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Kodal Minerals Plc / Index: AIM / Epic: KOD / Sector: Mining

27 January 2020

Kodal Minerals plc

("Kodal Minerals" or the "Company")

Mining Licence Application Lodged

Feasibility Study demonstrates robust economics for development of the Bougouni Lithium Project

Kodal Minerals, the mineral exploration and development company focused on the development of its Bougouni Lithium Project in southern Mali ("Bougouni" or the "Project"), is pleased to announce that a mining licence application has been submitted to the Mali Government for the Project (the "Application"). As part of the Application, the Company has completed a feasibility study for the proposed mining operation (the "Feasibility Study" or the "Study"), and the details of the findings of the Study are presented herein.

Highlights:

- The Application covers the proposed open-pit mining and processing operation at Bougouni lodged with the Mines Department in Mali – Direction Nationale de la Géologie et des Mines ("DNGM").
- The Feasibility Study presents a very robust mining operation:
    - Minimum 8.5-year mine life;
    - Producing on average **220,000 tonnes of 6% spodumene concentrate** per annum, at life of mine ("LOM") lithium average **metallurgical recovery of 71%**, based on laboratory metallurgical recoveries of 75%;
    - Total LOM will produce 1.94Mt of concentrate; and
    - LOM revenue exceeding **USD$1.4bn,** with an initial concentrate sale price of $680/t based on operations commencing H2 2021, thereafter, increasing 2% year-on-year.
- Proposed **2Mtpa processing plant** utilising a conventional flotation circuit to maximise spodumene recovery:
    - Estimated **C1 cash costs of USD$431 per tonne concentrate** (USD$466 including royalties and sustaining capital).
- Capital requirement for development estimated to be **USD$117M** plus contingency:
    - Forecast payback period of **1.7 years;**
    - **IRR of 58% (51% post tax).**
- Pre-tax Project **$NPV_{7\%}$ of approximately USD$300M ($NPV_{7\%}$ USD$200M post-tax).**
- Opportunities to improve Project design through:
    - Continued process plant reviews;

    - Mine scheduling and infrastructure planning;
    - Reducing initial capital expenditure.
- Opportunities for expansion of resource base through immediate extensions of defined mineralisation and continued exploration of key target areas.

Bernard Aylward, CEO of Kodal Minerals, remarked: *"This is another significant step on our path to the development of the Bougouni Lithium Project. The lodging of the Application marks the culmination of a period of intensive work by our project development team, led by Steve Zaninovich, and highlights the viability of a commercial mining operation at the Project. The Company will continue to work closely with the Mali Government to advance the application process as quickly as possible.*

The optimisation studies undertaken at Bougouni will be continued as this phase of work has highlighted significant opportunities to improve the proposed operation, as well as our continued focus on exploration and definition drilling, to further increase our resource base. The current project design captures approximately 16Mt of ore from our announced 21Mt resource base, representing a very good conversion, and we expect to be able to add to our defined resources through further drilling.

The expected timeframe for our operation to be producing spodumene concentrate is in the second half of 2021, and on current forecasts we will be coming into production in an improving lithium market, which provides further confidence in the robustness of the Project. I take this opportunity to thank all our shareholders and stakeholders for their continued support and I look forward to providing further updates in due course."

The Company will provide regular updates on the progress of the Mining Licence application and it is noted that the next stage of the process will involve a DNGM technical committee meeting. This meeting will be attended by Kodal representatives (including Bernard Aylward, Steve Zaninovich and key local management) to present the Project to Mali officials and respond to any queries regarding the proposed development.

Further Information

Bougouni Feasibility Study

The Feasibility Study for the Bougouni Lithium Project proposes a contract mining operation and conventional "Milling and Flotation" processing facility, capable of treating 2 Mtpa of ore, complete with associated infrastructure, to mine and process approximately 16Mt of pegmatite ore over an initial 8.5 year LOM.

Kodal Minerals, and its Mali subsidiary Future Minerals SARL, coordinated and managed the Study with various industry expert consulting firms engaged to contribute in the areas of geology, resources, geo-technical, mining, metallurgy, engineering, tailings, cost estimating, project implementation, operational readiness, risk identification, and health, safety,

environmental and social aspects. The Project will consist of open-pit mines, lithium concentrate processing plant, tailings dam, waste rock dumps, water storage dam, stores, camp including administrative and living quarters and associated infrastructure.

This announcement provides a summary of the key findings of the Study including the financial parameters, capital and operating cost estimates, open-pit design and schedule, processing plant design, proposed operation and transport of product (note all costs referred to are in US dollars). The summary also highlights key opportunities identified through the Study to continue to improve the proposed development of the Project.

Project Capital Costs and Operating Costs

The Study incorporated extensive review and communication with various West African and industry-wide operation and supply groups to determine expected capital and operating costs of the proposed operation. This Study has identified key operators who have been able to provide confidence in a low-cost, high quality contract mining operation and these costs have been used to inform the optimisation for the open-pit mining, planning and the expected Project development. The estimated operating costs for the operation are summarised below:

Cost Centre	**Cost Basis US$ or %**	**Comment**
Mining Costs	$2.63	Per tonne of material mined (ore + waste)
Processing Cost	$16.33	Per tonne of ore processed
General & Administration	$2.92	Per tonne of ore processed
Concentrate Freight Costs	$93.60	Per tonne of concentrate produced
Other Costs		
Royalties	3.0%	Of receipts from product sales
Local Partner Royalties	0.5%	Of receipts from product sales
Land Tax	$149,333	Over life of mine
ISCP on Turnover	3.0%	Of Gross cash flow from operations
Corporate Tax	25%	Of earnings before tax

These costs, when utilised in the optimisation studies, highlight a C1 (Brook Hunt) operating cost of USD$431 per tonne of concentrate produced and benchmarks the Project as a low-cost producer. A summary of the operating cash costs is tabled below:

Area	Base Case (Total $M)	Cash Costs ($/t of production)
Mining Costs	334	172
Processing Costs	275	141
General & Admin Costs	47	24
Selling Costs	182	94
Sub Total (C1 Cash Cost)	838	431

Royalties (Government & NSR)	50	26
Sustaining Capital Costs	16	9
Net Cash Operating Costs	904	466

As outlined above, the proposed development of the Project is based on open-pit mining and processing through a 2Mtpa processing plant. The capital costs to develop this Project have been estimated utilising key consultants with relevant West African project experience, and represent all costs required to bring the Project into operation. A summary of the proposed capital costs is table below:

Main Area	US$M
Construction Indirects	4.4
Treatment Plant Costs	52.4
Reagents and Plant Services	6.0
Infrastructure	17.7
Mining *	2.2
Management Costs	11.8
Owners Project Costs	13.5
Owners Operation Costs (Working Capital)	3.4
Project Freight and Transport Logistics	5.5
Subtotal	116.9
Contingency (10%)	11.7
Fees, Taxes & Duties	Excl.
Escalation	Excl.
Grand Total	128.6

** Mining cost is for mining mobilisation and establishment only. Pre-construction capital is accounted for in the mining contractor operating cost estimate.*

These operating and capital costs were then assembled into the proposed mining and processing operation based on Indicated and Inferred Resources to develop a financial model in order to evaluate the economics of the operation. The estimate for revenue is based on a year-on-year estimated sliding scale lithium selling price for a 6% concentrate, Free on Board at the Port of San Pedro in Côte d'Ivoire. Concentrate selling price is based on a start price of $680/t for the first year of production (second half of 2021), which is considered reasonable under current market conditions, then increasing 2% year-on-year for the LOM. Summaries of the cash flow model inputs and the resulting cash flow model are tabled below:

Model Inputs

Variable	Units	Base Case
Mine Life	Years	8.5
Ore Tonnes	Mt	16.0
Lithium Grade	%	1.03
Lithium metallurgical recovery	%	71.0
6% Lithium Concentrate Produced	kilo-tonnes	1,942
Average Annual Production	kilo-tonnes	218

Cash flow model results – based on sliding scale lithium price

	Base Case Sliding Scale lithium sale price commencing USD$680 per tonne concentrate ($'000)
Pre-Tax Cash Flow	395,766
Pre-Tax NPV @ 7%	293,460
Pre-Tax IRR	**57.8%**
Payback Period	**1.7 yrs**
Life of Mine Revenue	**1,432,907**
Post-Tax Cash Flow	306,186
Post-Tax NPV @ 7%	200,769
Post-Tax IRR	**50.9%**
Payback Period	**1.8 yrs**
Life of Mine Revenue	**1,432,907**

Geology and Resources

The Bougouni pegmatites are hosted within an intercalated sequence of Palaeoproterozoic (Birimian-age) pelitic metasediments and amphibolites of the Leo-Man Shield, which are variably intruded by syn- and post-orogenic granitoids. Mineral Resources were modelled for three separate prospects; Ngoualana, Boumou and Sogola-Baoulé, on the basis of pegmatite occurrence and a nominal 0.3% Li_2O lower cut-off. The mineral resource estimate ("MRE") has a cut-off date for data of 19 December 2018, with the MRE completed and announced on the 28 February 2019.

The Mineral Resources have been classified as Indicated and Inferred based on the guidelines specified in the JORC Code. The classification applied is based upon an assessment of geological understanding of the deposit, geological and mineralisation continuity, drill hole spacing, quality control results, search and interpolation parameters and an analysis of available density information. Areas which were coherently considered to meet the requirements to be classified as Indicated or Inferred were then defined on a per-object basis, and long section strings were digitised to provide constraining boundaries which were then applied on the per-object basis. The MRE is tabled below in the "About Kodal Minerals" section.

Mining

Conventional open-pit mining is considered as the preferred mining method for the operation at Bougouni given:

- the ore presents near surface;
- there is space to construct waste dumps;
- it is expected, with a high chance of success, to generate the best value, and;
- the operation is planned to be a mine contractor run operation.

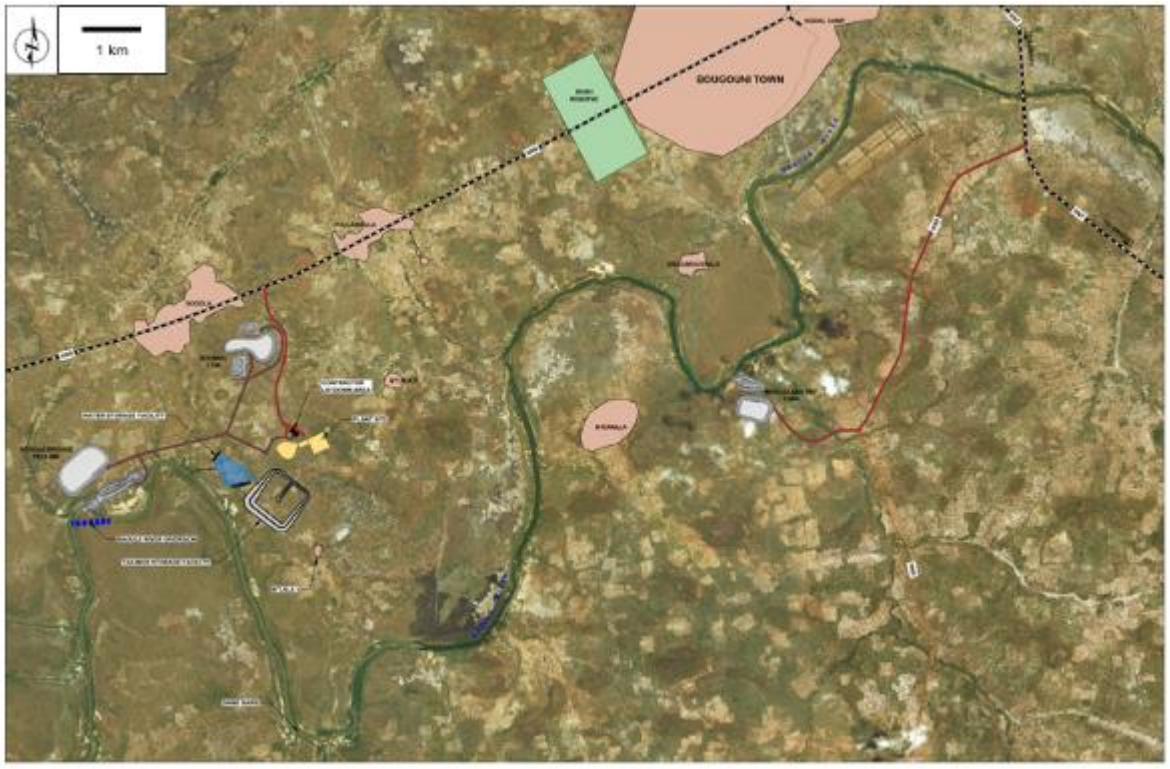
Three mining areas including four individual ultimate pits will be developed. Vegetation will be cleared and grubbed prior to topsoil stripping and later used to cover the topsoil stockpiles. Topsoil will be stockpiled around the open pits.

It is proposed that mining activities will be undertaken by an experienced contractor. There are a number of mining contractors operating in the region. Engaging an experienced mining contractor will have benefits, including reduced capital costs, reduced operational risk and reduced recruitment burden for the Company.

Future Minerals will retain responsibility for technical services comprising of mine planning, production scheduling, grade control, surveying and supervision and management of contract mining operations.

Pit optimisations were carried out using industry standard methods and WHITTLE™ 4x Software. The results of the open-pit optimisations were put in context of sensitivities, risks, contained ounces, mine life and total project size.

A proposed project layout is provided below:



Metallurgy and Process Plant

The processing facility has been designed in accordance with accepted industry practice and the flowsheet incorporates unit operations that are well proven in the industry and commensurate with the testwork conducted and results achieved to date.

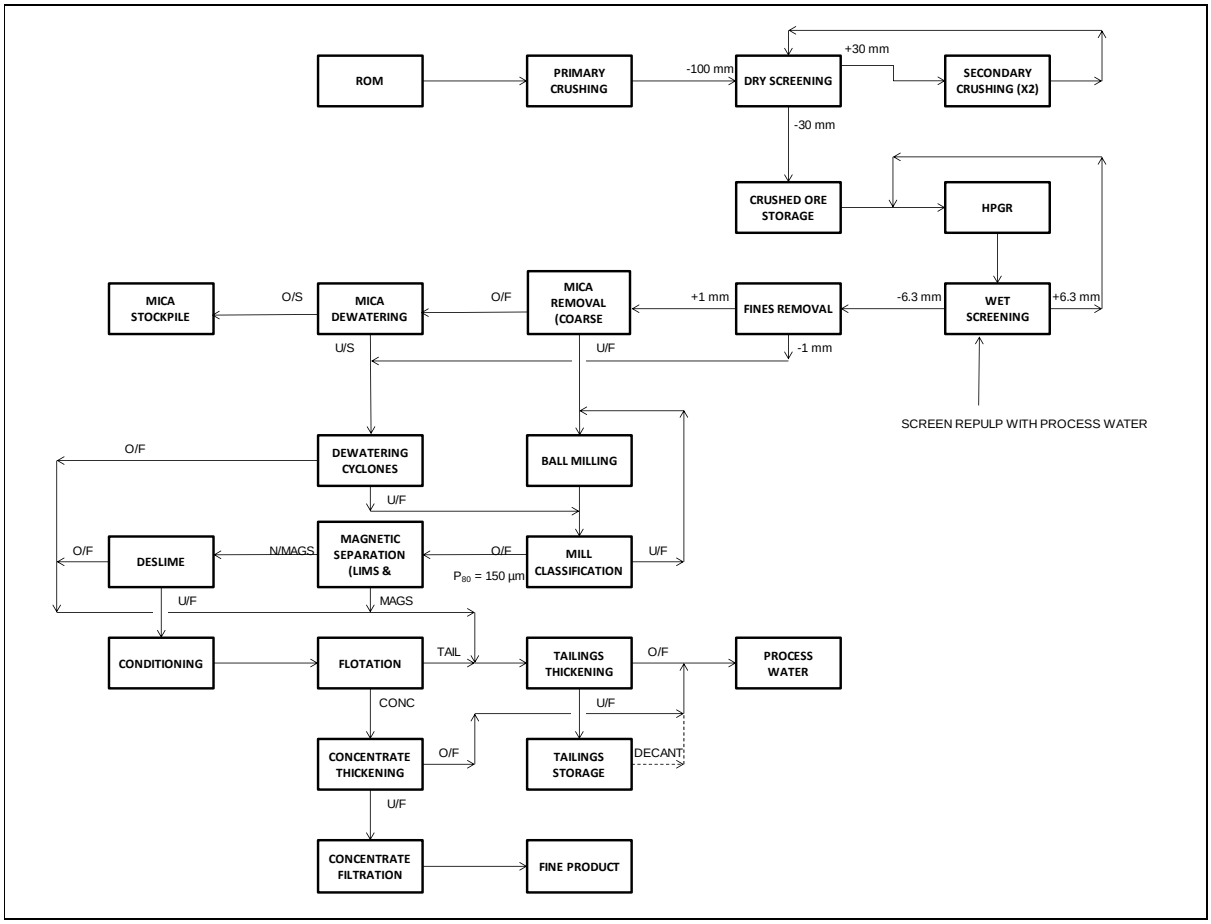
The plant layout provides ease of access to all equipment for operating and maintenance requirements while maintaining a compact footprint to minimise construction costs. The key Project and ore specific design criteria for the processing facility design are as follows:

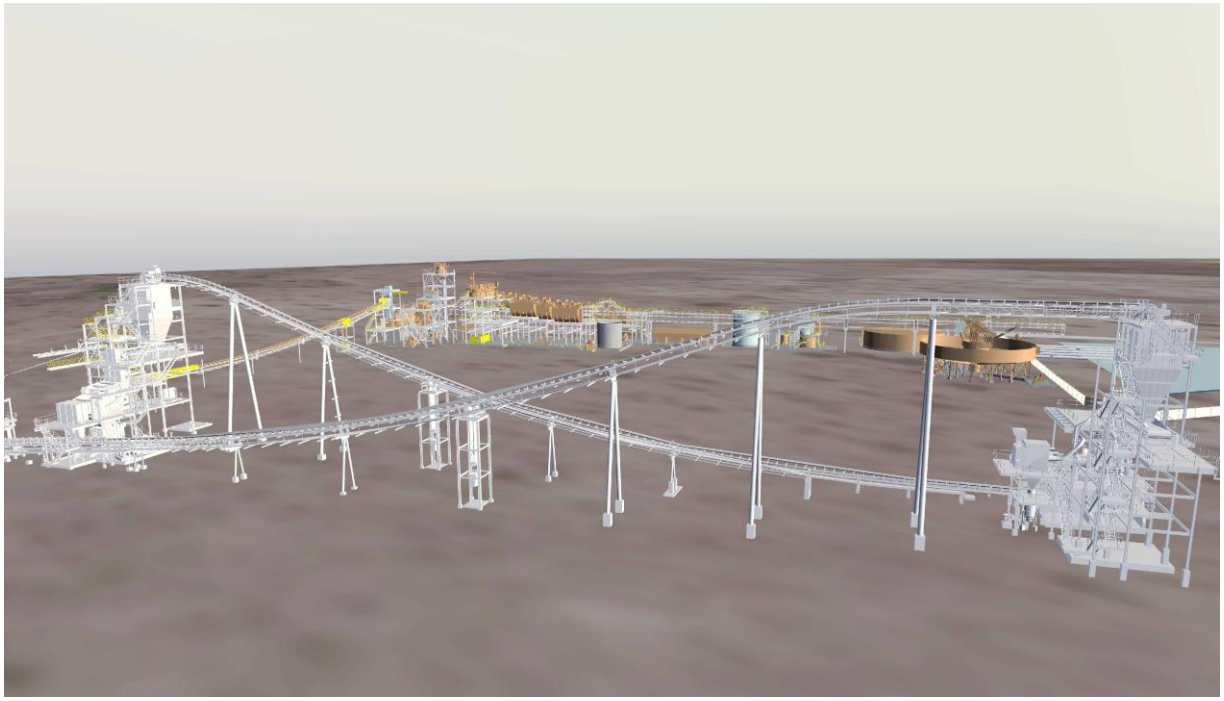
- 2,000,000 t/y of Run-of-Mine ("ROM") ore through the crushing plant operating at 65% utilisation (5,694 h/y).
- Surface plant utilisation of 85% (7,446 h/y) supported by crushed ore storage and standby equipment in critical areas.
- Sufficient automated plant control to minimise the need for continuous operator interface and allow manual override and control if and when required.

The testwork supports a flowsheet that utilises flotation to recover spodumene to a saleable concentrate. The laboratory flowsheet can recover 75% of Li_2O to a concentrate grade of 6%. It is noted that the open-pit optimisations and mine scheduling were based on a more conservative recovery of 68%. Due to the timing of Study deliverables, this value had to be predicted in advance of finalising laboratory testwork. The laboratory scale recovery of 75% provided a more encouraging result but for the purposes of the financial modelling, a reduced metallurgical recovery of 71% was selected to reflect the likelihood of circuit losses when scaling up from the laboratory to a commercial production facility. This does therefore reflect a degree of conservatism in the Company's financial modelling.

As a result of the relatively conservative recovery value selected for the mine design process, the Project has an effective additional contingency margin within the pit inventories.

A flowsheet of the proposed processing plant and a 3-D representation are provided below:





Project Implementation, Operations and Transport

It is proposed that an experienced Engineering firm (the "Engineer") will be engaged to provide Engineering, Procurement and Construction Management ("EPCM") services associated with the development of the process plant and associated infrastructure and services. Specialist consultants will be engaged to address specific elements of the Project not within the core competency of the Engineer.

Responsibility for the execution and delivery of the various Project scope elements will be divided between the Engineer and the Company. The implementation approach requires close integration with and collaboration between Company and Engineer to ensure all aspects of the Project development are executed efficiently.

Given the remote location of the Project in Mali, it will need to be self-sufficient in as many areas as possible. It is expected that the local Malian workforce will not have any previous mining and plant operation experience and that a core group of experienced Malian management and supervision, supplemented by expatriates, will be required for initial ramp-up, management and training of the operation.

As a result, an expatriate team has been included for start-up and establishment of procedures. It is anticipated that following two to three years of operation and training these expatriate roles will transfer to Malians.

The entire operations workforce will be under the control of a General Manager who will be supported by five main departments each with a manager heading the department; namely mining, exploration, processing, administration and health, safety, environment and community relations ("HSEC").

Transport and logistics are a significant component of the Project given the remote nature of the site. Internationally sourced goods, reagents and consumables will be containerised and transported by liner services to Abidjan or San Pedro ports in Côte d'Ivoire for forwarding on to the site. A freight forwarder will be engaged to clear port customs and organise transport to site. These services will be provided by a specialist West African transport and logistic firm with extensive experience in containerised and bulk commodity transport.

The Study determined costs for export of lithium concentrate product, which included consideration of ports in Côte d'Ivoire, Senegal and other regional facilities. Following consideration of transport routes, reliability and distance, it was concluded that the San Pedro Port provides the most cost-effective product export destination for the Project. A visit was conducted to the San Pedro Port Authority where Future Minerals was well received through a commitment to continue to work together in providing port access for product export.

Opportunities for Project Improvement and Continued Activities

The Study has highlighted the development of the Project as a robust, economically viable proposition. The Company intends to continue its activities to improve the proposed development, as well as a continued focus on the expansion of the mineral resource base. A selection of initial items with potential to impact positively on the Project development are:

- Resource growth and increase of head grade from further exploration in the highly prospective areas contained within existing exploration leases;

- Reduction in capital cost through further optimisation of the flowsheet and consideration of packaged or modular plant supplies;
- Investigate more favourable power supply solutions to reduce operating costs;
- Optimisation of mine scheduling and drill and blast strategy, and;
- Cost savings relating to the construction of the tailings storage facility ("TSF"). Currently the design of Stage 1 is based on 24 months of capacity to combat potential for adverse climatic conditions. Potentially this could be reduced to about 18 months' capacity if the sequencing of construction is favourable with respect to maximising construction in the dry season.

****ENDS****

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About Kodal Minerals

Kodal Minerals' primary focus is on the rapid advancement towards production of its flagship Bougouni Lithium Project in Southern Mali. The JORC Resource Estimate places the Bougouni Project in the top 15 hard rock lithium projects globally and was calculated using only three of the eight currently recognised prospects demonstrating the significant exploration upside potential remaining across the 450km^2 project area. The Mineral Resource estimate for the Ngoualana, Sogola-Baoule and Boumou prospects are tabulated below. These mineral resources are reported in accordance with the JORC Code:

Prospect	Indicated			Inferred			Total		
	Tonnes (Mt)	Li_2O% Grade	Contained Li_2O (kt)	Tonnes (Mt)	Li_2O% Grade	Contained Li_2O (kt)	Tonnes (Mt)	Li_2O% Grade	Contained Li_2O (kt)
Sogola_Baoule	8.4	1.09	91.9	3.8	1.13	42.8	12.2	1.10	134.8
Ngoualana	3.1	1.25	39.2	2.0	1.12	22.1	5.1	1.20	61.3
Boumou				4.0	1.02	40.4	4.0	1.02	40.4

TOTAL	11.6	1.13	131.2	9.7	1.08	105.3	21.3	1.11	236.5

Notes: Mineral resources are reported using a 0.5%Li_2O cut-off. Figures may not sum due to rounding. The contained metal is determined by the estimated tonnage and grade.

The Bougouni Project and recently acquired 200km^2 Bougouni West project are located in an emerging lithium province that is already attracting the attention of investors and off-take partners interested in securing a long-term supply of lithium. With the support of its strategic investor and off-take partner Suay Chin International Pte, a Singapore-based lithium and chemical trader, Kodal Minerals is well positioned to continue its ambitious development programme at Bougouni.

Further to this, Kodal Minerals is the manager of additional lithium and gold projects that are undergoing low cost exploration programmes in addition to JV funded gold properties in Côte d'Ivoire that offer potentially significant long-term value.