waste Management: Sewage and wastewater treatment plants will be used to treat waste water streams from the accommodation block and workshop/auxiliary facilities. A small landfill will be constructed to dispose of non-hazardous putrescible waste. Hard and hazardous waste will be removed from the site by an appropriate contractor.
- Chemical and Reagent Management: Various chemicals and reagents will be used during operations, including sodium cyanide, calcium hydroxide, sodium hydroxide, hydrochloric acid, ferric sulfate and copper sulfate, as well as diesel, lubricants, grease and other hydrocarbons. Diesel fuel will be stored centrally on-site in bunded, above-ground 110,000 L tanks. Hazardous

[3] As part of the Cambodia Power Development Plan, Electricite du Cambodge (EDC) are constructing a transmission line from Kratie to Sen Monorom via the Okvau Gold Project Development Area providing the project with access to grid power.

materials storage areas will be constructed with concrete slabs, primary and secondary containment, and sump pumps to recover spilled material, and drainage from the hazardous materials storage and handling areas will report to the TSF area to manage potential spillage / leakage outside of primary containment areas. Cyanide will be procured, transported, stored, handled, used and destroyed in accordance with the intent of the International Cyanide Management Code guidelines for gold operations. The Project will use a cyanide sparge system, which includes real-time GPS tracking during transport, use of Code-accredited suppliers and transporters, independent auditing of transporter/contractor procedures, transportation verification protocols, a closed and automated isotainer storage system to minimise exposure risk and minimise manual handling. The cyanide storage area will be fully bunded and contained. The Process Plant will include a cyanide detoxification circuit to treat slurry from the CIL circuit. Cyanide detoxification will be incorporated into processing to ensure that weak acid dissociable (WAD) cyanide concentrations are maintained below 50 mg/L in open water bodies (e.g. TSF supernatant pond).

- If discharging to public water areas, the effluent pollution standard for free cyanide (CN-1) must be less than 0.2mg/L as per Annex 2 of Sub-decree on Water Pollution Control of MoE in 1999. Moreover, cyanide and their components have to be less than 50mg/kg (for dry cyanide) as per Annex 1 of the Prakas no. 387 on the Determination of Pollutant and Hazardous Materials Standard Allowed for Disposal (released on 30 September 2015) of MoE.
- Laboratory Services: A laboratory will be constructed on site for analysis of samples from exploration and operations (throughput of up to ~7,500 assays per month).
- Explosives Management: Explosives will be stored in explosives magazines under security and subject to a regulatory inspection regime. Rock is to be blasted using a bulk form of emulsion and ammonium nitrate prill with fuel oil (ANFO) mixture. A bulk explosive truck will mix the appropriate blend of emulsion or ANFO and transfer the product to the pit for borehole loading. The average usage of explosives is expected to be ~3,000 tonnes per annum. Explosives will be shipped to the Project site in non-explosive component form, and the emulsion/ANFO blend will be mixed at site. Bulk storage facilities for emulsion and ammonium nitrate products will be constructed at the Project site. Detonators, primers, pre-split explosives and miscellaneous blasting products will be shipped to site as explosives and be stored separately in 3–4 site magazines located at a safe distance from the ammonium nitrate storage area and emulsion plant.

Closure and Rehabilitation

The Closure Phase is expected to last for 5 years and will involve the following tasks:

- Completion of rehabilitation and revegetation including final closure works to restore pre-development environmental and social values and establish a safe, secure and geotechnically and geochemically stable site;
- Implement the Final Rehabilitation and Closure Plan, including transfer of remnant potentially acid forming mineral waste on the ROM Pad or MWS where appropriate to the base of the pit, flooding of the mine pit, construction of permanent drainage controls, water courses and wetlands, and construction of cover systems on the TSF and WRD (if required);
- Decontamination of all facilities and materials impacted by chemicals, process reagents, hydrocarbons, fuels, grease, oil and other contaminants;
- Decommissioning and clearing of all facilities, buildings, concrete foundations, hardstands, stores and equipment, including removal and appropriate disposal of hazardous materials;
- Cleaning and sealing of buried pipelines, and removal of power lines and above-ground pipelines for disposal;
- Rehabilitation of non-vital site roads and drainage and erosion controls;
- Contaminated land survey and decontamination or safe disposal of affected soils as appropriate;

- Removal of fencing unless retained for public and wildlife safety reasons;
- Monitoring of water, air, noise, vibration, light, security, safety and health during closure works;
- Monitoring of rehabilitation stability, water quality and other parameters for comparison with closure success criteria.

Management, mitigation, remediation, decommissioning, demolition and rehabilitation measures will be consistent with Cambodian and international best practices to minimise post-operational impacts and re-form the PDA to support self-sustaining vegetative communities and ecosystems. Detailed information on decommissioning and rehabilitation is provided in the Rehabilitation and Conceptual Mine Closure Plan (RCMCP).

Rehabilitation of mining areas will be carried out progressively over the mine life in order to minimise the potential for erosion and sediment transport, maximise the cost-efficient use of personnel, equipment and resources during operations, and to ensure maintenance of the maximum practical extent of rehabilitation in the event of unplanned closure. Rehabilitation will be conducted in a manner that ensures biodiversity gains (or no net loss), community safety and benefits the local communities where possible. Closure options and criteria will be developed in consultation with the local community.

Staffing

It is expected that the staffing requirements will be as follows:

- During construction, a variable work force of approximately 200–500 staff and contractors;
- During operations, up to 350 personnel, with a maximum of 250 staff on site at any time based on a 12-hour continuous shift (or equivalent as per Labour Law requirements).

RNS Cambodia will adopt a preferential employment policy that maximises the opportunity for recruitment, training and skill development of personnel via local regional centres (Saen Monourom, Snoul, and Kratie). Staffing with relation to employment of Cambodian nationals will conform to regulatory stipulations.

Accommodation

The mine accommodation will be constructed to accommodate a daily maximum of up to 250 personnel. The camp will include housing, dry mess, wet mess, laundries, recreation room, training room, and health care facilities.

Sewage from the camp will be treated by an appropriate wastewater treatment plant to applicable effluent standards. Expected maximum sewage treatment load is ~20 ML/yr. Raw water will be filtered and sterilised to provide fresh water for elution and potable water for the site.

Chapter 5: Environmental and Social Baseline

Physical Setting

The regional terrain around the Project is relatively hilly with occasional steep valleys, with elevations from approximately 80 to a few hundred metres above sea level, while the PDA is largely flat with undulating hills. Soils in the vicinity of the Project are acid lithosols (thin soils consisting of unweathered or partially weathered rock fragments) and plinthite podzols (iron-rich, humus-poor soils) of relatively low fertility.

The area has distinct wet and dry seasons resulting from the annual Asian monsoon. The dry season is between November and April with prevailing winds from the northeast, associated with cool, dry air, and January and February being the driest months. The wet season is between May and October with prevailing winds from the southwest. Up to 90% of the annual regional rainfall occurs during this period, with September typically being the wettest month. Average annual rainfall in the region is approximately 1,800 mm.

Tropical cyclones and severe storms regularly cross the region from the South China Sea in a westerly direction. Cyclones typically occur between August and September, which can lead to flooding and

landslides. The Project is in a region of low seismicity. Wildfires primarily occur due to lightning strikes but human induced wildfires are also common.

The Project is located within the catchment of the Prek Te River, which flows for 200 km from O Bang Tu mountain in the east to the Mekong River near Kratie in the west. The total catchment area is ~4,400 km^2. Flooding is known to occur in the floodplains along the Prek Te in the wet season. The Prek Te River represents ~0.5% of the Mekong River catchment. Daily mean flow rates in the Prek Te River at the Project are typically 4–10 m^3/s in the dry season and 65–78 m^3/s in the wet season. The Project area is crossed by a number of ephemeral streams that drain into the Prek Te.

Water in the Prek Te displays elevated turbidity and low, but notable, levels of salinity, metals, nutrients and occasionally cyanide. Turbidity, metals, nutrients and cyanide are likely cause by upstream activities, which include agriculture, and artisanal and industrial mining at O'Khlor.

Water quality in the ephemeral streams of the Project area is essentially pristine with elevated turbidity due to erosion. Near-surface and surface water in the pit area is affected by artisanal mining activities and displays elevated metal concentrations. Groundwater is of generally good quality with slightly elevated alkalinity and salinity due to regional geology, and displays no evidence of human impact.

Air quality and noise in the vicinity of the Project are typical for a rural forest setting, with some seasonal impact due to regional smoke haze in the dry season. There are no industrial activities within 10 km of the Project.

The current noise levels in the vicinity of the PDA reflect proximal exploration and residential activities, monsoonal rains, river flow, wind, and thunder. At O'Khlor, industrial activities such as timber milling and underground blasting result in peak noise and maximum hourly noise above WHO daytime criteria. Vibration is negligible in the PDA, but can exceed 0.9g at O'Khlor associated with underground blasting.

Biological Setting

The Project is located in the Eastern Plains Landscape (EPL), an extensive relatively intact stand of dry forest (30,000 km^2) that extends across four provinces (Kratie, Mondulkiri, Ratanakiri and Stung Treng). The Project is located in the Phnom Prich Wildlife Sanctuary (PPWS), adjacent to the Prek Te River.

Phnom Prich Wildlife Sanctuary

The PPWS comprises a mosaic of habitats ranging from evergreen to open dry forest, inhabited by a diversity of wildlife and plants, including many Endangered and Critically Endangered species.

The PPWS is covered by largely contiguous forest, including deciduous dipterocarp forest and woodland, semi-evergreen, and evergreen forest, with an extensive herbaceous bamboo and grass understorey due to regular burning. The PPWS supports globally significant populations of globally threatened species such as the Asian elephant, green peafowl, yellow-cheeked crested gibbon, banteng, giant ibis, Eld's deer, leopard, clouded leopard, marbled cat, jungle cat and dhole.

Parts of the PPWS, including areas in the vicinity of the Project, are designated Community Protected Areas in which logging and hunting are prohibited for the purposes of wildlife conservation. Parts of the PPWS, including the Project area, have experienced illegal settlement, land clearance for agriculture, logging and over exploitation of natural resources.

Prek Te River

The Prek Te River is a biodiverse aquatic habitat that hosts a number of threatened aquatic fauna and is an important fishery resource for local communities. The deep pools in the river are important habitat for spawning fish during the spawning season between May and October. Pools also provide a refuge to fish during the dry season. Most aquatic fauna species upstream and downstream of the Project are common and widespread. However, the Prek Te also supports populations of the globally Vulnerable elephant ear gourami fish, the Near Threatened Bagarius yarrelli, and 17 other species of fish listed as 'Endangered' at the national level.

The Prek Te is an important water source for fauna in the dry season, as all tributaries in the area are ephemeral and characterised by an absence of surface water during the dry season. Riparian vegetation

along this section of the river is relatively intact and provides habitat for various species, as well as providing a corridor for movement across the river and between forests, and vital ecosystem services.

Green peafowls and northern pig-tailed macaques were commonly observed near the Project, with sambar occasionally using the site.

Socio-Economic Setting

The Project lies within the administrative boundary of Chung Plas Commune in the Keo Seima District of Mondulkiri Province adjacent to the border of Pechr Chenda District. The nearest major town to the Project is Saen Monourom, approximately 64 km to the southeast.

The Project area is relatively sparsely populated with ten dispersed villages containing approximately 5,000 residents identified within 20 km of the Project. The nearest village is the O'Khlor settlement of Pu Tung village, which is associated with the Prey Meas artisanal mining area and a medium-scale underground gold mining operation. Pu Tung village is the administrative centre of Chung Plas Commune, and has a relatively vibrant trading base associated with the O'Khlor mining operations.

Within the Project area there is an illegal artisanal mining settlement (Okvau) with an estimated population of 140 persons based on a July 2016 census. The population of the Okvau settlement is transient and has decreased significantly over the past 1–2 years. In addition to the Okvau settlement, several isolated residences are located within 1 km of the PDA and the southwestern Project Access Road. These households have been asked by the Ministry of Environment to move out of the PPWS.

Communities downstream of the Project are dependent on crop production to maintain their livelihoods. The collection of forest resources, mainly timber but also non-timber forest products, is important. There is limited water use directly downstream of the Project due to the sparse population.

The O'Khlor settlement has been established in association with artisanal gold mining, which is the primary livelihood activity of about half of the resident population. The remaining artisanal mining leases were discontinued as of June 2016. An industrial underground mining operation has also been established at O'Khlor, and there are a number of local industrial operations, such as timber mills.

The Prek Te River and its tributaries have significant economic importance for livelihoods in the region for fishing, transportation and irrigation. Downstream populations within the Cheth Borei District use surface water directly from the Prek Te as a primary and secondary source for domestic water consumption and agriculture, as well as cooking, bathing, laundry, artisanal mining, livestock watering, and fishing/collection of aquatic resources.

Social services and public infrastructure in the vicinity of the Project are relatively underdeveloped and limited. The nearest public schools are located in O'khlor/Pu Tung. Schools have basic public facilities for primary and secondary education. Antrong also has a primary school used by locals. Road access to these schools is difficult throughout the year, especially during the rainy season. The literacy rate in the Keo Seima District is approximately 70%, which is lower than the national average adult literacy rate of 80% (in 2013). The poor road accessibility to school facilities in the District is likely to be a factor in the lower education levels.

The closest health services are located in O'Khlor / Pu Tung and in Antrong. Both facilities have limited medical staff and resources available. For treatment of serious health issues, most residents travel to Kratie for medical care. The most common health concerns are malaria, fever/flu, respiratory illnesses, tuberculosis, measles, dengue, and yersiniosis. No sexually transmitted infections or cases of HIV/AIDS were reported in the area, although information is limited.

Roads in the region are unpaved and in varying states of repair. Some roads are not passable in the wet season, or passable only by motorcycle or 4WD.

Access to electricity in the Keo Seima District is limited, and the majority of local population do not have access to grid electricity. Batteries, generators and solar panels are used at the household level. Firewood is an important source of energy used for cooking. The area is covered by a mobile phone network and mobile phone ownership is steadily increasing.

There are no known sites of high cultural heritage or archaeological significance in or near the PDA. A number of locally significant religious sites, including a local spirit hut and a cemetery were identified in Okvau settlement. A further 16 sites of local cultural heritage significance were identified in the vicinity of the PDA including spirit huts, graves and spirit forests.

Chapter 6: Public Participation

A range of stakeholder groups potentially affected by the Project were consulted as part of the ESIA process. The stakeholders were classified as follows:

1. Most affected populations (MAPs), representing those living in and around the Okvau PDA and would be displaced by the Project;
2. Upstream affected populations (UAPs), representing those living in the upper parts of the Prek Te River, primarily in the Chong Plas and Me Mong communes in Keo Seima districts of Mondull Kiri Province;
3. Downstream affected populations (DAPs), representing those living in the lower parts of the Prek Te River near its confluence with the Mekong River in Kratie Province; and
4. Local and government authorities at sub-national (i.e. commune, district, provincial) and national levels (i.e. Department of EIA, MOE), as well as relevant non-governmental organizations (i.e. World Wildlife Fund – WWF).

The commune/district stakeholders, provincial stakeholders, and national stakeholders consulted during the ESIA process are listed below.

Commune/District stakeholders	Provincial stakeholders	National stakeholders
District Governor's office District Environment Office Representatives from other district offices Commune chiefs in three communes in Keo Seima district (Chung Plas, Me Mong, and Sre Chok), and five communes in Cheth Borei district (Bos Leav, Thma Andaeuk, Kantnout, Dar and Thmei) Village chiefs of villages selected for household surveys Most affected population in the Okvau area Residents in downstream and upstream areas of Kratie and Mondulkiri provinces Phnom Prich Wildlife Sanctuary Authority NGOs such as WWF	Provincial Governor's office Department of Environment Department of Agriculture, Forestry and Fisheries Department of Health Department of Culture and Fine Arts Department of Water Resources and Meteorology Department of Mines and Energy Department of Tourism Fishery Administration Forestry Administration Provincial Disaster Management Committee Provincial Committee on Resettlement of Okvau People	Ministry of Environment EIA Department of Ministry of Environment Ministry of Agriculture, Forestry and Fishery Ministry of Mines and Energy Ministry of Water Resources and Meteorology (Fishery Administration Forestry Administration

Comments and suggestions were obtained from all stakeholders and affected people. The majority of participants were found to support the Project and requested that it operate according to standard procedures with performance in compliance with Cambodian and international regulations and permits.

The key concerns and requests arising from these consultations are as follows:

Concerns

- Will there be downstream impacts for people using water from the Prek Te River due to the Okvau Gold Project upstream in Mondulkiri Province?
- Will the Project contaminate drinking water with heavy metals?
- Will the actual operation (mining activities) be different from what has been written on paper?
- Will the Project impact the occupation and livelihood of the people?
- Will the Project release chemical substances into the Prek Te River and affect the health of wild animals and people living along the river?
- Will the Project result in the loss of forest, land, and/or tradition of indigenous communities?
- As the Project is located close to a Community Protected Forest, will the Project result in the loss of resin trees in the protected forest, which are used by indigenous people?
- Will waste generated from the Project be released into the Prek Te River?
- Has a relocation area been identified for the Okvau residents?

Requests

- The mining company should conduct a proper assessment of the proposed mining project, and raise awareness among people living along the Prek Te River about the Project.
- RNS should prevent the release of chemical substances from the mining site, which could affect fish and the families who depend on fishing as their main source of income.
- RNS should provide water wells, water filters, and clean water to the villagers.
- The government and RNS should thoroughly study the gold mining project and its impact. The impact on the people should be minimised.
- RNS should conduct a proper study on potential impacts of the mining project on fisheries resources and water quality.
- RNS should manage chemical substances and residues properly.
- RNS should install proper chemical storage according to standards.
- RNS should help improve infrastructure in the village, and build health centres, schools and water wells.

During consultations, RNS provided comprehensive responses to all of these concerns and requests, and participants were satisfied that all points have been adequately addressed by measures incorporated into Project design and management.

Chapter 7: Environmental and Social Impacts and Mitigation

The ESIA addresses the potential physical, biological and socio-economic impacts of the Project with respect to its three development phases – Construction, Operation and Closure – and post-closure, and assesses the effectiveness of planned mitigation and management measures.

The key impacts and associated mitigation and management measures are summarised below.

Physical Values

Physical Landscape and Geotechnical Stability

Construction – Development of the Project will involve extensive morphological changes to the landscape within the strict limits of the Project Development Area (PDA) and Project component areas, including vegetation clearance, topsoil stockpiling, and construction of Project infrastructure and facilities. Due to the topographical location of the project and the surrounding forest cover, the changes to physical landscape in the project development area will not be visible or have an impact beyond the project's

immediate vicinity. The construction phase will involve construction of the TSF embankments and initial development of the mine pit, and construction of sedimentation dams, drainage and other water management infrastructure. The main geotechnical risk in the construction phase is that associated with structural failure of the sedimentation dams, which could result in the release of sediment to the Prek Te River. The impact of the construction phase on the physical landscape is considered to be high, but will be limited in duration (Project lifetime).

Mitigation – The Project has been designed to minimise adverse physical impacts to the surrounding landscape by minimizing the Project footprint and blending major mine components with the surrounds to the extent practicable. The Mine Pit, WRD and TSF will be designed, constructed and operated to be geotechnically stable as well as account for any seismic activity risk in the region. Sedimentation dams will be constructed with spillways and other measures to prevent structural failure according to best practice and applicable international standards, and specific operating procedures will be implemented to routinely inspect and maintain the structural integrity of sedimentation dams.

Operations – During operations, the landform within the Project footprint will be progressively developed through excavation of the mine pit, construction of the WRD, and filling of the TSF, resulting in permanent landform changes. Maintaining and assuring the structural integrity of these Project components is critical to prevent health, safety and environmental impacts.

Mitigation – Within the PDA (~1,150 ha), disturbance of areas not required for Project development will be avoided, to the extent practical, to preserve natural land-cover between and around Project components. The TSF will be designed, constructed, inspected and maintained in accordance with international standards as set by the International Commission on Large Dams (ICOLD) as well applicable Australian standards (Australian National Committee on Large Dams, ANCOLD). The WRD will be designed and constructed to be geotechnically stable through geotechnical and slope stability analysis according to international standards and best practice, and monitored to ensure stability. The mine pit will be developed in a manner that minimises the risk of wall failure based on geological and geotechnical analysis and monitoring according to international standards and best practice. To the extent practical, cleared or exposed areas no longer in use will be progressively rehabilitated to reduce the size of the Project Footprint.

Closure/Post-closure – The TSF, WRD and mine pit will be closed and rehabilitated to be structurally stable over the long term, including establishment of stable slopes, erosion minimisation, and surface stabilisation through rehabilitation and revegetation. The PDA will be rehabilitated on closure so as to restore the natural aesthetics and functioning of the site as a self-sustaining ecosystem with low residual impact.

Air Quality

Construction – Potential air quality impacts during construction include dust emissions associated with earthworks and vehicle movements, and gaseous emissions from power generation[4] and heavy vehicles in the PDA. The overall air quality impact is considered to be low during construction, and to be of limited duration (construction phase).

Mitigation – Particulate dust generation will be minimised by restricting land clearing to the areas flagged for immediate use, avoiding clearing and earthworks activities during dry, windy conditions, and applying water and/or chemical dust suppression to all cleared, road and stockpile areas whenever weather conditions have the potential to mobilise fugitive dust. Open burning (e.g. of vegetation, waste, hydrocarbons) will be avoided. Gaseous emissions will be minimised by sourcing low-emission equipment, vehicles and diesel power generators where available, and by containing hydrocarbon vapour in fuel storage and refuelling areas. Air quality will be monitored for comparison with applicable Cambodian and IFC standards, and action taken to prevent exceedances. With these

[4] See Footnote #3

management and mitigation measures in place, air quality impacts will be controlled and minimised at the Project site (low impact), and will be imperceptible at the nearest receptor villages.

Operations – The potential air quality impacts during operations are those associated with dust emissions from mining (blasting, loading), haulage, dumping, crushing/milling of ore, and cleared areas (access roads, stockpiles, hardstands, etc.); and gaseous emissions from power generation and heavy machinery; and dust emissions from vehicle traffic on Project access roads.

Mitigation – All mitigation measures planned for the construction phase will be maintained during operations. Additionally, exposed soils will be progressively rehabilitated as soon as practicable. The Project will schedule work in consideration of adverse weather conditions and modifications will be made to the work program where necessary. Air quality will be monitored in and around the PDA, and emissions of key regulated pollutants (TSP, PM_{10}, $PM_{2.5}$, NO_2, SO_2, CO, Pb) will be controlled so as not to exceed applicable Cambodian and IFC standards.

Closure/Post-closure – All cleared or bare ground will be stabilised, rehabilitated and revegetated on closure to prevent air quality impacts post closure.

Noise and Vibration

Construction – Potential vibration and noise impacts include those associated with vehicle movements, heavy machinery and blasting. Noise and vibration can disturb fauna in the PDA, and local residents and fauna along access roads.

Mitigation – Blasting is to be scheduled at regular times during daylight hours only, with limits on the charge per blast. Equipment with lower noise levels will be selected where practical, vibration isolation and acoustic enclosures will be installed for mechanical equipment as needed, and the operation of noisy equipment will be limited to daylight hours where practical. With these management and mitigation measures in place, noise and vibration impacts will be controlled and minimised at the Project site, and will be imperceptible at the nearest villages. Some wildlife within approximately 1 km of the Project boundary may be disturbed by Project activities. The overall impact is considered medium within the PDA. The Project will regularly monitor noise and vibration, which will be maintained below applicable Cambodian and IFC standards. Training, hearing protection and exclusion zones will be implemented for worker safety.

Operations – Noise and vibration will be produced during operations by blasting (noise, vibration and air blast), loading, hauling, dumping, and crushing/milling activities, as well as heavy vehicle movements within the PDA and on Project access roads, pumps and power generation.

Mitigation – Mitigation measures will be as per the construction phase.

Closure/Post-closure – Closure works will produce noise and vibration similar to that during the construction phase, although no blasting is planned for the closure phase. Post-closure, no noise- or vibration-generating activities are planned for the site.

Surface Water Quality

Construction – During construction, sediment management will be critical to prevent water quality impacts due to erosion and suspended sediment transport impacts associated with land clearance, stockpiling and major earthworks. Management is also required to prevent spills or leaks of hazardous chemicals and hydrocarbons, and the release of nutrients and pathogens associated with wastewater and sewage. The removal of vegetation along watercourses could increase erosion and impact local aquatic biodiversity. Surface and near-surface waters in the artisanal mining area are contaminated and will require management and/or treatment during initial pit development.

Mitigations – Sedimentation dams are to be constructed in advance of all other Project works. Water quality in sedimentation dams is to be monitored regularly for comparison with applicable discharge water quality standards, and discharge is to be avoided to the extent practical. Some minor branches of ephemeral creeks will be diverted in order to minimise the volumes of site water requiring containment. Clearance of vegetation from water courses will be avoided wherever practical, leaving a minimum 100 m of undisturbed riparian/forest cover on both sides of water courses within the

Project area, and 200 m on either side of the Prek Te River, except where access to the watercourse is required (e.g. for pumping or crossing) and where watercourses are modified/diverted for project components (such as the pit, TSF and sedimentation dams). Hazardous materials storage areas (e.g. Process Plant, reagent and fuel storage areas, etc.) will be constructed with concrete slabs, primary and secondary containment, and sump pumps to recover spilled material. Surface and near-surface waters in the pit area will be contained, treated as necessary, and reused for appropriate applications during Project construction.

Operations – In addition to sediment control, containment and management of site water will be critical during operations to prevent the potential release of pollutants such as hydrocarbons, oil and grease, process chemicals (including cyanide), and salinity and heavy metals (including arsenic) from waste rock, tailings and pit wall rock.

Mitigations – The containment of potentially polluted site water is recognised as one of the most important requirements for the Project, and specific procedures for management and monitoring are provided in the ESMMP. The TSF will be designed and managed to achieve no discharge at any time during operations; TSF water will be reclaimed and re-used in processing. All surface water that may have come into contact with pollutants will be contained, and treated as necessary, for re-use on-site for processing and dust suppression to the extent practical. Water quality in sedimentation dams will be monitored regularly for comparison with applicable discharge water quality standards, and discharge will be avoided to the extent practical. Overflow from the various process water storages, chemical handling areas, and the stockpile drainage containment dam will be diverted to the pit as a contingency measure. Seepage from the WRD will be contained and is expected to be non-acidic and to be of acceptable water quality for reuse in operations and for dust suppression. Cyanide will be stored, delivered, used and destroyed in accordance with the intent of Cyanide Code guidelines so as to minimise risks to safety, health and the environment, including comprehensive contingency and failsafe measures to prevent cyanide spills or discharge. If discharging to public water areas, the effluent pollution standard for free cyanide (CN-1) must be less than 0.2mg/L as per Annex 2 of Sub-decree on Water Pollution Control of MoE in 1999. Moreover, cyanide and their components have to be less than 50mg/kg (for dry cyanide) as per Annex 1 of the Prakas no. 387 on the Determination of Pollutant and Hazardous Materials Standard Allowed for Disposal (released on 30 September 2015) of MoE. Appropriate management of water quality risks (as outlined in the ESMMP) will ensure that water quality impacts on the Prek Te River are of low significance with negligible impact on downstream users and ecosystem services.

Closure/Post-closure – During restoration and rehabilitation works, surface drainage controls and quality will be improved as the physical landscape will be restored to self-sustaining ecosystems. The site will be rehabilitated in a manner that minimises the potential for surface water impacts post closure, as described in the RCMCP, to be confirmed by monitoring and management of water quality during the closure phase.

Groundwater Quality

Construction – The use of vehicles and heavy machinery during construction (and associated oil, grease and hydrocarbons) and the storage of chemicals onsite have the potential to impact groundwater if not managed correctly.

Mitigations – Groundwater monitoring bores will be installed during construction up and down gradient of potential contamination zones to provide early warning in the event of potential groundwater impacts. All chemicals and hydrocarbons will be handled and stored appropriately according to the ESMMP and associated standard operation procedures, with adequate bunding, hardstand preparation including lining, concreting or compaction, as well as inspection, auditing and contingency measures. The risk of groundwater quality impact in the construction phase is considered to be low.

Operations - In addition to oil, grease, hydrocarbons and chemicals, preventing seepage of potentially contaminated site water (e.g. from the TSF, WRD, Run of Mine (ROM) Pad and Process Plant) into groundwater will be critical during operations.

Mitigation – Seepage from the TSF will be minimised by reclaiming all available water from the TSF via decant and other recovery systems, and all reclaimed water will be reused in processing. Process water and contact water containment and storage ponds will be lined with HDPE as required to prevent seepage. Groundwater quality will be monitored via a wall of monitoring bores installed around the TSF embankment and up and down gradient of potential contamination zones. Specific procedures for management and groundwater monitoring are provided in the ESMMP.

Closure/Post-closure – All process chemicals and hydrocarbons will be safely removed from site on closure, and the TSF, WRD and mine pit will be rehabilitated in a manner that minimises the potential for groundwater impacts post closure, as described in the RCMCP.

Hydrology

Construction – Surface runoff generation from developed areas of the Project will increase as a result of clearing, while the construction of site drainage and dams on ephemeral waterways will change existing hydrology. Management measures are therefore required in order to minimise the risk of localised flooding, erosion, and flow regime change. Water abstraction from the Prek Te River may also be required to support construction activities.

Mitigation – Surface runoff from developed areas of the Project is to be controlled by the installation of drainage channels, and contained by the construction of sedimentation ponds and dams in order to minimise erosion and flood risk. Control and containment of surface drainage is to be designed using standard hydrology modelling techniques so as to accommodate a 1-in-20 year rainfall event, with spillways to control discharge during high rainfall events. The length of ephemeral waterways downstream of sedimentation dams will be minimised to the extent practical in order to minimise the area impacted by the change in water flow regime associated with damming and water harvesting. The containment of surface runoff is not expected to have a measurable impact on flows in the Prek Te River, since the Project sub-catchment area is less than 1% of total Prek Te catchment area. Pumping from the Prek Te Rive will be subject to a voluntary Cease to Transfer Order to guarantee a minimum downstream flow rate of 160 L/s (below which abstraction will cease), corresponding to ~70% of the lowest estimated river baseflow. Project water extraction from the Prek Te will therefore be managed so as not to exceed 30% of river flow at Okvau and <7% of flow at Kratie, with typical abstraction rates estimated to be no more than 15% of flow at Okvau and 3% of flow at Kratie.

Operations – Site drainage and water containment infrastructure will be maintained throughout the operational life of the Project. Water will be abstracted from the Prek Te River for raw water supply during the dry season (approximately 6 months of the year), and as such management measure are required in order to minimise potential impacts on river flows.

Mitigation – Mitigation measures will be as per the construction phase, as specified in the ESMMP and sub-plans: Water Management Plan, site-specific Erosion and Sediment Control Management Plan, and Emergency Preparedness and Response Plan. Operating procedure will include routine monitoring of freeboard levels, water level management, and emergency spillway function for the TSF and other major water containment facilities. A site water balance will be maintained to inform management. Overall, the impact of Project construction on hydrology in the Project area and downstream is expected to have minor consequences of limited duration, and a low to medium impact.

Closure/Post-closure – During closure, minor alteration of surface flows will be necessary for management and passive remediation of drainage and seepage from the WRD and TSF to ensure an environmentally stable and self-sustaining site post-closure. After closure and rehabilitation of the site there will be negligible residual impact on the flow regime of the Prek Te River and ephemeral flows in the PDA.

Hydrogeology

Construction – Groundwater will not be a significant source of water for Project construction. Groundwater derived from passive pit dewatering will be used on site for processing and/or dust suppression. The proportion of groundwater catchment area over which infiltration will be obstructed by

Project development is very small. No significant impact on hydrogeology is therefore expected during the construction phase.

Operations – Groundwater drawdown due to passive dewatering of the pit will progress over the course of operations as the pit becomes deeper, resulting in a gradual expansion of the groundwater cone of depression. The spatial extent of the impact associated with groundwater drawdown is estimated to be approximately 250 m from the pit. This is not expected to have a significant impact on the contribution to baseflow in the Prek Te River, and will not impact the nearest groundwater users. The impact associated with these changes to hydrogeology is therefore considered to be low.

Mitigation – Groundwater levels surrounding the Mine Pit will be monitored to provide early warning of any impacts on hydrogeology.

Closure/Post-closure – Groundwater levels will begin to recover following Project closure and reach equilibrium post-closure. After closure the residual impact on hydrogeology will be negligible.

Soil Quality and Erosion

Construction – Approximately 480 ha of vegetation will be cleared in preparation for the construction of Project components. Measures are therefore required to minimise soil erosion (by rain and wind) and prevent sediment release to the Prek Te River. Soil compaction within active construction areas is likely due to heavy traffic passage and construction activities. Soil contamination from accidental leaks/spills of hydrocarbons, oil, grease and other chemicals is also possible and will require management.

Mitigation – Sedimentation dams are to be constructed prior to all other activities in order to contain all sediment produced by earthworks, land clearing and erosion. Erosion controls will also be implemented, including avoiding earthworks during the wet season and periods of heavy rain (unless needed to prevent erosion), stabilising exposed areas of soil, avoiding clearance of vegetation from water courses, and ensuring that a natural forest cover will be preserved on ephemeral water courses and the Prek Te, respectively. The Project has been designed to minimize long-term negative impacts to soil function in the PDA by recovering and stockpiling stripped topsoil for use in progressive and final rehabilitation. Stockpiled soil is to be stabilised and preserved with appropriate erosion controls. Activities involving chemicals or hydrocarbons are to be restricted to designated and properly prepared areas with bunding, a concrete or compacted earth base, and full containment with drainage controls. Exposed ground will be treated with erosion controls as soon as practicable. With these measures in place, soil quality impacts are expected to be minor and erosion and soil contamination will be controlled and minimised.

Operations – Potential soil quality and erosion impacts during operations are largely the same as during the construction phase. Additional clearing will be conducted as required for progressive expansion of Project components such as the WRD, and there is an additional risk of localised soil contamination due to saline and metalliferous drainage from the WRD and TSF, and process chemicals.

Mitigation – All mitigation measures implemented during construction will be maintained throughout operations. Progressive clearing will be balanced by progressive rehabilitation of post-operational project components. All potentially contaminated drainage will be efficiently routed to containment dams and ponds for reuse, and monitoring will be conducted to confirm the integrity of site drainage and water containment infrastructure. Overall, the impact on soil quality and erosion in the Project area is expected to have minor consequences of limited duration, and a low to medium impact.

Closure/Post-closure – Rehabilitation will include revegetation and stabilisation of soils and reinforcement of drainage infrastructure to prevent erosion and restore the physical landscape to an approximately natural state, resulting in a low impact post-closure.

Biological Values

Terrestrial Flora and Habitat

Construction – The Project will require the removal of approximately 17 ha of deciduous dipterocarp, 5 ha of evergreen, 251 ha of mixed deciduous, 199 ha of semi-evergreen forest and 14 ha of modified habitat (i.e. Okvau settlement). This will be a significant, localised loss of habitat and a moderate impact

on local priority flora species' individuals. Habitat clearance will result in the loss of some individual trees of the globally Vulnerable species *Eugenia sp. nov. 'calcarea'* and potentially the loss of other globally threatened trees that are located in the vicinity of the Project (i.e. *Shorea roxburghii*, *Dipterocarpus alatus*, *Anisoptera costata*, *Afzelia xylocarpa*, *Hydnocarpus annamensis* and *Hopea odorata*). The loss of individual trees will be restricted to the footprint.

Mitigation – The Project will be designed to minimize the construction footprint and vegetation clearance requirements. Habitat clearance within the Project area will be minimised to limit habitat loss to the extent practicable through the development and adherence to a Standard Operating Procedures for Land Clearance and Soil Stockpiling that includes the restriction of habitat clearance to defined boundaries to maintain a minimal impact footprint, and routine checks for compliance. 'No Go Zones' will be identified in consultation with PPWS managers and clearly delineated to prevent access by personnel and contractors to the extent practical. Forestland to be cleared will be clearly marked to avoid unnecessary and accidental removal. Additional activities as outlined in the BAP will offset losses, and enhance protection of priority species' habitat/individuals. The overall impact is therefore low, with a likely lasting positive benefit from the Project for the region.

Operations – Habitat loss, degradation and fragmentation impacts associated with construction will remain during operations. Fugitive dust emissions have the potential to cause localized smothering of flora in the PDA close to dust sources (e.g. Mine Pit, crushing circuit, haul routes). The introduction of invasive species requires management to prevent impact on preserved habitat.

Mitigation – Mitigation measures are as per the construction phase, as provided for in the ESMMP and BAP. The project will ensure that project staff and contractors are banned from collecting natural resources and entering the PPWS. The project will implement an invasive species management protocol to prevent spread of invasive species. Progressive rehabilitation of cleared and degraded habitats will be conducted to the extent practical. Proposed activities conducted by RNS with the support of the PPWS Management Team elsewhere in the PPWS will focus on the protection and restoration of priority flora.

Closure/Post-closure – Rehabilitation activities will aim to restore priority flora, with seeds or plants obtained during clearance. Common mixed-deciduous and semi-evergreen forest species will be seeded to establish sufficient shrub and canopy cover for priority species to be planted or seeded during rehabilitation. Tree species of local provenance will be chosen for pioneer colonisation, as many of these species are adapted to the local soil conditions and shallow soil depth. Once established common and priority forest species used in rehabilitation activities will provide vital ecosystem services. As priority species mature, they will seed future generations post-closure. Continued monitoring of these populations will ensure that priority flora are protected. This and other activities across the PPWS may lead to an overall nil or possible benefit for priority flora. With the successful implementation of the BAP, priority flora will be protected with a low or positive lasting benefit from the Project.

Terrestrial Fauna and Habitat

Construction – The most significant impact to priority fauna will be the loss of a proportion of their habitat during construction, habitat fragmentation and degradation caused by edge effects. This impact will largely be localised and restricted to the approximately 485 ha of natural and modified habitat to be removed for Project components, and the upgrade of the Project Access Road[5]. This loss is expected to impact the habitat use and range of green peafowl (*Pavo muticus*), northern pig-tailed macaque (*Macaca leonina*) and to a lesser extent sambar deer (*Rusa unicolor*). Project components and habitat fragmentation may serve as barriers to the movement of fauna with relatively large home ranges that overlap the Project Footprint (i.e. Sambar). This will limit access to habitats and resources. It is expected that most priority fauna will circumnavigate the PDA given the good habitat connectivity in surrounds. Temporary changes in behaviour of sambar, green peafowl and northern pig-tailed macaques is likely. The construction of components and roads and vehicle traffic present a risk of accidental mortality and

[5] See Footnote #2.

injury to fauna due to collision with vehicles and machinery. In addition to habitat removal, operations will result in noise, airblast, and ground vibration due to blasting, which will disturb fauna.

Mitigation – Priority fauna will benefit from the measures that have been outlined in the BAP, including offsetting habitat loss by averting further loss, and rehabilitation and protection of similar habitat elsewhere in the PPWS. RNS is committed to working closely with the PPWS Management Team to implement the most effective conservation methods to minimise Project-related impacts, but also wider-ranging impacts across the PPWS (e.g. poaching, illegal logging). All of these measures will aim to have a net gain in biodiversity within the PDA and across the landscape, especially for priority species. Control measures will also be used on roads to minimise the risk of wildlife-vehicle collisions, including reduced speed limits, driver safety training, and a ban on driving outside of the Project area at night. RNS will engage and collaborate with PPWS area managers and local authorities to minimise in-migration by implementing control measures such as the support of rangers to patrol key sites, the establishment of checkpoints, and avoiding the support of local economies in the PPWS. It is expected that the localised loss of habitat and other impacts associated with the Project will be a low impact since fauna will be able to move into adjacent habitat, and some priority fauna will be unaffected by its loss. Blasting will be limited to 285 kg per blast hole, and will be conducted in a manner that minimises air-blast and vibration impacts.

Operations – During operations, in addition to the potential impacts described for the construction phase, it is necessary to manage the risk of poisoning of fauna by ingestion of TSF surface water, which may have elevated concentrations of cyanide, salinity, metals and nutrients (breakdown products of cyanide), and the risk of fauna mortality due to vehicle collisions.

Mitigation – All measures described for the construction phase will be maintained throughout operations. Tailings will be subject to cyanide detoxification prior to piping to the TSF to ensure weak acid dissociable (WAD) cyanide concentrations are below 50 mg/L (in accordance with the International Cyanide Code). RNS will also implement measures to restrict or deter wildlife from accessing the TSF and other ponds that may present a significant risk to wildlife. Fauna collision incidents will be recorded as per the BAP and ESMMP, and fauna activity near main access road and the PDA will be monitored by camera trapping as necessary.

Closure/Post-closure – The PDA and surrounds will be progressively rehabilitated during the life of the mine and at closure. Disturbed areas will be seeded with pioneer species (e.g. grasses) to minimise erosion and provide a stable platform for successional species. Although some impacts from habitat loss will remain, particularly if access roads are maintained for local use, the majority of the site will be rehabilitated to a condition commensurate or better than pre-Project conditions. This restoration will include the rehabilitation of former artisanal mining sites within and surrounding the PDA. It is anticipated that once self-sustaining ecosystems and habitats have been established and there is sufficient canopy and vegetative cover, priority fauna will return to use the PDA. In coordination with the PPWS Management Team, mitigation, restoration, offsetting and supporting conservation actions will continue to have a benefit on local and regional priority fauna post-closure.

Aquatic Biodiversity and Fisheries

Construction – Several ephemeral creeks in the PDA will be cleared or diverted for the construction of Project Components. Vegetated areas occurring along these drainage lines within the Project footprint will also be cleared. The most significant impact to watercourses will be immediately downstream of construction activities, particularly for road upgrades. Any accidental spills of fuel, non-hazardous grey water or septic systems may contaminate receiving waters.

Mitigation – Sedimentation dams are to be constructed in advance of all other Project works. Water quality in sedimentation dams is to be monitored regularly for comparison with applicable discharge water quality standards, and discharge is to be avoided to the extent practical. Riparian habitats will be retained where possible to maintain a degree of functionality of the creeks by restricting clearance activities to the smallest area possible, delineating the boundaries of the area to be cleared in order to maintain a minimal impact footprint, and conducting routine checks to ensure vegetation clearance is confined to defined areas of disturbance. The Project will set buffers and 'No Go Areas' identified

for sensitive habitats (riparian zones). Impacts to riparian and aquatic habitats and species from land clearance within the PDA are expected to be of moderate significance prior to mitigation, whilst the Prek Te River will be little impacted by the Project.

Operations – Aquatic biodiversity and fisheries could be impacted by the release of contaminated water into the Prek Te River, and by reduced water flows associated with water abstraction from the Prek Te River for operational purposes.

Mitigation – No water will be discharged from the TSF during operations, process water and chemicals will be appropriately contained and report to the mine pit in the event of containment failure, and all potentially contaminated site water will be contained and reused in operations. Discharge from sedimentation dams will be prevented to the extent practical, and water quality in sedimentation dams will be monitored to ensure that any discharge meets applicable water quality standards. Abstraction from the Prek Te River will be subject to a Cease to Transfer Order to ensure that abstraction is no more than 30% of river flows. Aquatic resource collection and fishing will be banned in and around the PDA, and the local artisanal mining population resettled, which is expected to result in an increase in aquatic biodiversity and fisheries in the managed vicinity of the Project.

Closure/Post-closure – The mine pit, parts of the TSF and other components will be rehabilitated to form aquatic and amphibious ecosystems. The majority of the wetlands will be ephemeral with littoral and riparian habitat, while the waterbody within the ex-pit will be structured to include aquatic, littoral and riparian zones. The Project components will be landscaped to create gradual slopes and waste rock/rubble used to form structurally complex substrates. Following sufficient habitat creation and oxygen aeration through the water column, common fish may be naturally or intentionally added to the systems. Rehabilitation and closure will establish new aquatic habitats which over time should provide viable habitat for aquatic fauna within the PDA.

Socio-Economic Values

Resettlement and In-migration

Construction – The Okvau settlement will be resettled outside of the PPWS prior to construction, with the support and assistance of the government and community. Resettlement presents a risk of community grievance due to loss of livelihood and relocation.

Mitigation – Under Cambodian legislation, settlement within the Project permit license area is illegal, and therefore no residences or land use activities will be permitted within this area. All inhabitants will be relocated back to their original homeland or to an area with viable agricultural land outside of the PPWS. Affected residents have been consulted regarding the need for resettlement and they are generally supportive of the Project, and have indicated their willingness to relocate if appropriate compensation is provided. In consultation with the Okvau settlement and the Government of Cambodia, RNS will provide relocation assistance and compensation to affected Okvau households through the Provincial Resettlement Committee for the Okvau People, as provided for in the RAP. The livelihoods of Okvau residents will be temporarily impacted by relocation, but as the provision of adequate resources and programs take effect, impacts will lessen. The project will strictly implement the Development of Resettlement and Compensation Framework for the Okvau settlement based on the baseline household surveys and census. Moving this community will provide a long-term benefit to the PPWS.

Operations – During operations, in-migration could result in resettlement of Okvau, which could result in illegal use of forest resources and hunting, increase the risk of disease (including malaria and sexually transmitted infections) and injury.

Mitigation – In-migration and establishment of new residences in the vicinity of the PDA will be prevented through the coordinated activities of RNS, provincial authorities, and the PPWS Management Team. All Project employment will occur via the regional centres of Saen Monourom, Snoul and Kratie; no personnel or services will be sourced from local communities.

Closure/Post-closure – After the Project site has been fully rehabilitated and stabilised, it will be ready for formal closure, upon which it will be vacated and returned to the government.

Forest Resource Use

Construction/Operations – Project construction will result in the removal of forest in the Project footprint, and exclusion of the public from the PDA and its forest resources. Note that all existing uses of natural resources within the PDA are illegal.

Mitigation – RNS will work closely with the local authorities to ensure impacts on livelihoods dependent on forest resources in the PDA are adequately compensated. Specific management measures include demarcation of the project boundary and avoidance of key community forest collection areas when siting infrastructure in the Project design, banning unauthorized collection of forest resources, including plants, timber and firewood within and around the project areas, resettlement of the Okvau artisanal mining settlement including their uses of the forest resources with fair compensation and support, establishment of compensation and support programs for impacts on livelihoods and food security for affected people, establishment of a grievance mechanism, and monitoring of vegetation clearance to avoid any vast and unnecessary clearance. The impact on forest resource use is expected to be moderate, but to be of limited duration.

Aquatic Resource Use

Construction/Operations – The public will be excluded from the PDA and the reach of the Prek Te River adjacent to the PDA, which will prevent use of aquatic resources and fishing in these areas. Downstream aquatic resource users have the potential to be impacted by construction and operation activities due to sediment release, accidental spills of fuel, chemicals, or effluent.

Mitigation – Spill kits and other mitigation measures will be implemented to avoid and minimise the potential for water quality related impacts, waste management measures will be implement to ensure appropriate handling, storage and transportation of hazardous goods to avoid impacting aquatic resources and habitats, aquatic biodiversity will be monitored, social monitoring will be conducted and a grievance redress mechanism established, and the Resettlement Action Plan will be implemented to ensure impacted livelihoods including aquatic resource use is compensated for and livelihood restoration assistance is provided for affected households. The impact of the Project on aquatic resource use is expected to be low, or to have a net positive impact due to the exclusion of the public from the reach of the Prek Te River under Project control.

Community Health and Safety

Construction/Operations – During the Construction Phase, key risks include safety impacts associated with accidents involving company vehicles along the project access road, the introduction of communicable diseases and increased transmission of vector borne illnesses, security issues resulting from resettlement of Okvau residents or in-migration into the major town centres, potential psycho-social and health impacts from air quality, noise, and vibration effects; and increased pressures on local food availability due to loss of agricultural land and competition from in-migration, which could affect food security of surrounding villages.

Mitigation – Management measures include: establishment of the PDA including enforcement of the 500 m blasting exclusion zone, security fencing and patrols to prevent safety impacts from any blasting activities undertaken during construction, daytime scheduling of blasting and best practice noise mitigation measures, dust mitigation by regular water spraying on major dust sources, in-migration management measures in partnership with local government authorities to minimize associated health and security risks to the local communities, strict implementation of management and monitoring measures for water quality, waste management, air, health and safety, noise and vibration, and transportation, provision of healthcare services for Project employees with an appropriately staffed site clinic and medivac capabilities, establishment of appropriate environmental emergency response procedures and provision of training to Project employees and contractors for potential hazardous spills and emergency accidents, implementation of a management strategy for worker accommodation in line with international standards to minimize spread of infectious disease and food-related illnesses, implementation of transport and traffic safety measures for road safety including ensuring all Project drivers are adequately trained and obey speed limits, activities to increase food security in the area through livelihood restoration and improvement programs, and

regularly health and nutritional monitoring in affected communities. The impact on community health and safety is expected to be low.

Worker Health and Safety

Construction/operations – The key factors that will pose risks to worker health and safety are movement of heavy machinery and high volumes of traffic on site. The main impacts to worker health and safety include being struck by a falling object, vehicle accidents, being crushed between moving equipment and stationary objects, explosions, falls from height, fires, manual handling, exposure to noxious or asphyxiating gases, dust and noise.

Mitigation – RNS will adhere to its Health, Safety, Environment and Community Policy and ensure Project personnel are fit for work. The project will provide safety inductions to all workers, demarcate exclusion and safety zones around high risk area, strictly require all workers to wear personal protective equipment appropriate to their duties with signage at designated sites, make clinical assistance available to project personnel and medical emergency evacuation procedures will be developed, monitor and managed fatigue during travel and during on site operations, implement standard operating procedures for the safe handling, storage and transportation of explosives, strictly implement management and monitoring measures for water quality, waste management, air, health and safety, noise and vibration and transport measures, and implement an Environmental Emergency Preparedness and Response Plan. The impact on worker health and safety is expected to be low.

Transport and Traffic Safety

Construction/operations – Project transportation requirements will result in an increase in the number of Project vehicles including heavy vehicles and machinery along selected routes in particular during the construction phase when the majority of materials and equipment is going to be transported to the Project site. The increased traffic is expected to also generate dust, noise and vibration potentially affecting the villages along the primary Project Access Road to Saen Monourom.

Mitigation – RNS will implement strict Road Travel and Transport guidelines, which apply to all Project personnel including employees and contractors. The requirements stipulate that all Personnel must adhere to road travel regulations and speed limits, avoid travelling by road at night, all times be mindful of pedestrians and animals on roads and roadsides, all vehicles must contain a recovery kit and fire extinguisher, and seat belts are to be worn at all times by personnel travelling in Company or Contractor vehicles travelling on or off road in the Company's area of operations including the Site. Impacts related to transport safety are expected to be low.

Cumulative Impact

The main cumulative impacts associated with the Project are likely to be associated with the biodiversity and the protection of the PPWS, ecosystem services and the ecology of the Prek Te and the economy of Mondulkiri Province and Cambodia. With careful implementation of the management and mitigation measures, the Project will provide a strong additional benefit to the local and regional economies. The cumulative impact on the PPWS would be negative without the implementation of a strong Biodiversity Action Plan as has been developed by the Project. With the implementation of this Plan there is potential for the Project to provide a positive cumulative impact to the PPWS. The Prek Te is largely a pristine river in its upper catchment providing valuable ecological habitat and ecosystem services. The implementation of the management and mitigation measures outlined in the ESMMP and successful rehabilitation and closure will be important in protecting the values of the Prek Te.

Project Benefits

The benefits of the Project to Cambodia are significant, including an estimated US$22 million in royalties, and US$60 million in corporate taxes. The Project will directly generate employment out of the regional centres of Saen Monourom, Snoul and Kratie, and indirectly generate employment through the creation of jobs with mine contractors and other service providers. During peak construction, the Project will employ up to 500 people. During operations, the Project will employ up to 350 staff and contractors. RNS will establish a voluntary Environmental Fund and Social & Community Development Fund, and support biodiversity conservation efforts in the Phnom Prich Wildlife Sanctuary (PPWS). Other benefits include

economic activity resulting from spending, increased consumption from wage and salary income, skill development, technology and knowledge transfer, infrastructure development, business development, community Infrastructure and services, and institutional capacity building.

Chapter 8: Environmental and Social Management and Monitoring

A professional management and monitoring program has been developed for the Project in a standalone Environmental and Social Management and Monitoring Plan (ESMMP) in keeping with international mining standards. This includes setting out the legal obligations and environmental and social management requirements and commitments associated with the development of the Okvau Gold Project for Renaissance Cambodia, and outlining the detailed management and monitoring strategy for the Construction and Operation phases of the Project. RNS will work with its suppliers, customers and independent service providers to ensure adverse impacts associated with the Project are adequately managed. In line with guidance provided by MOE (i.e. 2009 General Guideline for EIA Report Preparing) and IFC environmental and social guidelines, the following elements have been considered in the ESMMP:

- Project Development Area;
- Open pit mining and waste rock disposal;
- Mineral processing and tailings;
- Water supply and management
- Erosion and sediment management;
- Hazardous materials and waste management;
- Flyrock;
- Livelihood restoration;
- Biodiversity;
- Archaeology and cultural heritage;
- Stakeholder engagement;
- Community health and safety;
- In-migration;
- Air quality;
- Noise and vibration;
- Climate and greenhouse gases;
- Visual amenity;
- Power supply;
- Road and transport;
- Accommodation and facilities;
- Occupational health and safety; and
- Emergency preparedness and response

In addition, Renaissance Cambodia has prepared a Biodiversity Action Plan (BAP) to offset any residual impacts on biodiversity values, and achieve at least a no net loss. With the implementation of this offset program and other biodiversity management and mitigation measures outlined in associated management plans, the Project is not expected to result in a significant adverse impact on the biodiversity values in the long-term.

An initial Resettlement Action Plan (RAP) has been prepared as part of the ESIA providing the necessary strategic framework for the resettlement and compensation planning for the Project as well as livelihood restoration and improvement strategies. The RAP also outlines the objectives, eligibility criteria for Project affected persons, entitlements, legal and institutional framework, modes of compensation, participation and consultation procedures, and grievance redress mechanisms which will be used to compensate and restore livelihoods and living standards of Project affected persons. A Stakeholder Engagement Plan (SEP) has been prepared to support the Project implementation.

For rehabilitation, decommissioning and closure of the Project, a Rehabilitation and Conceptual Mine Closure Plan (RCMCP) has been developed that outlines the proposed strategy and measures.

In addition, the following specialist plans and manuals will be prepared in preparation for Project construction and operations to support the implementation of the environmental and social management strategy:

- Emergency Preparedness and Response Plan;
- Environmental and Social Monitoring Manual;
- Construction Environmental Management Plan (CEMP, for construction contractors);
- Standard Operating Procedures;
- Transport Environmental Management Plan;
- Blasting Management Plan;
- Waste Management Plan (inclusive of hazardous wastes);
- Waste Rock Management Plan;
- TSF Operating and Monitoring Manual; and
- Occupational Health and Safety Plan.

To facilitate the implementation of the environmental and social management program for the Project, Renaissance Cambodia has committed to establishing a site-based Environment and Community Relations Department and Health, Safety and Environment Department. The primary responsibility of these departments will be the implementation of the ESMMP and other environmental and social management plans developed for the Project. Resources have been allocated to ensure that these departments are established prior to construction and have sufficient capacity and resources to undertake the required environmental and social management and monitoring activities. Technical assistance from specialists will be sought where required to fulfil the Company's commitments.

Chapter 9: Economic Analysis

An independent economic and social analysis of the Okvau Gold Project by the Centre for International Economics (Canberra, Australia) indicates that the total direct economic benefits of the Project in the form of royalties, corporate income taxes and fuel taxes is US$130–140 million over 8 years (excluding taxes on employee salaries and general Government fees). The investment in the Project will represent around 7% of the current foreign direct investment inflows in Cambodia, and exports will represent around 1% of aggregate Cambodian exports. Additional indirect benefits will also result from the Project including employment, training and skill development, development of local businesses, community infrastructure, health and educational facilities.

The Project will establish and make regular contributions to a voluntary Environmental and Social Fund and provide for environmental management and monitoring over the life of the Project. The Project will also be bonded to the government of Cambodia to guarantee funding for rehabilitation.

Chapter 10: Conclusion and Recommendations

The ESIA has identified the potential impacts of the Project based on available information and a professional management and mitigation program has been developed in accordance with Cambodian legislation and industry best practice.

The effective, careful and diligent implementation of the ESMMP and other management can ensure that environmental impacts attributable to the Project are minimised and potential environmental and social benefits are maximised. Ongoing consultation with the Cambodian Government, local communities and other stakeholders will be important to ensure stakeholder interests continue to be taken into account in the development of the Project.

The Project has been designed to minimise impacts and risk on key environmental values and social values, particularly the Phnom Prich Wildlife Sanctuary and the Prek Te River.

The Project will result in a short-term and spatially confined impact on the PPWS and biodiversity in the vicinity of the PDA. Habitat (and flora) loss for Project development is necessary and cannot be avoided. However, the loss will be offset by the creation of new habitat and by averting further losses elsewhere in the PPWS, and will be fully restored at closure through rehabilitation activities. It is anticipated that the Project can be an agent for change in the PPWS and provide a net overall biodiversity gain.

The Project will provide a significant benefit to the Mondulkiri and Cambodian economy. The Project will be the largest investment in Mondulkiri Province, and the flow on effect to the economy of this Province is likely to be considerable. Revenues from taxes, royalties and investment will make a substantive contribution to the development of the Cambodian economy. There will be significant employment and training opportunities for Cambodians.

The site will be rehabilitated and closed at the end of 8 years of operation so that it is geotechnically and geochemically stable. With careful implementation of the proposed management, mitigation and offset / compensation measures, the Project should bring a net socio-economic benefit to Mondulkiri and Cambodia without compromising the integrity of the Prek Te River, Phnom Prich Wildlife Sanctuary or the broader environment.