Environmental and Social Review Summary
ESSAKANE GOLD MINE PROJECT

This Environmental and Social Review Summary (ESRS) is prepared by MIGA staff and disclosed in advance of the MIGA Board consideration of the proposed issuance of a Contract of Guarantee. Its purpose is to enhance the transparency of MIGA's activities. This document should not be construed as presuming the outcome of the decision by the MIGA Board of Directors. Board dates are estimates only.

Any documentation which is attached to this ESRS has been prepared by the project sponsor, and authorization has been given for public release. MIGA has reviewed the attached documentation as provided by the applicant, and considers it of adequate quality to be released to the public, but does not endorse the content.

Country:	Burkina Faso
Sector:	Mining
Project Enterprise:	ESSAKANE SA
Environmental Category:	A
Date ESRS Disclosed:	April 25, 2008
Status:	Due Diligence

A. Project Description

The project consists of the design, development and operation of an open cast gold mine located in the northeast of Burkina Faso, on the Gorouol River, between the settlement of Gorom-Gorom in the west and Falagountou in the east. The expected life of the mine is 8.6 years. The facilities for the project comprise a surface mining operation, an overburden storage facility, a gold processing plant and a tailing storage facility. The requisite infrastructure includes a village for the mine employees, the mining vehicles, equipment and plant maintenance facilities, electrical power generation and water supplies. The project footprint is 2,097 hectares.

B. Environmental and Social Categorization

The Essakane Gold Mine Project is a Category A under MIGA's Environmental and Social Review procedures.

The project's key impact will be the physical and economic displacement of 2,558 households (with a total population of 11,545) living within the project footprint, and economic displacement of those outside the project footprint, but who have assets (livelihood resources) there. Decreased artisanal mining and income and loss of farmland will be the primary causes of economic displacement.

Other potential adverse impacts include (i) increased health risks for communities due to increased dust and traffic during construction and operation periods, malaria, water-borne diseases, and increased risks of sexually transmitted diseases; (ii) increased pressure on land, infrastructure and services due to population influx to the area and conflicts between local people and migrants; and (iii) potential damage to the three archeological sites identified in the project footprint. Key environmental issues are associated with

water management in a semi-arid environment; reagent handling and storage; dust generation; losses of riparian vegetation along the Gorouol River; and potential increases of water-borne vectors of disease.

C. Applicable Standards

Based on current information following Performance Standards are expected to be applicable:

- PS1: Social and Environmental Assessment and Management System
- PS2: Labor and Working Conditions
- PS3: Pollution Prevention and Abatement
- PS4: Community Health, Safety and Security
- PS5: Land Acquisition and Resettlement
- PS6: Biodiversity Conservation and Sustainable Natural Resource Management
- PS8: Cultural Heritage

Performance Standard 7 is not applicable to this project because there are not indigenous peoples directly or indirectly affected by the project.

D. Key Documents and Scope of MIGA Review

- Essakane Gold Project Environment and Social Impact Assessment (ESIA) incorporating an Environment Management System and a Social Management and Adjustment Program (July 2007), prepared by Knight and Piesold with contribution from re-Plan.
- Orezone Essakane Resettlement Action Plan (April 2008), prepared by rePlan
- Definitive Feasibility Study (July 2007) prepared by Gold Fields Burkina Faso SARL.

As part of the due diligence, MIGA's social and environmental specialists visited the project site and resettlement areas between April 8 and 12, 2008.

E. Key Issues and Mitigation

PS1: <u>Social and Environmental Assessment and Management Systems</u>

A detailed Environmental and Social Impact Assessment (ESIA - July 2007), incorporating an Environmental Management Program (EMP) and a Social Management and Adjustment Program (SMAP), was prepared by an independent consulting firm, submitted to the Ministry of Environment and approved on November 30, 2007. In identifying, assessing, and managing environmental risks and impacts, the ESIA takes into consideration both Burkinabé laws and regulations, and the Performance Standards adopted by MIGA and the banks that will finance the project. A site visit by MIGA staff confirms that the ESIA has adequately identified likely impacts and risks in the project's area of influence. As currently proposed and designed, the project does not involve either associated facilities or third party obligations for significant project components or for environmental aspects of the project.

The ESIA includes the following management programs that are designed at a level commensurate with the assessed risks:

Environmental Management Program (EMP) consists of (i) Environmental Management Plans for construction and operational phases; (ii) Emergency Response and Contingency Plan; and (iii) Conceptual Mine Reclamation and Closure Plan, including a proposed Environmental Management Plan for closure.

The project enterprise has developed a computer-based Environmental Management System (EMS). It is structured on a risk-based assessment of project-related activities and tasks, identifying appropriate risk mitigants and management actions for each activity or task, as well as assigning responsibilities for implementation. It also includes a grievance tracking and management system. Currently the EMS is fully developed and operational for the exploration stage, and has ISO 14001 certification effective September 2005. The EMS has been updated to reflect the Equator Bank Performance Standards and the new World Bank Group environmental guidelines for the mining sector. The project sponsor is seeking ISO 14001 certification of the updated EMS, and expects to have a pre-certification audit in May 2008. The Essakane project will also be a signatory to the International Cyanide Management Code.

The project enterprise's organogram shows clearly delineated responsibility for environment, health and safety. The EMS, as noted above, identifies responsibilities for managing identified risks for each of the specified tasks and activities. This has allowed the project enterprise to identify training needs for all staff, either at the "awareness" or "competency" level, and develop training schedules.

Social Management Adjustment Program (SMAP) consists of (i) Public Consultation and Disclosure Plan; (ii) Employment Action Plan; (iii) Worker Housing Action Plan; (iv) Community Health, Safety and Security Action Plan; (v) Community Development Action Plan; (vi) Resettlement Action Plan (including livelihood restoration strategies); and (vii) Archeology Action Plan. The project sponsor will complete a security risk assessment. Mitigation measures to be formulated accordingly will be included in the Community Health, Safety and Security Plan, and resources will be made available for implementing these measures.

All components of the SMAP and EMP will be detailed and updated as necessary. Essakane SA will be responsible for ensuring that monitoring and reporting activities committed to in ESIA, EMP and SMAP are conducted in a manner satisfactory to MIGA.

PS2: Labor and Working Conditions

This is currently a greenfield project with a relatively small number of staff (approximately 100 employees). Essakane SA is currently developing Human Resources policies in keeping with Burkina Faso labor regulations and PS2 requirements. During construction Essakane SA will employ approximately 1200 personnel, comprising both direct and indirect workers. Employment during construction will generally be through short-term contracts. Operation of the mine will require 800 workers. The project enterprise will endeavor to maximize local employment. All project contractors will be required to give preference to local residents in hiring employees. The project enterprise will also ensure relevant requirements of Performance Standard 2 will be applied to all non-employee (contracted) workers.

Essakane SA has developed an Employment Action Plan as part of its Social Management and Adjustment Program (SMAP) to maximize local participation in the direct and indirect employment opportunities provided by the project during construction, operation and closure phases. Particular objectives of the plan are to (i) engage relevant stakeholders, including Community Communications Committee (CCC), to ensure transparency in employment; (ii) provide training to local people and thus maximize local employment and reduce influx to the project area; (iii) maximize participation by local and Burkinabe contractors and vendors (establish a local supply chain); and (iv) develop partnerships with educational institutes for development of skills required by the project among local and regional residents. Esskane SA has already started training programs in cooperation with Burkina training institutes; by June 2008, the total number of people trained in literacy and apprenticeship programs (masonry, welding, electrical, cooking etc.) will reach 300 and 500 respectively. The apprenticeship training, once completed, results in a nationally recognized certification.

A workplace health and safety plan is being developed consistent with PS2 and relevant guidelines, covering all workers and subcontract labor involved in the project for the construction and operation phases. The health and safety plan objectives include (i) identifying all major health and safety issues at the project site and related to the project, (ii) designing a health and safety training for all employees, evaluation of training materials, (iii) requiring annual assessment of health and safety awareness, (iv) ensuring that all workers are fit for work for which they are conducted through a pre-employment medical examination and annual medical re-evaluations with counseling, (v) ensuring access to adequate healthcare facilities for its employees. Essakane SA will contract an occupational health team to assess occupational health risks at the project site and evaluate compliance with occupational health policies and health assessments periodically.

PS3: Pollution Prevention and Abatement

Pollution Prevention and Resource Conservation. The project is designed as a zero discharge facility and incorporates significant reclamation of water from industrial processes. The off-channel storage facility will be designed to minimize the loss of

stored water to evaporation and percolation. Decant water from the tailings storage facility will be collected and stored in a lined bulk water storage facility before reuse. Analysis and testing of overburden and the ore body indicate very low risk of acid drainage, but there is potential for mobilization of arsenic in leachate because of the geology of the ore body. The potential for arsenic contamination is confirmed during baseline studies by elevated levels of arsenic found in groundwater within and adjacent to the ore body. The risk of arsenic contamination during the operational stage is addressed by design as a zero discharge facility, and also is a risk identified and incorporated in the design of the Mine Closure Plan.

The old heap leach facility operated by CEMOB has been identified as a source of groundwater and soil contamination. The project will remove this existing source of environmental contamination by processing the materials on the leach pad for further gold extraction before final deposition in the tailings storage facility designed for zero discharge to the environment.

Dust generation and emissions from the power plant and vehicles are of particular concern. The existing ambient conditions are dusty during most of the year, and the scarcity of water discourages widespread use of water in dust control. Incremental increase in dust will be closely monitored. The power plant is designed for a maximum load of 32 MW, although the average operating load is expected to be 20 MW. Heavy fuel oil is the primary fuel source. The relocation of local residents to resettlement sites well removed from the project site, and predominantly away from prevailing wind directions, significantly reduces the incremental risk of significant health impacts or nuisance effects from dust and air emissions generated by the project.

Waste Management. Waste recycling will be undertaken as much as possible. Domestic and industrial waste will be disposed of in designated saprolite-lined cells within the overburden storage facility, and capped with saprolite before buried. Hazardous wastes that cannot be recycled back to the suppliers will be disposed of in a designated, encapsulated landfill. Medical wastes will be transported to the hospital incinerator at Dori (70 km distance from the mine site).

Emergency Response. Emergency response plans and teams have been established to address reagent and fuel spills, fires, and accidents requiring medical attention.

Mine Closure. The law requires the project enterprise to open a Mine Site Reclamation Fund in Burkina Faso with annual contributions equivalent to the estimated reclamation budget established in the ESIA, divided by the life of the mine in years. The funds can only be used for reclamation, and disbursement must be authorized by the Ministry of Mines or the Ministry of Environment after review of the detailed budget for the specific reclamation activities. A proposed mine closure and reclamation plan has been developed as part of the ESIA. Closure plans include capping the tailings and overburden storage facilities to prevent potential leaching of arsenic, preservation of the off-channel water storage as a permanent water supply for local communities, and

diversion of the Gorouol River into the pit after mine closure to serve as another water storage facility for local communities.

PS4: Community Health and Safety

Hazardous Materials and Infrastructure Safety. The project will require the transportation of fuel and reagents from port facilities in Ghana to the mine site. The roads are paved and in very good condition all the way to Dori. Some traffic congestion occurs within large urban areas, such as Ouagadougou, but generally is not a common hazard in rural areas and smaller settlements. The road currently is unpaved beyond Dori, but is in good condition and passable except for brief periods during and immediately following heavy rains. Transportation risks and hazards to communities are addressed as part of the Emergency Response and Contingency Plan and as required by the International Cyanide Management Code.

Although local residents are being resettled a safe distance from the project facilities, pastoral activities are common. Facilities or activities that are considered hazardous to livestock and to residents of nearby communities will be fenced. The project is currently designed and has been assessed in the ESIA for conventional tailings disposal. Analysis of the option of dry stacking the tailings is underway. The dry stacking alternative would increase water reclaim, reduce reagent consumption, and reduce the size of the tailings storage facility, but also has increased capital cost. If conventional tailings disposal remains as the preferred alternative at the completion of the ongoing review, the tailings storage facility will be an enclosed paddock covering about 200 ha, and will have a maximum height of 22 m. Because of the very flat terrain and semi-arid environment, the risk to local communities in the event of a dam failure is very low.

Community Exposure to Diseases. Increased road traffic and dust, water related diseases, malaria, HIV and other sexually transmitted diseases due to population influx pose health risks to communities and will be mitigated via a range of measures summarized below.

A Community Health, Safety and Security Plan has been drafted as part of the Social Management and Adjustment Program (SMAP) and included the following specific objectives/components: designing and implementing HIV/AIDS, road safety strategy, hazardous material management strategies, and a plan for emergency response; developing and improving health services and health indicators in the project area in connection with the Community Action Plan; ensuring the project facilities are operated in accordance with relevant occupational health and safety guidelines.

The project enterprise is committed to work with the Community Communications Committee or a smaller subcommittee as well as representatives of communities and vulnerable groups which are susceptible to different health impacts of the project. Communication of risks, safety measures and impacts to the broader community and understanding stakeholder perceptions of risks and impacts is an essential part of this action plan. Comprehensive baseline information will also be constructed.

Security Personnel. Project sponsors will carry out a risk assessment and prepare a security plan to address any potential risks to communities via best practice options, and it will be incorporated into the Community Health, Safety and Security Plan.

PS5: Land Acquisition, Resettlement and Livelihood Restoration

The Project Footprint (2,097 hectares) includes the main settlement Essakane Site (which was founded in 1984 following the discovery of gold and accommodates the majority of the project affected people), and seven villages (Marganta, Pétabarabé Oudalan, Pétabarabé Seno, Lao, Inabao, Bounia, Ticknawell). In addition, there are villages which lie just outside the project footprint that own or have access to assets within the footprint. These villages Kelgargar, Kalafalla, Mali and Sabangre were included in all project studies and were also represented in the Essakane Consultations Committee. Artisanal mining is a primary source of livelihood in the Essakane site. The major sources of livelihoods in the other settlements/villages within the project footprint and outside the footprint are subsistence agriculture and artisanal mining at varying levels.

Project affected groups:

Directly affected groups (economically and physically displaced people): More than 2,500 households (with a total population of 11,545) live in the project footprint will be physically and economically displaced by the project, but at the same time several businesses would benefit from the increased economic activities due to the project. The project will also cause economic displacement of those who do not live in the project footprint but have assets there. These include:

- Business and residential building owners whose building is situated in Essakane Site but who reside in a village that will not be physically displaced (approximately 400 building owners).
- Three farmers who have farmland inside the Project Footprint but who reside in a village that will not be physically displaced

Artisanal miners: There are around 4,800 artisanal miners – diggers and more than 300 gold buyers (middle men) live in the Essakane Site and surrounding villages in the project footprint. However, not all the artisanal miners (diggers) work within the project footprint. Artisanal mining activities in the Essakane Main Zone (EMZ)[1] have been prohibited since 2000 by the project enterprise. Many artisanal miners (permanent and seasonal miners) have left the site and started activities in other areas within and mostly outside the footprint. At present a few hundred artisanal miners are active within the limits of the project footprint. The project enterprise's approach is let artisanal miners continue to work at sites other than the project footprint. Essakane SA does plan to explore and operate at other sites within the mining/exploration permit area during the next three years or so. This will provide time to work in partnership with local communities to develop and improve other livelihood opportunities for the project affected people.

[1] EMZ is the area the main mine body is. It is much smaller than the project footprint

Temporary artisanal miners in the project footprint: The population of the project footprint changes due to seasonal and permanent population movements. Therefore the number of households given above is based on those living in permanent structures. The number of additional temporary residents living in the project footprint during the dry season is estimated to be more than 1,000 people. Since artisanal mining activities have been prohibited they started to work in other artisanal mining sites outside the project footprint. Temporary artisanal miners are not considered as directly affected by the project.

Nomadic herders come to the area close to artisanal mining sites, they graze their animals in the fields of resident farmers and some also engage in artisanal mining. There are groups of nomads such as Peulh people of Amara Siguie community (consists of 21 families around 100 people) they sell water and food to artisanal miners and most do not engage in artisanal mining. Some of the grazing land that herders currently use will be acquired by the project but there is land available, in particular in the north of the project footprint, to serve as a pasture zone for their cattle. Also as the artisanal mining activities will continue in the area, Peulh people will be able continue to sell water and food to the miners. As such, their livelihood resources are not expected to be impacted adversely.

Resettlement Action Plan (RAP), which also incorporates livelihood restoration strategies, addresses the physical and economic displacement of 2,558 households (with a total population of 11,545) and those approximately 400 persons who live outside the project footprint but have livelihood sources there. Project affected households own 3,296 completed structures, 227 fixed businesses, and cultivate 229 hectares farm land, which presents 22% of the land being cultivated by the communities residing in or close to the project footprint. A total of 1,416 people are engaged in commercial goods and services businesses, including both mobile and fixed businesses within the project footprint. Also 18 graves, 64 institutional structures (including schools, health centers, churches and mosques) will be affected because of the project's land intake.

Resettlement principles, policies, procedures, and rates were determined by the multi-stakeholder Essakane Consultations Committee (ECC), which included representatives of Project affected people, traditional authorities, district and regional government, non-governmental organizations, and re-Plan Inc. and Essakane SA staff. Resettlement options/packages were discussed with ECC, and a Memorandum of Agreement (MoA), presenting compensation packages, resettlement site plans, house types, public facilities, monitoring and grievance mechanisms, was signed by Essakane SA and the ECC on December 2007. Houses will be built by local contractors who will be in charge of repairs and maintenance for six months. The project affected house owners will be provided with new houses on residential plots at the designated resettlement sites. A title to these plots will be given in the form of a Certificate of Allocation *("Attestation d'Attribution"*).

Livelihood restoration: Intensive farming, vegetable gardening, aquaculture, employment opportunities during the construction and operation of the project and service providers

are considered among the alternative livelihood options. Each option will be studied in detail before put in practice. Since 2006 several background studies and efforts for the livelihood strategies have already commenced. Studies on livestock and pasture management, livelihood options offered by the planned dam, artisanal mining, seasonal displacements in the area were completed. An experimental farming and tree nursery and training programs have commenced. Livelihood restoration strategies will be further developed as more information becomes available. The project sponsor is committed to provide the project affected people with realistic and sustainable livelihood restoration strategies as well as training to enable them to continue after the mine closure. It is planned that suitably experienced local NGOs and service providers will be contracted to implement livelihood restoration strategies and community development plans on behalf of the sponsor.

Monitoring mechanisms: Both internal and external monitoring mechanisms will be set up. Community Consultations Committee (CCC) will involve in internal monitoring. A Panel of Experts (PoE) will be formed to advise the project enterprise on livelihood restoration strategies and resettlement action plan, and to monitor the implementation of the resettlement and livelihood restoration strategies.

Community development efforts: The project sponsors are committed to provide social and physical infrastructure at resettlement sites not worse than the existing ones, and possibly better. Also HIV awareness and literacy programs already started are appreciated by the project affected people. Community development strategies will be developed through needs assessment and communities' participation. Water supply and sanitation facilities for the new resettlement sites will significantly improve the living conditions of the project affected people. In addition to water, education is among the priorities.

PS 6: Biodiversity and Resource Management

The project is located in the Sahel region. All surface water in the project area is seasonal. Rivers flow in broad, shallow channels only during and immediately following rains during the short wet season (June—September). Because of the clayey soils, depressions within the broad channels may hold water for a few weeks after the short rainy season ends. Aquatic life, therefore, consists predominantly of species that emerge, grow, and reproduce swiftly upon commencement of the first rains, but then quickly form resistant eggs, seeds, or other life stages towards the end of the short rainy season that remain dormant until the next rainy season. The project will capture and store two percent (2%) of the total annual (seasonal) flow in the adjacent Gorouol River. This is expected to have no significant adverse effect on aquatic species in the project area, or in the downstream stretch of the Gorouol River to its confluence with the larger Feildegasse River just a few kilometers from the project site.

The project site is located in a landscape of very open acacia savannah habitat. Relatively lush growth of grass and herbaceous vegetation occurs for a few weeks during the short wet season, but then rapidly withers and dries soon after the onset of the dry

season. In the project area itself, however, the natural vegetation and soil structure has been significant disturbed or lost due to the activities of artisanal mining and the small, abandoned heap leach facility that CEMOB operated from 1992 until about 1999. The project's footprint, including the main resettlement sites, occurs almost entirely within land that has over the past 25 years been disturbed by artisanal mining habitat. The project, therefore, will have no significant adverse impact on natural terrestrial habitat.

Although the project is still in the exploration stage and has not yet begun construction, the project has begun experimenting with various species in a small nursery to determine what species are suitable candidates for use by local residents as cash crops or that can be used in soil stabilization and site reclamation. Water is the primary natural resource in limited supply. The project's proposed creation of an off-channel water storage system may provide a modest benefit to groundwater recharge. At the end of the project life, however, the off-channel water storage system and the proposed flooding of the pit will be a long-term benefit as both a source of groundwater recharge and a more permanent surface water source in a semi-arid region.

PS8: Cultural Heritage

The project site, including the project infrastructure areas and the resettlement sites were studied by two local experts from the University of Ouagadougou (Department of History and Archeology). Three sites were identified initially, and two of the three sites were found to have archeological materials. The palaeolithic site consists of lithic materials. Materials from the reservoir site consist of ceramic pots. Both sites have been seriously damaged by artisanal mining activities. Also the sites were inundated during the last rainy season. Samples of materials were taken out by experts and kept at the University for analysis which was carried out by a multi disciplinary team. The procedures followed so far are consistent with PS8 provisions. "Chance Find Procedures" of PS8 will apply during the construction phase. Besides, Burkina Faso is a signatory to the UNESCO Convention for the Safeguard of the Intangible Cultural heritage which was ratified by Burkina Faso in July 2003.

F. Social and Environmental Permitting Process and Community Engagement

The ESIA (July 2007) was presented to the Ministry of Environment and approved in November 2007. Burkina Faso regulations (the mining and environment acts) require the general public to be informed about the project, and local level disclosure of the ESIA for 60 days at the offices of High Commissioners and Prefectures.

Complete version of the project ESIA was disclosed at two provincial centers (Falagountou and Gorom Gorom) in October and November 2007. Communities were informed by the High Commissioner of Oudalan about the duration and goals of the disclosure and where the documents are disclosed. Non technical summaries were disclosed at village level for 60 days and meetings were held in eight affected villages: Essakane Site (Innabao), Essakane Village, Goulgountou (Lao), Pétabarabé Seno, Pétabarabé Oudalan, Falagountou, Gorom Gorom, Korizena (Koritigui).

Regarding the resettlement and livelihood impacts, social and economic surveys were carried out in 2005 to establish a baseline data. Scoping analyses were carried out in 2006 by the Essakane SA and consultants to identify national and local stakeholders. Essakane Consultations Committee (ECC) with representatives from the affected communities and local authorities[2] was established to discuss/negotiate the resettlement and compensation options. Nine formal meetings with the ECC were carried out between August and December 2007. Resettlement sites were also identified with active participation of the ECC as part of the negotiations process. A Memorandum of Understanding (MoU) (including resettlement sites, compensation rates, house types, public facilities and livelihood restoration strategies) was signed with ECC at the end of the negotiations process on December 2007.

An information center was opened at the Essakane site on January 1st, 2008. Local disclosure of the RAP at the information center at Essakane site (in French and English) started on March 31st for 60 days. Due to the low literacy level (8-10% in local villages) project affected people are informed about the main features of the resettlement, compensation and livelihood options through village meetings and the local radio in local languages. In addition, information about the project is also communicated by use of the traditional "town crier". The information center is open twice a week. All inquiries are registered by the person in charge of communications, and will be incorporated in the grievance mechanism and tracking database incorporated in the EMS. Village level meetings were held to discuss further details of the RAP. The process for individual sign offs of the resettlement packages started during the week of April 7th.

Community consultation during the exploration and preparation of the ESIA and RAP stages has been sufficient and culturally appropriate. MIGA team met with several project affected people and members of the ECC. These meetings confirmed that local people are well informed about the project impacts and the resettlement packages. The project is supported by the local community.

A community engagement and disclosure of information plan was presented as part of the Social Management and Adjustment Program (SMAP) and will be updated as necessary. The project enterprise is committed to ongoing community engagement during construction and operations, and to annual reporting to the local community on the project's social, economic and environmental impacts. In addition to its own internal auditing, the company will make arrangements for independent auditing of its social and environmental performance on an annual basis, and expects to use local experts to help communicate the monitoring results to local communities in a culturally appropriate and understandable manner.

[2] 47 community representatives of different socio-economic groups, 16 local and national government representatives, 5 civil society/NGO representatives, and Essakane SA and rePlan representatives.

G. Availability of Documentation

Environmental and Social Impact Assessment (July 2007) and the Resettlement Action Plan (April 2008) have been disclosed by the project enterprise at its website since March 31, 2008. **http://www.orezone.com/site/properties/Essakane%20Disclosure.asp**. Other social and environmental documents will be disclosed at the same website as they become available.