



Project Background

- Project Location

The Makabingui gold project covers an area of 128 sq kms and consists of gold contained in four (4) high grade pits within the permit, from which mining will commence from the two larger pits. The permit is located in the south-eastern part of the Republic of Senegal and can be accessed by road via Kedougou to the south. The road distance to site from Dakar is approximately 750 km.

- Participants

The participants and joint venture partners in Makabingui Gold Operation SA (MGO) are:

- Bassari Resources Senegal Sarl, a wholly owned subsidiary of Bassari Resources Limited
- West African Trading Investment and Construction ("WATIC")
- Republic of Senegal

Bassari Resources Limited is an Australian mining company listed on the Australian Stock Exchange, listing in January 2008 to specifically explore for mineral resources in Senegal via joint ventures with local Senegalese partners.

WATIC is a resident Senegalese company and holds an interest in 27% of MGO.

The Republic of Senegal holds a free carried interest of 10% in MGO.

- Tenure

The Republic of Senegal has a Code Miniere (Mining Code) which is based on French law. Tenure of the Sambarabougou Exploitation Permit is for 5 years from the grant date, renewable indefinitely, subject to compliance with the terms of the permit.

The exploitation permit of 128 sq kms is held by MGO and was transferred to that company on 26 December 2018.

Geology

- Regional Geology

The Makabingui gold resources are located in the Palaeoproterozoic Birimian volcano-sedimentary sequence and the intrusives of the Diale Formation. The Diale Formation lithologies commonly comprise chlorite-sericite schists and phyllites derived from the metamorphism of greywackes and argillaceous sediments.

The Makabingui deposit is located near the southern margin of a syntectonic granite (Sambarabougou Granite). The deposit comprises a large number of generally shallow east dipping lodes and quartz veins ranging in thickness from 8m down to less than 1m width and hosted by a gabbroic intrusive and contact metasediments. Mineralised structures have been identified over an area of some 1.7km by 1.2km to date.

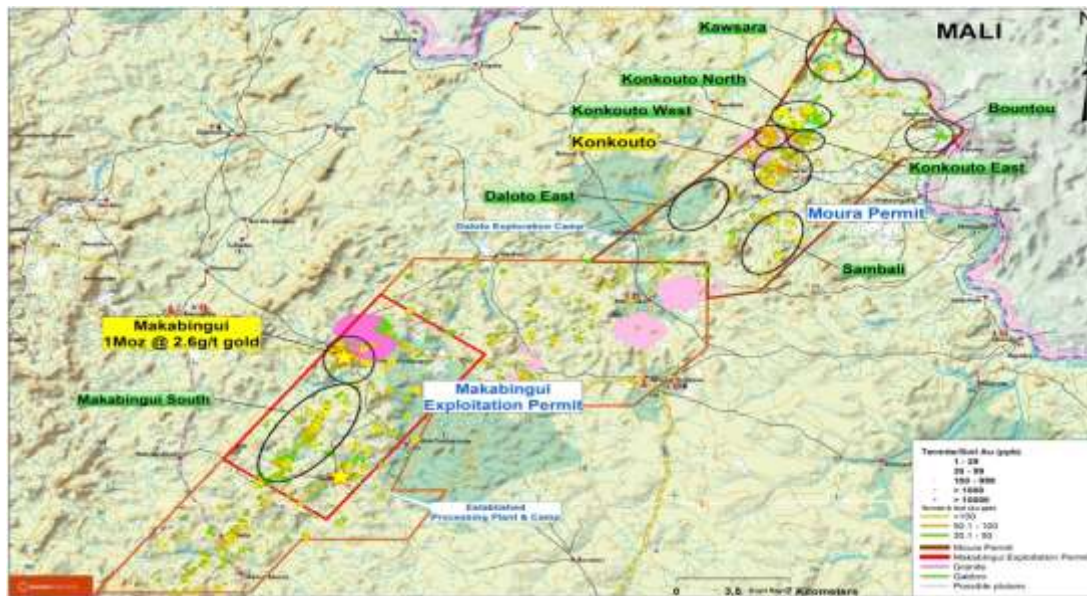
The Sambarabougou Granite and host gabbro lie within the east-west trending crustal fracture zone identified by the presence of a major diorite dyke which extends from the Makana area to the west through to the Loulo-Gounkoto project area in nearby Mali, eastwards to Shitake: a newly discovered “porphyry” gold deposit.

Local Geology

The project is focused on the contact zone between metasediments and an oval shaped metagabbroic intrusive. Mineralisation is associated with quartz veins and stockworks with silica, sericite, biotite and carbonate alteration together with variable amounts of pyrite, arsenopyrite and pyrrhotite.

The mineralising events typically involved hydrothermal fluids depositing gold, quartz and sulphides in structurally controlled features formed after the metamorphic belt had undergone some uplift into a brittle region of the crust.

Figure 1. Location of Bassari’s Permit



Gold mineralisation at Makabingui occurs in a number of narrow veins dipping at 25° to 75° to the south west. True widths of the veins vary from less than 1 metre to around 4 metres. In some areas the veins occur in close proximity which may allow them to be mined as one but over most of the deposit they form discrete, isolated lenses which would have to be mined individually. Mineralised structures at Makabingui occupy an area of some 1700 m by 1200 m, to a depth of 370m below the surface.

Figure 2. Detailed Map of Makabingui Gold Project

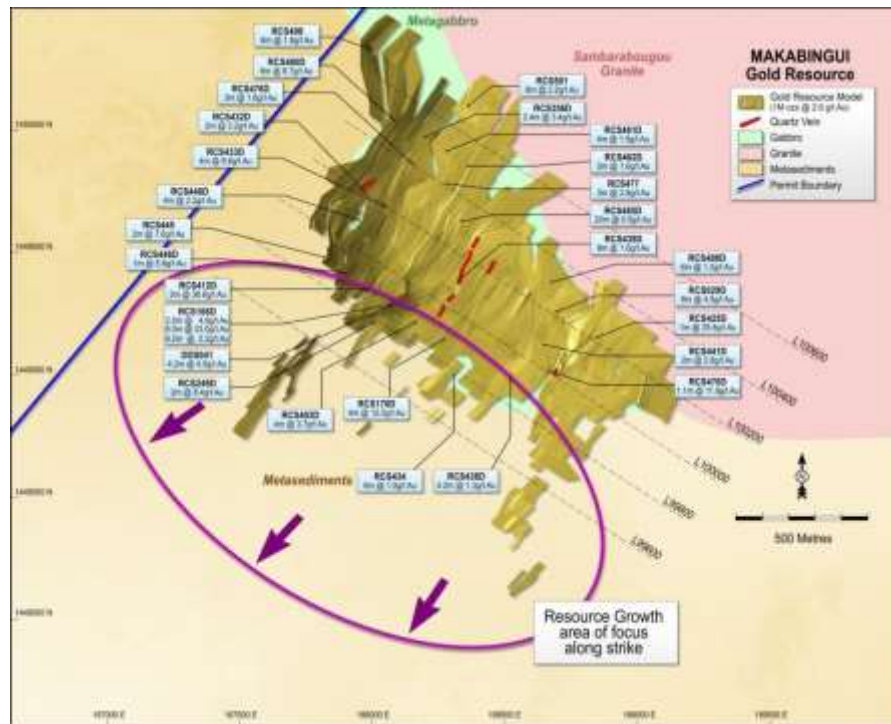


Figure 3. Project Layout

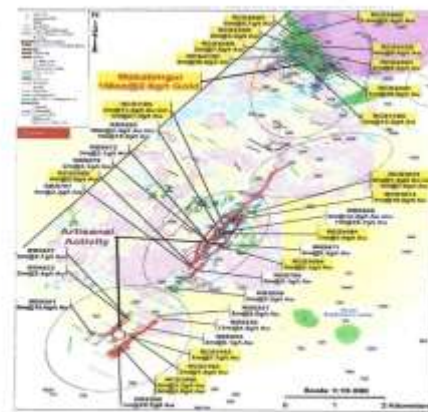
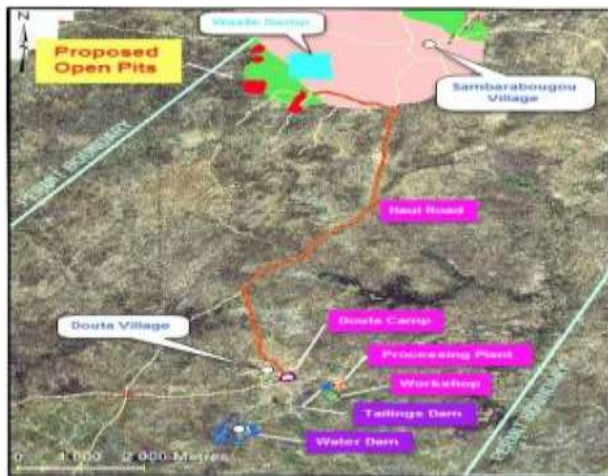
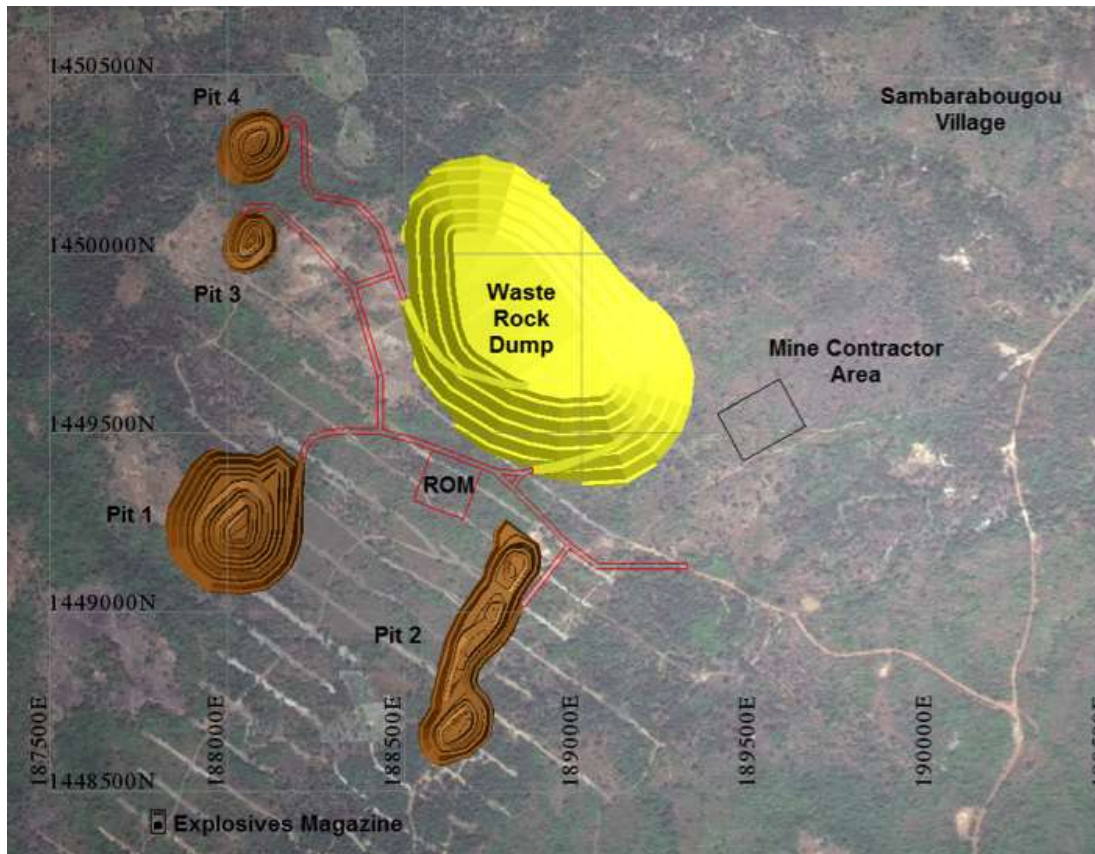


Figure - Makabingu & NE Trading Mineralized Zone

Figure 4. Makabingui Open Pit Layout



- Resource Assessment

The Mineral Resource has been estimated at 1.0 million ounces of gold at a 0.5 g/t gold cut-off in 11.9 million tonnes at 2.6 g/t gold and is open at depth and to the south.

Table 1 – Makabingui Project – Indicated and Inferred Mineral Resources as at 4 December 2012

Resource Classification	Cut off Au (g/t)	Tonnage (Mt)	Au (g/t)	Au (oz)
Indicated	0.5	2.6	4.0	336,000
Inferred	0.5	9.3	2.2	669,000
Total	0.5	11.9	2.6	1,005,000

MINING

The feasibility study commissioned by Bassari and undertaken by AMDAD coupled with the encouraging metallurgical results progressed to the development of a plan to initially mine and process four, subsequently amended to initially mine pits 1 and 2 high grade ore zones within the 336,000 ounces of Indicated resource at Makabingui with the following Design parameters and targets:

- Selective mining at 300ktpa focusing on high-grade open pit mining
- Ore grade to mill greater than 5.6 g/t gold
- Stage 1 mine life approximating 4.5 years at ~50,000 ounces per year average
- Initially utilising a gravity plant and a CIL process
- Producing greater than a 95% overall recovery by addition of cyanide leach circuit

The mining method will be conventional open pit mining, drill and blast, excavator, off-highway trucks combined with necessary support equipment.

The proposed selective mining sequence is:

- Grade control drilling will be conducted up to 15 metres depth from the current pit floor, combined with pit mapping from previous benches to provide close control on the position and dip of the mineralised lenses well ahead of mining.
- Blasting will be on a minimum bench height of 5 metres to achieve adequate fragmentation. Each 5 metre bench will be “paddock” blasted across the waste and ore zones with care taken to minimise movement of the ore / waste boundaries.
- Mining in the waste zones will be at full 5 metre height and will be done by larger, high production hydraulic excavators.
- As mining approaches each mineralised lode the face height will be reduced so the bench would be mined in two passes, or flitches.
- A smaller excavator with a flat edge bucket will mine up to the mineralised lode and scrape off the waste to expose the hanging wall.
- Good visual definition of the mineralised lodges and geological mapping of each new bench floor along with geological grade control will greatly assist grade control drilling in achieving the required level of mining selectivity.

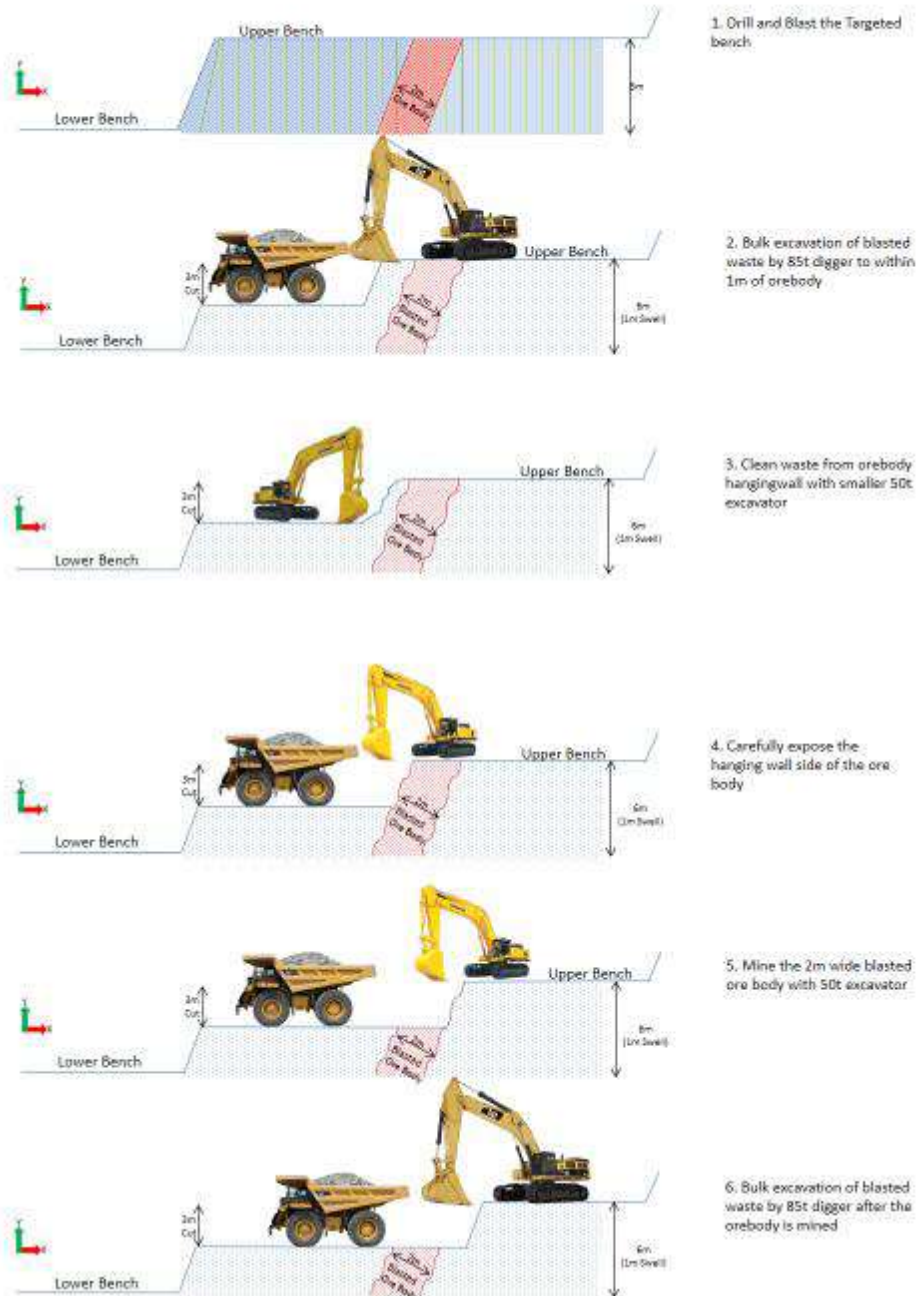
On-going geotechnical mapping and evaluation during early phases of mining to refine the characterisation of the rock mass and revise the pit slope analysis, as is a normal part of a continuous improvement program in any modern open pit mining operation.

The mine superintendent will be a mining engineer. The geologist will have mine grade-control experience. The surveyor will mark all designed drill-hole positions with drill depths. The mine supervisor and a fitter/serviceman will operate equipment with support staff.

The initial mining operations should be able to mine sufficient material on a 7-day week with 24-hour days. The operation should be capable of moving 300,000 TPA of ore to the plant + 3.5 mtpa waste.

After the initial commissioning of the gravity circuit, utilizing a gravity processing plant a cyanide leach circuit will be commissioned.

Figure 5. Proposed mining method



METALLURGY

- Gravity gold

Sydney-based ALS Metallurgy was commissioned to conduct a series of metallurgical tests to determine the gravity recoverable gold over a range of grind sizes. The test work amalgamated a gravity

concentrate at primary grind sizes of 425, 300, 212, 150 and 106 microns to determine the amount of free gold recoverable. Cyanide leaching and flotation were also carried out on the gravity tails for the 150 and 106 microns grind sizes. Previous metallurgical test work carried out at a primary grind of 75 microns produced very high overall recoveries >96%.

Composite samples were made up from material used as part of the January 2013 metallurgical test work program. The samples are a composite of metagabbro (primary focus for 2012 resource drilling program) and metasediments. The samples were taken from multiple sections and varying depths focused on primary (uniodised) ore. Table 2 summarises the results for the various stages of the test work program.

Table 2 – Metallurgical test results

Grind p80	μ	Gravity				
		106	190	212	300	425
Calculated Head grade	g/t	7.38	6.14	8.08	5.37	6.91
Gravity Recovery		77.8%	80.0%	82.3%	82.9%	78.6%
Gravity Product	g	5.74	4.91	6.65	4.45	5.43
Gravity Tails Grade	g/t	1.64	1.23	1.43	0.92	1.48

Grind p80	μ	Gravity	
		106	150
Calculated Gravity Tails grade	g/t	1.66	1.19
Recovery		89.1%	83.2%
Product	g	1.48	0.99
Total Product	g	7.22	5.90
Total recovery		97.8%	96.1%

Flotation on Gravity Tails	
106	150
1.61	1.27
93.73%	89.8%
1.51	1.14
7.25	6.05
98.2%	98.6%

- Cyanide Leach on Gravity Tails

The Knelson tailings and the Knelson concentrator minus the removed free gold for the 150 and 106 micron tests were recombined and each was divided into two portions, one for cyanide leaching of gold and the other for a flotation test.

The cyanide leach test work indicated that there is a drop in leach efficiency at the 150 micron grind size compared to the 106 micron test but the results were still reasonably good at both grind sizes.

The total gold recovery by gravity concentration, amalgamation and then cyanide leaching of the gravity tailings was calculated to be 98% at 106 microns and 97% at 150 microns.

Process selected:

Bassari elected to use the Gravity + Leaching option. A process flowsheet for this option making use of the existing 300 ktpa gravity concentrator located at Douta, 10 km south of Makabinguui follows.

PROCESS PLANT

The test program examined a number of process options in a combination of:

- Gravity and leaching
- Flotation and leaching

All options showed high overall gold recoveries. Testing carried out included physical tests on the ore to Size crushing and grinding equipment necessary for the estimation of capital and operating costs.

Development of the project will be in three stages as follows:

- Stage 1 An open cut operating with a 300,000 TPA gravity gold and cyanide leach circuit (CIL)
- Stage 2 A combined open cut and underground operation of 600 KTPA.

- Description of Proposed Process Plants

The processing plant will operate 24 hours per day, 7 days per week with a design availability of 90%. The treatment rate will be 38 tph to achieve an annualised throughput of 300,000 tonnes of gold ore > 5.6 g/t Au over the first 5 years of operation. Ore will be reclaimed by front end loader from a Run-of-Mine Ore stockpile feeding a three stage crushing plant. Ore will be crushed to -18 mm.

The plant will comprise the following unit operations:

Stage 1

- Three-stage Crushing including jaw and cone crushers and a vibrating screen to cut at 18 mm.
- Screen undersize will be fed to jigs and the jig concentrate upgraded in a Knelson Concentrator incorporated into a grinding circuit comprising a primary stage ball mill in closed circuit with hydro-cyclones and a screen to produce a grind size of 80% passing 300 microns.
- Further upgrading of the Knelson concentrate will be by means of a Goldtron Table in a secure gold room to produce a concentrate for direct smelting
- Thickening of slimes and water recovery.
- Ball Mill regrinding of the Gravity tails operating in closed circuit with hydro-cyclones to 300 microns.
- Gravity treatment of the Cyclone underflow to recover any free gold using a Knelson centrifugal separator.
- Cyanide leaching of the grinding product in a conventional CIL using carbon adsorption to recover dissolved gold onto activated carbon, elution of gold laden carbon and electro-winning of gold produce Doré. Any Gravity Gold recovered will be direct smelted.

Stage 2

A Scoping Study by AMDAD outlined the underground potential below the open pits.

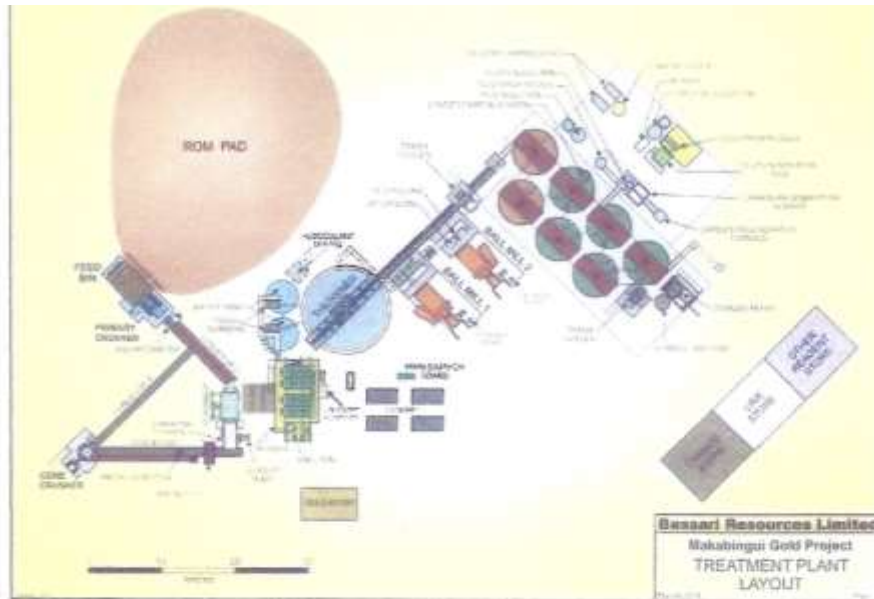
It has been estimated that an additional 120,000 ounces of gold could be mined at an average grade of 7.57 G/T creating further revenue of US\$143 Million at a capex of US\$34 M and operating cost of US\$ 91 Million. The plant will be upgrade to treat 600,000 TPA.

Ore will be reclaimed by front end loader from Run of Mine (ROM) ore stockpile and fed into a storage bin ahead of the crushing circuit. The grizzly on top of the existing feed bin will be modified to restrict plant feed to less than -400 mm.

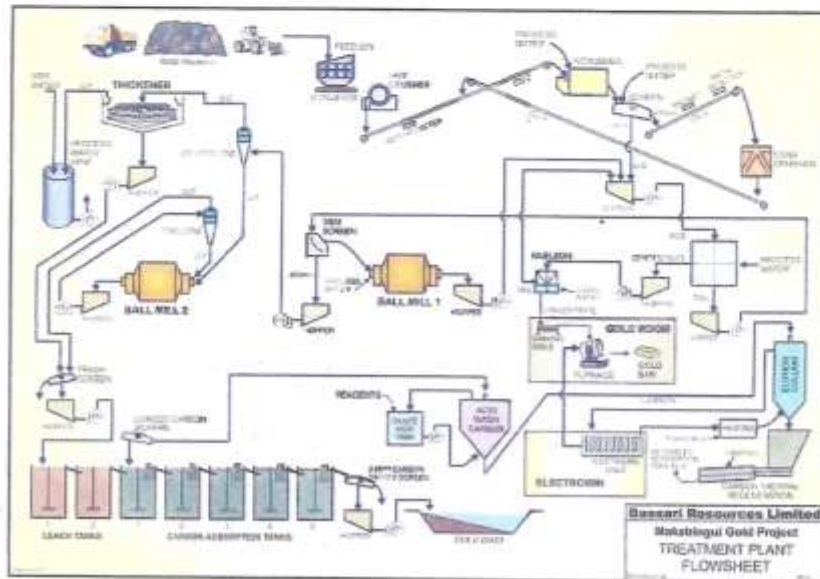
Three stage crushing (jaw and cone), incorporating the existing two belt conveyors and vibrating screen

will produce a crushed product at -18 mm. screen undersize will be pumped to existing jigs with the jig concentrate upgraded in the existing Knelson concentrator.

Figure 6. Processing Flow Sheet



- Processing Plant Layout



- Process Flow Sheet

Support Facilities and Services

- Site Development

The processing plant site will be the present location of Bassari's Dوتا gravity gold plant which will be

upgraded to process hard rock.

- **Dams**

Water from a 500 Megalitre dam will be utilised. The dam is located 500 metres from the plant. The dam capacity will be increased by raising the dam wall within the first twelve (12) months of production. In addition a tailings dam will be constructed within a 1km radius of the processing plant.

A tailings dam with adequate storage capacity will be constructed close to the processing plant, with the construction self-performed by MGO utilising existing engineering and construction employees and existing heavy equipment. Any additional equipment that may be required will be hired locally. The development of this area will be by containment. Tailings water is pumped from the heart of the tailings pond for recycling at the plant.

- **Mining Camp and Buildings**

The Makabingui mining and processing operation will utilise the upgraded existing camp located within one (1) km of the plant. The camp will double in size, with works already taking place to increase the working space of the kitchen, add additional rooms and shower/toilet blocks and expand the laundry, adding washing and drying machines, to cater for in excess of 200 people.

Details of the present camp are as follows:

- Accommodation for 112 people
- Diesel genset power supply – Figure 7
- Medical Centre – Figure 10
- 62 rooms (15 single rooms) – Figure 10
- 20 rooms with internal shower/toilet facilities
- Central shower(16)/toilet(16) block
- Restaurant caters for 100 people
- Kitchen attaching to restaurant
- Laundry building
- Fully enclosed within fenced compound
- Security hut
- Workshop facility

- **Power**

Power will be generated at the plant site by 4 diesel generators (700 KVA) and at the accommodation site by a smaller diesel generator (35 KVA) The camp is powered by a 400 KVA generator.

- **Potable Water and Sewerage**

Potable water is sourced from a waterbore, treated and stored in tanks at the plant and accommodation sites. A chlorination system already exists. Sewerage at the mine accommodation and plant sites is presently being upgraded to manage the increase in numbers and will be disposed of by septic tanks.

- **Social File Plan**

Socio/Educative Substructures

Employment of Senegalese

- Management, administration and accounting staff
- Technical staff
- Supervisors
- Tradesmen

- Operators and Assistants

The workforce will reflect the availability of skilled, experienced Senegalese in the various disciplines required to ensure an efficient, productive mine operation. Employment preference will be given to local people followed by Senegalese from nearby towns and where necessary, non-citizens.

Training

A training and localisation plan is being prepared before project implementation. Senegalese employees will be trained at all levels (technical and management).

Training/education

- Literacy
- On job training
- Skills transfer
- Training courses available to people in the local community.
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Training and education of Senegalese employees will allow advancement in the Company and progressive replacement of expatriate employees

Accommodation and Transport

Mine staff who are not from the local area will be housed by the company, and transport provided to and from Kedougou, Tambacounda, Dakar etc.

Health, Education and Safety

A community health clinic will be available, with first aid, health education and hygiene provided with medical staff.

The local village people will be consulted to determine the needs of their community and the manner in which the new Senegalese company can support them.

Benefits to the local community will accrue both socially and economically with:

- Employment both direct and indirect. Local small business will benefit by providing goods and/or services, such as security guards, fresh meat, fruit and vegetables
- Education
- Health
- Improved services

A health and safety regime has been documented and implemented, to ensure safety at the worksite is the number one priority for all in the workplace. The safety procedures will be advised to all employees with regular updates and training sessions to ensure safety standards are not compromised in any aspect of the company mining and processing facilities.

Figure 7: Douta Camp Diesel Genset Power Supply



Figure 8: Douta Camp Diesel Fuel Facility – 85,000 Litre Capacity



Figure 9: Medical Centre



Figure 10: Douta Camp



- **Roads**

Gravel roads established and maintained by Bassari for access between the minesite and to the processing facility and the Douta campsite will be upgraded as needed. A number of diversion routes have been implemented in recent months to ensure better access and reduce the impact of vehicle movement on local villages.

Environmental

- **General**

An independent study was commissioned and accepted by government with the Environmental Department approving the terms of the Exploitation Permit, with the final report indicating:

- The mine will contribute positively to the economic development of the sector and pose no risk to the environment
- The project will provide employment for in excess of 200 people from the local community. Flow on effects, such as the provision by the local community (including Kedougou) of food, transport and other services to the workforce will further stimulate the local economy
- Skills training and occupational, health and safety programs are being implemented
- Qualified nurses will be employed at the mine and in the event of emergencies a medical facility is available, also for the local community
- The mining process will not impact on water quality of the streams as process water from the dam will be recycled and in case of discharge EPA's effluent quality guidelines will be strictly observed
- Waste will be disposed of in accordance with best practices and standards of environmental management systems

The Environmental Department has issued its approval.

- **Plant Design – Environmental Effect**

The operated processing plant will conform to current Australian standards and the plant banded within a fully-contained concrete slab area.

Project Implementation

A summary project development schedule has been prepared with the main points as follows:

- The project duration from drawdown to commencement of commissioning is 36 weeks. This is based on a 24 week construction period for the processing plant and a 12 week delivery of the plant and equipment.
- Mining to commence at least two months prior to the start of commissioning
- The critical path for project implementation is controlled by Government approvals, plant delivery and erection time

Operations

The workforce will be under the control of the Project Director

The ore treatment plant will operate 24/7 with crews rotating on three shifts. Mining will be carried out for an average period of 28 days/month, 24 hours per day over 3 x 8 hour shifts.

Key personnel are being employed to allow the hiring and training of local personnel prior to commissioning.

Australian and international safety standards are being implemented.