

Overview of IFC’s scope of review:

The review of this project consisted of appraising environmental, health, safety, and social documentation submitted by the company, and assessing the company’s operations through a field visit conducted by the project team. IFC’s environmental and social review included a site visit in March 2009 which incorporated key features of the mine site, including various affected villages, the previous and proposed resettlement sites, the Tailings Storage Facility (TSF), the proposed open pit areas, the Waste Rock Dump (WRD), sewage treatment facilities at the plant, the processing plant and the accommodation camp. Meetings were held with a range of local community members, including villagers potentially affected by mine re-start activities, those undertaking subsistence-level artisanal mining activities within the lease area and senior representatives of several key local stakeholder groupings. Meetings were also held with the Gold Ridge Community and Landowner Association (GRCLA) which represents 17 tribes who were the original occupiers of the land; the Kolobisi Tribe who formerly occupied the area of the tailings facility; and the Matepono Downstream Association (MDA) which represents communities in the foothills below the Gold Ridge Mining Lease area. Further meetings and discussions were held in Brisbane, Sydney and on site with key environmental and social advisors to the company, principally Golder Associates and Graham A Brown & Associates, to discuss various environmental and social issues and management plans. Meetings were also held with key ASG personnel, including the Mining Manager, Exploration Manager, Directors, Chief Financial Officer, Community Relations Team, relocation task force and in-house consultants, in order to better understand the project, its impacts and proposed mitigation actions.

Project Description:

The proposed Project is a US\$134 million investment to rehabilitate and restart operations of Gold Ridge Mine owned and operated by Gold Ridge Mining Limited (“GRML”), an indirect wholly owned subsidiary of Australian Solomons Gold Limited (ASG or the Company). The Gold Ridge Mine is an open pit gold mine on Guadalcanal Island, which is part of the Solomon Islands. GRML operated from August 1998 before closing due to civil unrest in Guadalcanal in June 2000. Following an international tender the mine assets were purchased in December 2004 by ASG, a company now listed on the Toronto Stock Exchange (TSX), which was established to acquire and redevelop the Gold Ridge mine.

The Gold Ridge Mine area consists of 4 adjacent deposits together with a crusher, mill and processing plant located approx. 40 km by road from Honiara, the capital city on Guadalcanal, the main island of the Solomon Islands. The proposed investment program will rehabilitate and replace existing equipment and redevelop the mine area with a view to restarting production by 3rd quarter 2010. At full production GRML is expected to produce an average of 125,000 oz. of gold annually with a mine life, based on current reserve estimates, of just under 8 years, with potential to extend mine life to 12 – 15 years and beyond.

The Gold Ridge Mine redevelopment is the largest private sector project in the Solomon Islands and is a strong fit with IFC investment strategy in the Pacific area, with priorities of regional governments providing support to the Government of the Solomon Islands under the Regional Assistance Mission to the Solomon Islands, and to government of the Solomon Islands in promoting private sector investment and new sources of growth for the country.

### Identified Applicable Performance Standards:

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

PS1: Social and Environmental Assessment and Management Systems

PS2: Labor and Working Conditions

PS3: Pollution Prevention and Abatement

PS4: Community Health, Safety and Security

PS5: Land Acquisition and Involuntary Resettlement

PS6: Biodiversity Conservation and Sustainable Natural Resource Management

PS8: Cultural Heritage

PS 7: Indigenous Peoples, is not considered to apply to this project, as the ethnic Melanesian groups living in the vicinity of the mine are integrated into the social fabric and political structure of Guadalcanal Island and the Solomon Islands more generally, and are not considered to be especially marginalized or vulnerable vis-à-vis other social groupings on the Island. The affected communities are believed to have moved into the mine area half a century ago following the discovery of gold in the 1930s. They are heavily reliant on artisanal mining, supplemented by small livestock rearing, subsistence agriculture and small scale logging of remnant large trees on their lands. Environmental Health & Safety (EHS) Guidelines applicable to this investment include Mining Guidelines (2007) and General Guidelines (2007).

### E & S Categorization Rationale

This is a Category A project according to IFC's Environmental & Social Review Procedure due to potentially significant adverse environmental and social impacts. These potential impacts include the need for physical relocation of a significant number of people from the Mining Lease area, the potential for surface water contamination associated with open-pit mining activities in steep terrain, land acquisition and clearing associated with the development of additional infrastructure such as the proposed resettlement village(s), and management of process waters containing cyanide and metals in an area of high rainfall.

### Description of key Environmental and Social Issues and Mitigation:

#### ***PS 1 Social and Environmental Assessment and Management Systems***

##### Social & Environmental Assessment

A relatively thorough set of Environmental Impact Assessment (EIA) baseline studies was compiled for the project by ARIMCO in 1990, based on studies conducted over the period 1983-1990. These studies were carried out by an independent multi-disciplinary team, as part of the first two Feasibility Studies for the project. When Ross Mining took over project development, a detailed Environmental Impact Study (EIS) including a Social Impact Study and Environmental Management Plan (EMP) was completed for the Gold Ridge project in 1997. This report built upon the earlier ARIMCO baseline but included further detailed baseline work, analysis and interpretation, in order to meet prevailing Solomon Islands, Australian and New Zealand environmental requirements. For example, Ross Mining committed itself to meeting prevailing Australia and New Zealand Environment and Conservation Council (ANZECC) drinking water quality limits for its discharges.

The EIS was submitted to the Solomon Island Government (SIG) as part of the original mine authorization process. Environmental monitoring was conducted by Ross Mining during operations between 1998 and 2000. Although some of this monitoring data was subsequently destroyed during social unrest, some was recovered by Golder Associates (independent environmental consultants to ASG) and incorporated into subsequent baseline monitoring reports. In December 2003, Golder Associates conducted a geotechnical and environmental baseline survey of the mine and its catchments. Since July 2005 Golder Associates employees have undertaken a series of further studies to enhance the understanding of the baseline Environment. These studies have covered the following aspects: Tailings Storage Facility (TSF) - geotechnical conditions, installation of piezometers, management plan for proposed temporary discharge, water balance for the TSF; geochemical characterization of waste rock and tailings material, streambed sediment sampling and water quality management (including a baseline aquatic biology study).

Golder Associates undertook environmental audits in 2006, 2008 and 2009 to describe the proposed re-development project, ascertain whether it would have significantly different environmental and social impacts to the original operation (as described in the original EIS), discuss monitoring programs and provide recommendations for additional environmental work that might be required. These studies found that there was little difference between the original project and that being proposed by ASG / GRML and as such another EIS is not warranted. The audit made several recommendations for ongoing environmental monitoring and the updating of the EMP and associated management plans dealing with water management, acid mine drainage, mine closure, hazardous materials management (including cyanide) and public consultation (See ESAP Item # 1). Graham Brown & Associates - independent engineering, environmental and social consultants – have prepared a Resettlement Action Plan (RAP, 2009) in accordance with IFC's requirements and a Community Relations Management Action Plan (CRMMap) describing stakeholder engagement activities undertaken by GRML.

#### Management Program

Golder produced an updated EMP for the project (March 2009) which includes commitments made in the original Ross Mining EMP as well as additional commitments stemming from intervening studies. As per IFC requirements, GRML intends to develop a fully fledged Environmental & Social Management System, and have opted for an Integrated Management System (IMS) approach incorporating environmental, health & safety and social aspects. A draft IMS has been developed for GRML by independent consultants Graham Brown & Associates.

#### Organizational Capacity

Gold Ridge Mining Ltd (GRML) does not currently have an Environmental Manager as the mine is non-operational. However, there is a team of eight Solomon Island nationals working for GRML on Community Liaison, including a Community Relations Manager, a relocation task force of eight members lead by the exploration manager, and another smaller group of staff working on water sampling. The community relations team is currently active in managing relocation and community -related discussions, developing alternative livelihood models (in consultation with an in-house consultant specializing in this field) and undertaking day-to-day liaison with affected communities and downstream communities on a range of issues (e.g. water supply). Once financing is acquired, GRML will hire an Environmental Manager, a Safety & Health Manager and a Resettlement Project manager (see ESAP item # 13), in addition to its existing Community Relations team. GRML will continue to utilize a range of independent external environmental and social consultants to support monitoring roles, undertake specialized training and provide advice where needed.

### Training

Training manuals are in various phases of development to deal with each of the main environmental mitigation areas identified in the EMP. Local staff have already been trained to undertake routine water monitoring (sampling), which has been ongoing for the past three years under Golder Associates management.

### Monitoring

A draft monitoring plan has been compiled and forms part of the EMP for this project. This plan outlines the monitoring that will be undertaken by GRML. A final monitoring plan, including the establishment of compliance points with physical, chemical and biological target limits for the new operation, will be submitted to IFC and disclosed before operations commence (see ESAP item #2). This will contain the finalized set of environmental compliance criteria for the project including environmental compliance points, as described in the Action Plan. IFC requires regular independent environmental and social monitoring of the project, by a recognized consultant(cy), in order to ensure that the project abides by agreed environmental, health & safety and social standards. As a separate exercise, independent monitoring of TSF construction and operation by a suitably qualified third party technical expert is required by IFC. Lender-based monitoring may be combined with a pre-existing commitment to downstream communities to undertake independent auditing of the mine versus its environmental commitments.

### Reporting

GRML will report its environmental and social monitoring performance to the Solomon Islands Government on a regular basis, and to the lenders on an annual basis. Reports from the Independent monitors (see ESAP items #6, #8, #12) will be publically disclosed on a regular basis GRML will also provide annual structured feedback to affected communities on progress made against environmental and social commitments involving them, as captured in the Action Plan (see ESAP items #3, #8, #12). Terms of Reference (ToR) for the independent monitoring will be co-developed between Gold Ridge and IFC with frequency and duration of monitoring to be defined in the ToR but likely to be every 4-6 months during the initial years of operation.

## **PS2: Labor and Working Conditions**

### Human Resource Policy & Management

GRML currently has a total staff of 150 direct employees. Many of these staff members used to work for Ross Mining, whose operations ceased after civil unrest in 2000. The company is currently preparing for recommencement of operations. A Human Resources (HR) Manager was recruited in May 2009 and is responsible for the development of human resources policies in line with national policies, IFC's PS2 labor and working condition and industry best practice in Australia/Oceania region.

The majority of workers (almost 70 %) are from local Guadalcanal Island, with the remainder from Australia, Fiji and other Solomon Islands. The company utilizes several Technical Consultants for discrete pieces of work. Employment contracts have been developed for expatriates, Solomon Islanders and Technical Consultants. Employees typically receive a Contract of Employment when commencing service at GRML that provides details on HR aspects such as wages, working hours, overtime compensation, insurance, maternity benefits, leave conditions and provision of Personal Protective Equipment (PPE). Employees are also provided with the company's general policies on safety and corporate values.

General workers' salaries are significantly above the regulated minimum wage and are within the high range for industrial type employment on the Solomon Islands, even though there has been an

agreement to reduce wages temporarily so as not to lay off more staff until financing is obtained. GRML will ultimately employ about 600 people, and has a legal commitment to the Gold Ridge Community Landowners Council via the Subsidiary Agreement (May 2006) to source 80 % of all unskilled and semi-skilled positions from the local area.

#### Workers' Organizations, Non-discrimination and Equal Opportunity

There is no evidence of restriction on freedom of association. Under the Solomon Islands law, workers are entitled to form trade unions. GRML is committed to recognize and respect duly registered trade unions and collective bargaining agreements. General meetings are regularly held between the management team and workforce, and information related to HR issues is widely disseminated. There is also no evidence of discriminatory practices by GRML, although local hiring policies have to be sensitive to demographic issues associated with the previous civil unrest which affected Guadalcanal Island. GRML management is committed to including non-discrimination and equal opportunity in their forthcoming HR policy, and promoting the hiring of female employees once the project proceeds.

#### Retrenchment

No retrenchment is currently foreseen, as the project would require a significant ramping up of its workforce once financing is obtained.

#### Protecting the Workforce

During hiring, screening of employees for minimum age (18 years) is conducted based on personal documents as well as verification from local leaders and community members, to ensure that there is no child labour. The mine does not make use of forced labour.

#### Occupational Health & Safety

Provision of PPE is clearly covered in the Contract of Employment. GRML provides appropriate PPE including work boots, hard hats, safety glasses, wet weather clothing and so forth. Proper use of PPE was observed during project appraisal. An integrated management System (IMS) has been developed with procedures describing appropriate PPE for each position. All vehicles traveling to the pit area have whip aerials and flashing lights mounted on their roofs, for increased visibility, in line with good international practice. Safety inductions are provided to visitors and staff, and a list of emergency contact numbers is made available in case of an incident or accident. A Health and Safety Manager (see ESAP item #13) will be appointed to commence planning and development of occupational health and safety procedures for mine re-opening.

### **PS3: Pollution Prevention and Abatement**

#### Pollution Prevention

Pollution prevention will focus on erosion and sediment control, control of acid mine drainage (AMD) and management of process effluent, i.e. on water-related matters. GRML has undertaken fairly extensive baseline water quality monitoring upstream and downstream of the existing mine site over the past three years, in order to establish meaningful monitoring criteria. Ambient considerations are significant, as artisanal mining, logging and the geology of the area contribute to, amongst others, high turbidity and elevated background concentrations of arsenic in the catchments affected by the mine. High levels of mercury have also been identified in certain streams. This is believed to be attributable to historical artisanal mining practices, as there is no naturally occurring mercury present in the ore.

Erosion and sediment control are issues due to the steep nature of the site, high rainfall and the nature of the operation, i.e. the development of additional haul roads, open pits and expansion of

the existing waste rock dump. Ross Mining implemented a range of related mitigation measures during mine operations, most of which are still intact today (though some sediment control dams have been breached since the cessation of operations). The updated EMP contains three process elements focused on minimizing sedimentation of surface waters, namely Clearing & Grading, Erosion & Sediment Control and Surface & Groundwater Management. GRML will compile detailed, site specific sediment control and surface water management plans prior to commencement of mining.

As was the case with Ross Mining, GRML will operate a carbon-in-leach (CIL) plant to extract gold. This involves the use of a cyanide-rich solution. However, the proposed processing operation will employ an additional step - an INCO-type cyanide destruction plant - to substantially reduce free and Weak Acid Dissociable (WAD) cyanide prior to disposal of tailings in the TSF. This is in keeping with International Cyanide Management Code (ICMC) requirements. The additional processing step is expected to substantially reduce the potential risks to the environment and human health from the proposed operation.

#### Waste

GRML will produce tailings, which will report to the Tailings Storage Facility (TSF), waste rock which will be dumped both in the old pits (prior to stabilization and re-vegetation) and the Waste Rock Dump (WRD), domestic sewage which will be treated by two new package treatment plants, waste lubricants from the vehicle fleet which will be returned to the lubricant vendor(s), scrap metal which will be sold to dealers and domestic waste which will be burned/compacted, covered regularly and disposed of at a properly managed non-hazardous waste disposal area located on the WRD. Tailings disposal will continue in the partially completed TSF, located approximately eight kilometres downstream of the process plant and mine. GRML will modify the processing circuit developed by Ross Mining by a) incorporating a tailings thickener to reduce the volume of process effluent reporting to the TSF and b) incorporating an INCO-type cyanide destruction facility to reduce cyanide levels (as described above). Geochemical characterization of simulated tailings samples post-INCO cyanide destruction has been conducted by Golder (2007), in order to predict leachate quality arising from tailings reporting to the TSF. The findings of this assessment were that the concentration of residual WAD cyanide after destruction would be below that required by international norms, i.e. that the proposed INCO process will effectively destroy the majority of residual cyanide in both liquid and solid tailings prior to disposal in the TSF. The study also found that the acid generating capacity of the tailings will be low, even if exposed to oxidizing conditions (which is not planned). Thirdly, it was found that elevated levels of arsenic would be generated in tailings leachate. Water treatment measures are feasible to remove arsenic and other metals from TSF supernatant (water) should disposal be required in the latter stages of mine development.

When completed, the TSF will provide sufficient life for the storage of the planned 19.3 Mt of tailings over a seven year life at the planned throughput of 2.5 Mtpa. In order to achieve this capacity, it will be necessary that the TSF wall be raised to 71.5 m, from the current average elevation of 52 m. The TSF was designed to handle high rainfall conditions and very high seismic risk, utilizing a compacted clay seal and a compacted earth fill wall containing no tailings (for maximum stability). At the time it was built, the Gold Ridge TSF was unusual in that it was designed as a zero discharge facility during operations, whilst other mines in the vicinity either utilized deep sea tailings deposition or released their tailings direct to the environment. Piezometers have been installed in the TSF wall and immediately below the wall. Relatively limited ground water quality monitoring data are available to date, but indications are that egress of pollutants is very limited and that there are no nearby receptors or groundwater users. Further monitoring is required to ensure that groundwater sources that are either used or potentially could

be used as water sources by local communities do not become contaminated by metals leaching from tailings.

A large volume of rainwater has collected in the TSF due to non-operation of the mine since 2000. This would pose long-term stability risks as well as potential health risks to downstream users should the dam wall overtop and release this water downstream. Various engineering and health studies have shown that the best option for the new mining operation is to remove most of the water in the TSF before tailings deposition recommences both from an environmental perspective and the effective life of the TSF. Further information on this aspect is provided below under PS 4: Community Health, Safety and Security.

There is an existing WRD which has already been cleared and used for the dumping of waste rock. This has sufficient capacity to deal with approximately 55 % of the volume of waste rock to be derived from planned future operations. The balance will be dumped back into mined-out pit areas. Waste rock has been extensively sampled for acid generating potential and for metals content since 1990. The most recent geochemical characterization of waste rock (Golder, 2007, 2009) involved both static and kinetic testing and associated acid base accounting. This test work indicates that waste rock contains the following approximate proportions of materials: 13 % acid forming, 9 % potentially acid forming, 32 % non-acid forming and 46 % acid consuming. Static test results indicated the presence of significant total concentrations of arsenic distributed through most lithological assemblages which were readily leachable, indicating that both AMR and metal-leaching potential will be important in the final placement of waste rock (subsequent kinetic testing has shown that a small proportion of waste rock samples will both generate acid and release significant quantities of metals via leaching). The report recommended that the WRD be constructed in a bottom-up approach, rather than via over bank dumping, and also that waste material be compacted using rollers, to reduce permeability and oxygen diffusion (which can accelerate AMD formation). A further recommendation was that acid-generating rock and/or arsenic-leaching material should not be placed within 10 m of the edge of the WRD.

The presence of natural arsenic and the potential for acid rock drainage means that GRML will be managing the placement of waste rock carefully, in order to manage potential future liabilities. Water management structures at the WRD and each pit where leachate and run-off can be diverted, settled and – if necessary – treated prior to discharge will play a key role in pollution management. In addition, rehabilitation work will ensure that the ingress of water and oxygen into waste rock dumping areas is limited in future. Ongoing water quality monitoring will be conducted in seepage and sediment collection ponds at the toe of the WRD, to ensure that pH and metals content in run-off and seepage does not exceed acceptable levels. Geohydrological investigation is required to investigate the impacts of groundwater on mining operations and the impact of mining operations and subsequent pit backfilling as well as WRD operation on groundwater quality. This is included in the attached Action Plan (see ESAP item #10).

Water quality monitoring is being conducted in relation to the Australia and New Zealand Environment and Conservation Council's (ANZECC 2004) guideline values for aquatic ecosystems. These are not directly comparable to IFC Mining Environmental, Health & Safety Guidelines for end of pipe water discharge, as they represent receiving water quality guidelines for a specific objective (i.e. aquatic ecosystems) rather than discharge guidelines. The ANZECC requirements are deemed to represent the more comprehensive of the two sets of guidelines, and have the advantage of making allowance for ambient water quality considerations which are important at Gold Ridge.

#### Hazardous Materials

Hazardous materials management forms an integral part of both the EMP and IMS, with dedicated procedures describing how these materials will be identified, handled, stored and disposed of. The key process-related hazardous materials at GRML will be cyanide (procured as sodium-cyanide pellets); diesel and other hydrocarbons required for vehicle and power plant operation and maintenance; small volumes of liquid petroleum gas (LPG) and explosives to be used for blasting (due to the high rainfall in the project area, an emulsion-type product is being investigated).

#### Emergency Preparedness and Response

Emergency preparedness and response is dealt with to varying degrees throughout the existing EMP and IMS, in relation to open pit management, TSF management, hazardous materials management and cyanide management. For example, an emergency response plan is committed to for the TSF to deal with potential incidents such as pump failure, pipeline rupture, damage to discharge infrastructure and/or tailings dam failure. This plan will contain, at a minimum, procedures to contact neighbouring and downstream communities and the Government, organizing personnel on site and initiating shut-down procedures. IFC requires that emergency preparedness and response procedures for these various aspects of the operation are combined into a single Emergency Preparedness and Response Manual, to be finalized before construction commences (see ESAP item #1). The mine will be largely self sufficient in relation to emergency response, due to a lack of Solomon Island capacity in this regard, i.e. with respect to fire-fighting, emergency evacuation and medical treatment and ambulance availability. Assistance may however be obtained from the local police force in cases where personnel or property are placed at risk: under these circumstances, care will be taken to ensure that the requirements of the Voluntary Principles on Security and Human Rights are adhered to.

#### Greenhouse Gas Emissions

Current estimates are that the project's fleet of vehicles will consume 4-5 million litres of diesel per annum, and that a further 20 million litres will be required to run the diesel generator sets needed to provide power to the plant, accommodation complex and ancillary infrastructure. The combined greenhouse gas emissions resulting from this expected fuel consumption rate would be approximately 67,000 tons CO<sub>2</sub> per annum. Consumption of this fuel is expected to account for the vast majority of GRML's greenhouse gas emissions, as it is a Brownfield site where the bulk of vegetation clearing has already occurred and where re-vegetation will be conducted as part of mining operations. The Sponsor has commissioned external studies to investigate alternative energy sources, including hydro-electric power, but to date no viable alternative to diesel generator sets has been identified.

#### Pesticide Use and Management

An anti-malarial fogging program has been initiated which utilizes permethrin. This has been modeled along the lines of the program currently being implemented elsewhere on the Island by the Regional Assistance Mission to the Solomon Islands (RAMSI). Permethrin is an environmentally friendly alternative to anti-malaria insecticides such as DDT.

#### Closure

In accordance with the terms of the Gold Ridge Mining Agreement signed in 1996, GRML and Ross Mining NL estimated an environmental performance bond of AU\$1,530,000. A security performance guarantee (environmental) was signed with Macquarie Bank Limited for the same amount (Guarantee No 665-05-97). On 12 May 2005, the Solomon Islands government agreed to release the above bond arrangement with Macquarie Bank and replaced it with a new arrangement contained in a document entitled "Assignment Agreement for Gold Ridge Mining Agreement", entered into between the Solomon Islands government, Ross Mining (Solomon

Islands) Limited, GRML, Solomon Islands Mining N.L.(formerly Ross Mining N.L.) and ASG. In this agreement, the government acknowledges the release of the previously held bond of \$1.53 million and sets out the arrangements for the interim bond of \$100,000 (and including a corporate parental guarantee of ASG) and the change back to \$1.53 million on the “Date of Completion of Preliminary Work”. This date is defined to mean the later of:

- The completion of the BFS;
- Approval and draw-down of satisfactory financing for ASG; and
- Completion of all necessary agreements with the landowners, the Guadalcanal Provincial government and the Solomon Islands government.

Given the fact that the bond amount was set in the late 1990s, GRML will prepare a detailed Mine Closure and Rehabilitation Plan, including cost estimates, for submission to SIG and IFC, as reflected in the attached Action Plan ( see ESAP item #9).

#### **PS4: Community Health, Safety and Security**

There are local villages both on and downstream of the Mine Lease area. Local people are mainly engaged in logging, panning, small livestock rearing and subsistence cultivation of crops such as taro, yam, green vegetables and sweet potatoes. There is also a significant oil palm plantation downstream, named Guadalcanal Plains Palm Oil Ltd.

##### Community Health and Safety

The cessation of mining in 2000 has led to a build-up of rainwater in the TSF. This water has been analyzed and has been found to contain slightly elevated levels of arsenic and certain other metals: as such, it is not deemed suitable for release without pre-treatment. A significant exercise was undertaken by GRML to look into different release options, including a detailed health assessment. After interaction with local communities, the Solomon Islands Government and the Commonwealth Secretariat, it was finally agreed that very strict quality guidelines will be used and that GRML will spend approximately Aus \$ 2 million to chemically treat the excess water prior to release to higher than drinking water standard. This will be achieved by adding chemicals to the water in a settling pond, with a 2-3 day residence time. Treatment sludge will be returned to the TSF. Water quality monitoring will ensure that water quality is within specification prior to release. Due to the volume of water involved, this process will take approximately 6 months. During future operations, TSF and TSF pipeline safety, stability, monitoring and rehabilitation will represent a significant aspect of GRML’s environmental & social management program. IFC requires that GRML commissions a suitably qualified independent TSF expert to periodically inspect and report on the integrity, stability and operation of the TSF and associated pipelines, as indicated in the attached Action Plan. In addition, a detailed TSF and Tailings Pipelines Management Procedure will be compiled by GRML and submitted to IFC prior to operations commencing at Gold Ridge Mine.

GRML will utilize cyanide in its gold extraction process. This will involve the transport of sodium cyanide pellets to site by a certified transportation agency, the mixing of cyanide in dedicated mixing tanks, the leaching of gold in large carbon-in-leach tanks and the subsequent recycling and/or destruction of cyanide in process tailings using a patented process. The company has committed itself to becoming signatory to the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (see ESAP item #7). This is a voluntary program for the Gold mining industry developed in collaboration with the United Nations Environmental Program (UNEP), which focuses exclusively on the safe management of cyanide and cyanidation mill tailings and leach solutions. Companies that adopt

the Code must have their operations audited by an independent third party to determine the status of Code implementation. Those operations that meet the Code requirements can be certified. Audit results are made public to inform stakeholders of the status of cyanide management practices at the certified operation. The objective of the Code is to improve the management of cyanide used in gold mining and assist in the protection of human health and the reduction of environmental impacts.

The Solomon Islands are prone to both seismic events (earthquakes) and tropical cyclones. As a result, the Tailings Storage facility (TSF) was specifically designed to withstand both seismic events and heavy rainfall events without release of contaminated materials to the downstream environment. TSF design and operation will be independently audited by a qualified expert, as mentioned above and prescribed in the Action Plan. Malaria and dengue fever, both mosquito borne diseases, are endemic to the Solomon Islands. Although certain project infrastructure, i.e. sediment control structures and the TSF, may lead to increased mosquito breeding habitat, no communities will remain within the Mining Lease area once the project proceeds and landowners are relocated (and mosquitos have a relatively restricted range). GRML currently undertakes vector control in the form of regular anti-malarial fogging at its own accommodation site and at local villages. In addition, staff will be provided with malaria prophylaxis as required.

GRML also undertakes basic hygiene awareness programs to counter the high incidence of preventable diseases amongst local community members such as diarrhea. The mine supported the provision of hookworm and ringworm medication in 2007/8, in collaboration with World Vision and the Guadalcanal Provincial Department of Health. An HIV-AIDS awareness program has also been run in collaboration with Save the Children Australia. Most significantly, the company provides daily bus runs down to the nearest clinic, assisting a great many local community members to access medical attention (local people generally don't have motor vehicles or access to regular public transport). GRML will develop a detailed Emergency Preparedness and Response Manual, as captured in the Action Plan. Where potential emergencies could impact on neighbouring or downstream communities, consultations will be held with these communities to ensure that they are aware of the potential risks and know what to do in such a scenario(s). Examples include accidental spillage of process chemicals such as sodium cyanide pellets during transport to site and breach of the TSF.

#### Security Personnel Requirements

GRML currently employs a Security Manager, four security supervisors and forty nine security personnel, the majority of whom are Solomon Islanders. As the project proceeds, a Security Superintendent will be hired, the number of security supervisors will be doubled to eight, and the number of other security personnel will be raised to eighty. No private security firms or public security agencies are engaged by GRML. The company has committed to the Voluntary Principles on Security and Human Rights and the attached Action Plan (see ESAP item #4) contains a requirement for the training of GRML Senior Management and Security personnel on the Principles and associated procedures. This will include a formal discussion with the SI Police Force to ensure that, if public security is required to support GRML in an emergency, GRML's approach to appropriate use of force is clearly communicated beforehand. GRML security personnel do not carry firearms. Security on site includes fencing, razor wire in certain locations to stop petty theft and watchtowers at the main plant site to improve surveillance. These measures were introduced by the new owners of GRML partly as a response to the public violence in 2000 which resulted in violent incidents and ultimately asset stripping from the previous mine operators (Ross Mining of Australia).

The potential influx of outsiders into the area has not been identified as a significant potential issue to date, as a) the mine already has a pre-operations workforce of approximately 150 persons, most of whom are Solomon Islanders already living at or near site and b) GRML has committed to the landowner council to employ 80 % of its skilled and semi-skilled workers from the local area. The bulk of the remaining staff is expected to comprise those already residing in Guadalcanal Island and expatriates who will work on a fly-in, fly-out basis and reside in the new accommodation camp.

## **PS5: Land Acquisition and Involuntary Resettlement**

### Displacement

The people of the Gold Ridge area traditionally lived in scattered villages within the Mining Lease Area (MLA) and in surrounding areas. The affected communities are believed to have moved into the MLA in the 1950s following the discovery of gold in the 1930s. The mining lease was granted on 12 March 1997 to GRML, a subsidiary of Ross Mining NL. Before Gold Ridge mining operations commenced in 1998, a total of approximately 1200 people were successfully relocated, mainly to a purpose-built relocation village called Lungga some 9km away from the mine site, and also to Obo Obo and Tataona villages nearby. When the mine closed on 6 June 2000 due to civil unrest engulfing Guadalcanal Island, the majority of relocated villagers residing in Lungga moved back to their lands within the vacated MLA for safety reasons, as many of their homes were destroyed. This relocation village was situated close to the capital, Honiara, where the unrest was concentrated. The majority of those landowners who had relocated to Obo Obo and Tataona remained in those villages instead of returning to the MLA.

Based on census data obtained by the Community Relations Department in 2005, 2008 and 2009, there are 1,256 people currently living in the MLA, about thirty- two percent of whom are 'new' arrivals, in other words, not part of the original landowner group. The majority of these people are engaged in gold panning activities (which are technically illegal in the Solomon Islands without a permit) and small livestock rearing; they reside in temporary structures without basic infrastructures. For planning purposes, people currently living in the MLA are categorized into 4 groups:

1. Original MLA landowners and their immediate families, irrespective of whether they now reside in the MLA (i.e. some may live in other villages)
2. Newly wedded couples, direct relatives and older single offspring of Landowners. These first two groups comprise of 169 households (over 1200 persons), among which 110 households (857 persons) living in the MLA who will need to be relocated
3. People residing on the MLA prior to the 2005 census but with no claim to the land, of which there are 79 households (362 persons). These persons have been identified as being eligible for some degree of compensation and also need to be relocated.
4. People who have settled on the MLA post 2005 census cut-off date. Seven households (37 persons). They are also identified as being eligible for some degree of compensation and also need to be relocated.

### Compensation and Benefits for Displaced Persons and Resettlement Action Plan

The relocation will involve somewhat complex compensation schemes, relocation site selection and development, design and construction of replacement housing, logistical transportation assistance for actual moving, food vouchers distribution and royalty distribution arrangements which were exhaustively negotiated under Ross Mining. These arrangements were subsequently incorporated into a supplemental Subsidiary Agreement signed in May 2006 by GRML and the affected landowner associations, in consultation with affected parties. The agreements stipulate

compensation eligibility and entitlements, methods of compensation calculation, payment timing and so forth. Proposed compensation and resettlement assistance benefits are detailed in a Resettlement Action Plan (RAP) in accordance with the updated Subsidiary Agreements and in line with IFC's Performance Standard 5 on Land Acquisition and Involuntary Resettlement. Proposed mitigation measures may be summarized as follows: 1) eligible landowners living in the MLA will move into purpose-built houses constructed by GRML; 2) eligible landowners not living in the MLA and newly wedded couples will receive construction materials to upgrade their current houses; and 3) non-eligible migrants will be offered assistance to move their assets and may be provided with supplemental assistance such as provision of foodstuffs during the transition period.

#### Consultation and Grievance Mechanism

Members of the 8-member GRML Community Relations team together with a dedicated relocation task force will be stationed in the relocation village to provide access to villagers on all relocation-related issues. A computer based formal grievance logging, response and tracking system has been established and is expected to be utilized throughout the life of the mine once mining resumes. The bulk of consultation relating to resettlement has involved three main landowners associations, namely the Gold Ridge Community and Landowner Association (GRCLA) which represents 17 tribes who were the original occupiers of the land; the Kolobisi Tribe who formerly occupied the area of the tailings facility; and the Matepono Downstream Association (MDA) which represents communities in the foothills below the Gold Ridge MLA.

#### Resettlement Planning and Implementation

Three possible relocation sites were identified by GRML in consultation with landowners. Acquisition of a site (88 acres) named Bubulake has been completed and the site is available; acquisition of a site called Ravua site (86 acres) is reportedly progressing well, whilst disagreement over land ownership at the proposed Kovalei site means that land acquisition is doubtful as the matter is awaiting a Court hearing. Total area required for residential space for eligible relocatees is about 25 acres. The relocation site(s) will be separated into three distinct sub-villages along clan affiliations with a central area containing a meeting hall, church, and other community infrastructure. Regular meetings with Landowners provide detailed feedback on the overall design and layout of relocation site(s). Physical relocation is proposed in four phases: Phase I: Registration, issuing of ID cards, continuation of village awareness meetings; Phase II: Design & construction of new villages, allocation of individual plots, initiation of Food Security Program; Phase III: Staged relocation, initiated by new settlers leaving the site following a local ceremony conducted by village chief, followed by disassembly of existing dwellings; and Phase IV: Food Voucher Program & Income Support Program implementation. GRML will provide transportation for all people and their assets including livestock to relocation villages.

An Economic Development Action Plan (EDAP) has been developed by an expatriate Technical Consultant based on the principles and requirements set in Subsidiary Agreements and IFC's Performance Standards. The main objective of the EDAP is to promote income generation and capacity building among the local communities. The EDAP focuses on several key initiatives, namely: food security, productive employment and income generation, community enterprise, and investment and development. The company has committed to develop the EDAP into a series of detailed community investment programs that will benefit local communities in large. The progress of development and implementation of these programs should be monitored and evaluated as a component in the RAP monitoring process as described in the Action Plan (see ESAP item #11). Meanwhile, a dedicated Relocation Task Force comprised of 8 persons representing the company and key landowner groups has been established to monitor progress internally in the period leading up to and during resettlement.

The subsidiary agreements also require that the Company provides SBD 10 million over 5 years for social infrastructure projects approved and prioritized by GRML in consultation with key stakeholders. Some specific requirements to promote long-term sustainability include the provision of permanent supplies of drinking water in the project's downstream area; agricultural extension programs that address loss of lands and provide alternative agricultural options; training for local communities to increase employment and business opportunities; projects to improve literacy rates, health services and sanitation; education programs that promote general equity; and capacity building for local government institutions to improve monitoring and management issues related to mining. Institutional arrangements for the management of the Social Infrastructure Program have been established via the creation of the Gold Ridge Social Infrastructure Committee and the preparation of associated procedures for proposing and evaluating infrastructure proposals. The objective of this approach is to promote community ownership.

Original landowners will receive royalty payments for the use of their lands, as set out in the Subsidiary Agreements. Royalties will be paid to the Dept of Mines and Energy by GRML and then distributed to each of the 16 sub-tribes' accounts as per agreed split. A royalty distribution formula based on the portion of areas hold by each tribe in the leasing area agreed among all 16 tribes and articulated in the Subsidiary Agreement signed in 1996 as a result of exhaustive collective negotiation. A series of general election meetings were carried out to elect trustees and endorse the main tribal royalty account, leading to the establishment of 16 royalty accounts with elected 5 trustees each. Royalty payments will be owned by the tribe and not individuals, and will be disbursed on a regular basis. Further distribution within each sub-tribe occurs via the trustees and general meetings. This process has been extensively consulted upon and minutes of related meetings have been kept. Representatives from the Landowners Associations indicated that royalty money previously received from Ross Mining in this manner was used mainly to pay for education, food or medical fees. Discussions on how to invest royalty money to maximize community benefits have been conducted by GRML. The company is committed to exploring and generating sustainable business opportunities for communities post-operations, as per its obligations under the Subsidiary Agreements.

## **PS6: Biodiversity Conservation and Sustainable Natural Resource Management**

### Protection and Conservation of Biodiversity

There are only two formal protected areas in the Solomon Islands, one of which (Queen Elizabeth National Park, near the capital Honiara) is located on Guadalcanal Island. This is despite a general recognition of the high degree of endemism prevalent in the islands which has led to the classification of the entire East Melanesian Island Chain (including the Solomon Islands) as a biodiversity hotspot by the international NGO Conservation International. In addition, Guadalcanal Island falls within Birdlife International's Solomon Group Endemic Bird Area. Several conservation sites, including important reefs, forest areas and mangrove swamps have informal conservation status or are community managed, including the likes of the Komarindi Catchment Conservation Area (19 300 ha) on Guadalcanal Island. The principal reason for the lack of formal protected areas appears to be the recognition of customary land tenure by Melanesian Governments. Coupled with significant levels of rural poverty, this has resulted in conservation efforts being pursued mainly via community-based projects. Various groups, including the WWF and Conservation International are working in the Solomon Islands to promote conservation of remaining resources.

No formal or informal protected areas have been identified either within or immediately adjacent to the GRML Mining Lease. The natural vegetation consists of grasses and (now degraded)

tropical forest. Before the development of the Gold Ridge mine, the mine lease area had been extensively disturbed by humans through subsistence farming, logging, gold panning and settlement. Heavy logging in the Chovohoi River catchment occurred in 1974 and again during the last few years up to 1997. The tailings disposal site in particular had few merchantable trees remaining prior to mine construction.

The original site flora comprised disturbed lowland rainforest, hill forest and upland rainforest, with a canopy height of 35-50 m. A series of fauna and flora studies in the 1980s and 1990s found that there were no unique habitats within the Mine Lease area (prior to mine development) and that the area was the most disturbed site for kilometers around. The area was described as 'highly disturbed with pockets of remnant rain forest on hills'. Ross Mining's Waste Rock Dump (WRD) was found to be the only site with 'moderate conservation value'. The Lease area has subsequently been subjected to mine infrastructure development, open-pit mining and further logging and artisanal mining activity.

It is notable that floral surveys did locate one new species of vine in the area and a number of plant species endemic to the Solomon Islands. Although sufficient work was completed to conclude that 'less disturbed, similar habitats are abundant outside the proposed mine area...', it was also noted that it would be prudent to consider areas of intact or nearly intact rainforest to be of high conservation value. It was recommended that even small areas of intact rainforest be protected to serve as a seed source and bird refuge so as to enable re-growth in disturbed lands. This is especially relevant because the Solomon Islands have been heavily logged for several decades, leading to widespread degradation of accessible forest habitats and loss of millable large trees. Additional, recent studies (July 2006) have been conducted with respect to the fauna and flora of the local area. These studies were part of investigations into the feasibility of run-of-river hydro-electric schemes on the Tinahulu and Chovohio Rivers for the purposes of supplying the mine's electric power needs (which was found to be infeasible). The key findings of these studies were very similar to those of the original Environmental Impact Statement with respect to the condition of the habitats around the mine site. In particular, the habitats in the local area were found not to be unique to Guadalcanal and to be highly disturbed as a result of human impacts and natural landslips. Fauna in the area was found to be very depauperate as a result of human and cat predations. Overall, the rainforest is in various stages of secondary regrowth with the majority of large, millable trees having been removed. Those millable trees that are present, are scattered throughout the area in very inaccessible areas, and are thus non-commercial, or local villages are in the process of harvesting them. It is likely that the only patches of intact rainforest occur on steep slopes and in inaccessible incised valleys adjacent to the Mine Lease area.

Reclamation strategies proposed emphasized topsoil management being of paramount importance and that this could include the appropriate collection, storage and progressive use of this material to minimize degradation of the seed stock and physicochemical parameters of the topsoil. GRML will develop its own nursery to supply indigenous species suited to rehabilitation of disturbed areas. Climatic conditions are suitable for rapid re-growth, as it witnessed in areas abandoned by Ross Mining following the unrest, which show significant re-growth even without human intervention.

Fauna is very scarce on the project site due to the high level of human disturbance relative to surrounding forested valleys and mountains. This was regarded to be characteristic of Guadalcanal Island as a whole, where faunal diversity has been heavily impacted by human and cat predation. The diversity of fish and prawn species in affected river reaches appears to have remained consistent between the early 1990s and 2006, although tissue samples from certain areas were found to contain above average concentrations of several metals. These levels were

not found to constitute a health threat to these biota or to humans, and are thought to be related to both artisanal and industrial mining operations as well as to natural geochemistry.

GRML currently sources limited amounts of timber from local landowners, who have a right to log millable timber on their customary lands. Care is taken to ensure that this timber is only sourced from sites that will either be disturbed by future mine infrastructure or are already substantially disturbed. Given the potential sensitivity around logging and biodiversity in the Solomon Islands, GRML will prepare a Biodiversity Management Plan (see ESAP item #5) in consultation and partnership with relevant SI agencies, landowners and conservation groups, which collectively explores opportunities for integrating biodiversity management into the GRML Project and its environmental policies, operating standards, and management system.

## **PS 8: Cultural Heritage**

### Protection of Cultural Heritage in Project Design and Execution

Clans and tribal groups in the Solomon Islands are strongly attached to their ancestral lands, partly through the identification of sites of archaeological, historical, cultural and religious value. These sites are locally referred to as 'Tambu' sites, and may include graves, sacred shrines, places where important events occurred, engraved rocks, land boundary markers (usually natural features such as rocks or streams) and shrines associated with ancestral spirits. Access restrictions and behaviour limitations apply in some cases. Independent archaeological surveys were included in prior impact assessment baseline studies covering the Gold Ridge Project site in the 1990s. Some 36 cultural heritage sites, or Tambu sites, were identified within Gold Ridge MLA.

An inventory of these sites within the active mining areas has been established and is attached to the Supplementary Subsidiary Agreement. None of these has been identified as critical cultural heritage as per IFC definitions. Ross Mining, and subsequently GRML, agreed in the Subsidiary Agreements to pay all eligible landowners compensation for Tambu sites impacted by mining activities. This includes destruction of sites and/or temporary loss of access to them. Ross Mining paid compensation for many of these sites, and GRML has agreed to continue this process via the registered trustees of each sub-tribe. These trustees also verify the legitimacy of claims and the eligibility of landowners to receive compensation. Should any additional Tambu sites be impacted by GRML activities outside of the agreed MLA, or in proposed new mining areas, then further negotiation will occur to calculate compensation due.

Cultural induction training modules are being prepared by the Community Relations Department for delivery to employees and contractors working on the Gold Ridge project, covering awareness of and respect for Tambu sites. A Chance Find Procedure has also been formulated and included in the Integrated Management System.

### **Client Community Engagement:**

There has been extensive public consultation conducted by both Ross Mining and GRML during the preparation of EIA studies, during negotiation of Subsidiary Agreements detailing mine-community commitments and throughout two periods of resettlement planning and implementation. There is evidence of substantial two way communication on issues such as resettlement planning (including housing design, site identification and so forth), release of supernatant water from the tailings dam and compensation for Tambu sites.

As mentioned earlier, GRML presently has a Community Relations Department comprised solely of Solomon Islanders familiar with local customs and villages. Several of the members of this team are also community leaders from the affected area, which is in line with the company's

commitment to the Landowner Council to hire locally wherever possible. In such cases, care is exercised wherever possible to avoid conflicts of interest which may arise between an individual's roles on behalf of the company versus his or her sub-tribe. It is believed that, on balance, having these persons within the company is beneficial to both the company and the affected communities.

Stakeholder engagement at the local level involves GRML interaction with local communities through their representative organizations as well as direct communication with individuals and villages. There are three main representative organizations, namely: the Gold Ridge Community and Landowner Association (GRCLA) which represents 17 tribes who were the original occupiers of the land; the Kolobisi Tribe who formerly occupied the area of the tailings facility; and the Matepono Downstream Association (MDA) which represents communities in the foothills below the Gold Ridge Mining Lease area. The Community Relations (CR) Department conducts an extensive Village Awareness Program and has established a two-way community system to receive comments, concerns, requests and grievances from the community directly. The establishment of women's and youth groups ensure that project information is disseminated widely in the community and information and community attitudes and needs are available to the CR department directly to ensure all groups in the community including women and youth are taken into account in decision-making process. This approach with the community is being formalized in the Resettlement Action Plan (RAP), the Stakeholder Engagement Plan (SEP) and the Community Relations Management Action Plan (CRMAP) with formal community consultation process and grievance redress procedures. There are several grievance mechanisms established which relate to matters such as royalty payments, resettlement and community issues, some of which have been described previously above.

**Local access of Project documentations:**

The following complete set of Category A documentation regarding the Gold Ridge has been released locally and to the World Bank Infoshop.

- Environmental Impact Study 1996
- Social Impact Study 1996
- Integrated Management System 2009
- Environmental Management Plan 2009
- Resettlement Action Plan 2009
- Economic Development Action Plan 2009
- Community Relations Management Action Plan 2009
- Audit Addendum 2009

**Availability of full documentations:**

The complete set of Category A documentation is available from the World Bank Infoshop:

World Bank Infoshop  
1818 H Street, N.W., Room J1-060  
Washington, DC 20433  
USA

Telephone: (202)-458-4500  
Fax: (202) 522-1500 (USA)  
E-mail: [pic@worldbank.org](mailto:pic@worldbank.org)

Hours of Operation: 9:00am to 5:00pm (Monday through Friday)

The complete set of Category A documentation is also available locally at the following locations:

Gold Ridge Mine Site: Community Relations Building, Bubulake

Honiara: National Museum and Cultural Centre, Mendana Avenue, Honiara.

Questions may be directed to:

David Roach, Chief Executive Officer, Australian Solomons Gold Limited

Telephone: +61 7 3624 9000

Facsimile: +61 7 3862 1100

E-mail: [david.roach@solomonsgold.net.au](mailto:david.roach@solomonsgold.net.au)