



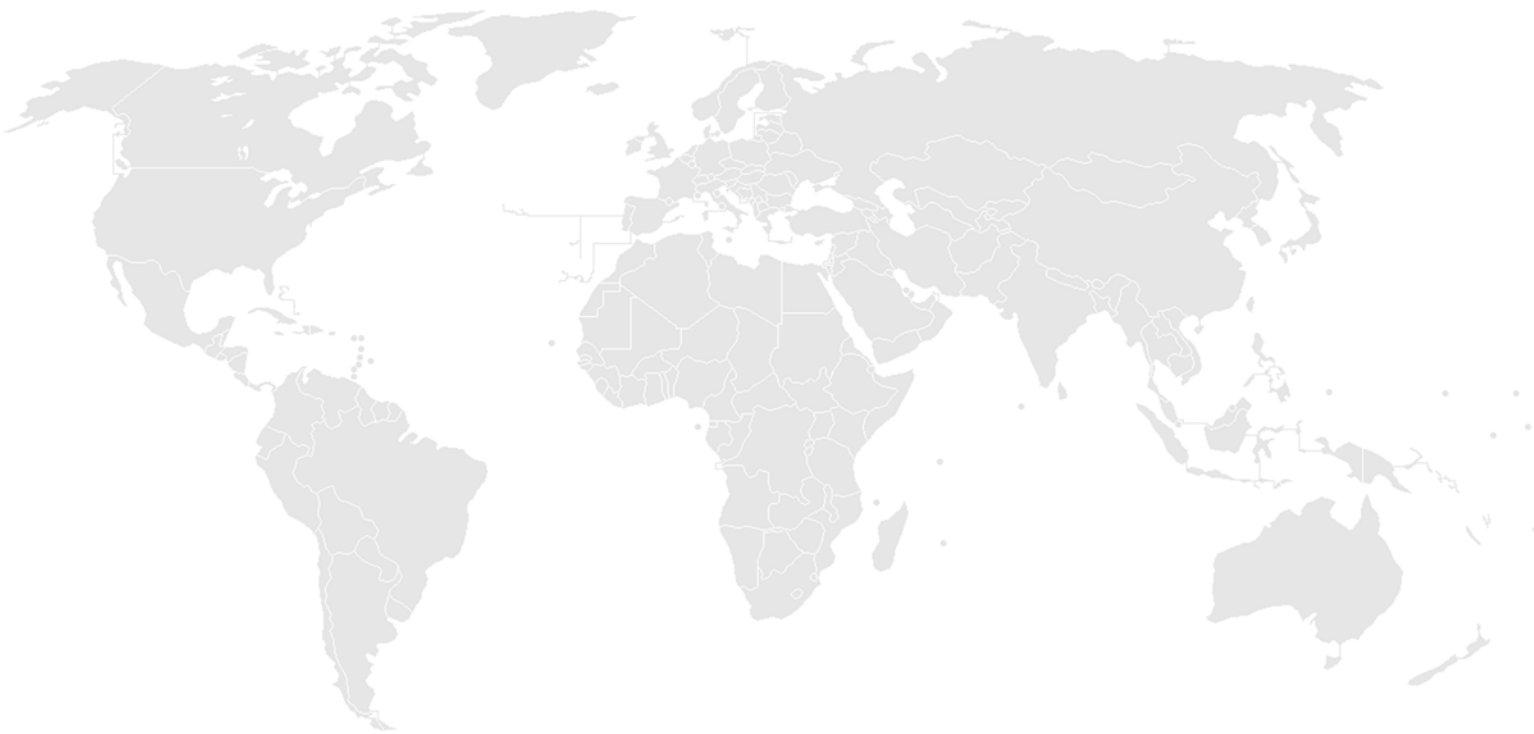
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MINERAL RESOURCES

West African Gold Mining Market Research





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Ghana

West African Gold Mining Market Research

Overview

Gold has been mined in Ghana since the 15th century. Between 1493 and 1960, the country's was responsible for 35.5% of the global gold production. From 1701 to 1800, this percentage decreased to less than 9% . In the 1990s the output dropped further to less than 2% ^[1].

As of 2017, Ghana had 12 operating gold mining companies, which produced 2.805 million oz of gold, up 10.2% from the previous year. All operators reported an increased output versus previous year. The country's gold revenue totalled \$3.52-billion in 2017, up from \$3.25-billion the year before ^[2].

With the global gold production estimated to 3,150 tonnes in 2017 Ghana contributes at 2.52% to the global output, taking the 6th place, after United States, Australia, Brazil, Canada, and China ^[3].

Largest Gold Mines

There are 12 operating gold mines in Ghana. The largest projects are: Tarkwa, Akyem, Ahafo, Iduapriem, and Chirano. Ghana's largest mine, AngloGold Ashanti's Obuasi, is undergoing a redevelopment and reinvestment plan and is expected to produce gold by 2019.

• Tarkwa - Gold Fields (Ghana) Limited

Tarkwa, the country's largest gold mine is situated in south-western Ghana, about 300km west of Accra. Current mining leases cover the area of approximately-20,825 ha. The four open pits Pepe-Mantraim, Teberebie, Akontansi and Kottraverchy produced 566,400 oz of gold in 2017. The mineral reserves are projected to be depleted by 2031 ^[16,17].

Table 1. Tarkwa Gold Mine

Mine Name	Tarkwa
Operator:	Gold Fields (Ghana) Ltd.
Yearly Gold Production (2017)	566,400 oz
Reserves	6 million oz
Life of Mine Remaining	13 years
Mining method	Open pit

In addition, Gold Fields owns and operates the Damang Mine in Ghana's Western Region

Table 2. Damang Gold Mine Profile

Mine Name	Damang
Operator:	Gold Fields (Ghana) Ltd.
Yearly Gold Production (2017)	144,000 oz
Reserves	1.7 million oz
Life of Mine Remaining	6 years
Mining method	Open pit

The company has five gold mines located in Peru, Australia and South Africa. The company is listed on the Johannesburg Stock Exchange, New York Stock Exchange ("NYSE"), NASDAQ Dubai Limited, Euronext in Brussels ("NYX") and the Swiss Exchange ("SWX"). Gold fields global revenue in 2017 was \$2.8 billion ^[16,17].

Table 3. Gold Fields (Ghana) Limited - Revenue in Ghana (2017) ^[4]

Revenue Tarkwa & Damang	US\$ 891 million
Revenue generated to the Country	
• Mineral Royalty	US\$ 27 million
• Corporate Income Tax	US\$ 55 million
• Total	US\$ 82 million



GOLD FIELDS



• **Akyem - Newmont Ghana Gold Ltd**

Akyem gold mine is situated in the Birim North District of the Eastern Region, approximately 111 miles northwest of Accra. The commercial production started in 2013. The site contains four open pits with reserves contained in 11 pits and an underground mine in development. In 2017, the annual production at Akyem reached 473,000 oz^[18-22].

Table 4. Akyem Gold Mine Profile

Mine Name	Akyem
Operator:	Newmont Ghana Gold Ltd
Yearly Gold Production (2017)	473,000 oz
Reserves	3.25 million oz
Life of Mine (years)	11
Mining method	Open pit

Newmont Ghana Gold Ltd. is a subsidiary of Newmont Mining Corporation a US-based gold producer with operations and in the United States, Australia, Peru, Indonesia, Ghana, New Zealand and Mexico. The company is listed on the New York Stock Exchange (NYSE: NEM). In 2017, the company’s global revenue was \$7.3 billion^[18-22]. Newmont is the largest tax payer in Ghana paying a total of GHS 568 million (USD \$130 million) in 2017.

• **Ahafo - Newmont Ghana Gold Ltd**

Ahafo mine is located in the Brong Ahafo region in western Ghana, 307 km northwest from Accra. It is a surface mine accompanied by one underground portal. The commercial production started in 2006. In 2017, the production reached 349,000 oz of gold.

Table 5. Ahafo Gold Mine Profile

Mine Name	Ahafo
Operator:	Newmont Ghana Gold Ltd
Yearly Gold Production (2017)	349,000 oz
Reserves	9.55 million oz
Life of Mine	9 years
Mining method	Open pit

• Iduapriem - AngloGold Ashanti

Iduapriem mine is located in the western region of Ghana about 8 km south-west of the town of Tarkwa. It started mining operations in August 1992. It is an open pit mine with the annual production of 228,000oz as in 2017.



Table 6. Iduapriem Gold Mine Profile

Mine Name	Iduapriem
Operator:	AngloGold Ashanti
Yearly Gold Production (2017)	228,000 oz
Reserves	5.54 million oz
Life of Mine	undisclosed
Mining method	Open pit

Founded in 2004, AngloGold Ashanti Limited is a global gold mining company with operations and assets in 21 locations. The company was formed 2004 by the merger of AngloGold and the Ashanti Goldfields Corporation. In 2017, the firm's global revenue totalled \$4,543M million. The company wholly owns two gold mines in Ghana: Iduapriem and Obuasi. The latter was placed on care and maintenance programme in 2016. The mine is expected to produce 8.59 Moz over 21 years of its projected lifetime ^[23,24].



• Asanko- Asanko Gold

Located in the Amansie West District of the Ashanti region, the Asanko Gold Mine is a large scale, multi-pit mine built in 2015. The mine consists of two neighbouring projects: the Obotan and the Esaase. First gold was poured in January 2016 and commercial production commenced in April 2016. In 2017, produced 205,047 ounces of gold ^[25].



Table 7. Asanko Gold Mine Profile

Mine Name	Asanko
Operator:	Asanko Gold Ltd.
Yearly Gold Production (2017)	205,047 oz
P&P Reserves	5.25 million oz
Life of Mine (years)	11.5
Mining method	Open pit

Asanko Gold Mine belongs to Asanko Gold Inc., Asanko is listed on the TSX and NYSE stock exchanges under the ticker: AKG. The company's revenue in 2017 totalled \$256 million. Asanko operates exclusively in Ghana ^[26,27,28].

• Chirano - Kinross Gold Corporation

Chirano Gold Mine is a combined underground and open pit gold mine in the Western Region of Ghana, owned by Kinross Gold. First gold was poured in October 2005, and the property consists of 11 deposits: Akwaaba, Suraw, Akoti South, Akoti North, Akoti Extended, Paboase, Tano, Obra South, Obra, Sariehu and Mamnao.



Table 8. Chirano Gold Mine Profile

Mine Name	Chirano Gold Mines Ltd.
Operator:	Kinross Gold Corp.
Yearly Gold Production (2017)	286,542 oz
P&P Reserves	630,000 oz
Life of Mine	2 years
Mining method	Open pit/underground

Founded in 1993, Kinross Gold is a gold mining company with a diverse portfolio of mines and projects in the United States, Brazil, Chile, Ghana, Mauritania, and Russia. The company's global revenue in 2017 totalled \$3.3 billion.

- Ghana is host to other important mines such as the following:

Table 9. Wassa Gold Mine Profile

Mine Name	Wassa
Operator:	Golden Star Resources
Yearly Gold Production (2017)	137,234 oz
M&I Mineral Resources	3.3 million oz
Life of Mine	5 years
Mining method	Open pit/underground

Table 10. Prestea Gold Mine Profile

Mine Name	Prestea
Operator:	Golden Star Resources
Yearly Gold Production (2017)	137,234 oz
M&I Mineral Resources	933,00 oz
Life of Mine	6 years
Mining method	Open pit/underground

Table 11. Edikan Gold Mine Profile

Mine Name	Edikan
Operator:	Perseus Mining
Yearly Gold Production (2017)	208,226 oz
M&I Mineral Resources	4.9 million oz
Life of Mine	6 years
Mining method	Open pit

A dark, underground mining tunnel. In the foreground, a worker in an orange high-visibility shirt and a white hard hat is seen from behind, looking towards a large yellow mining vehicle. The vehicle has the number '1120F' visible on its side. In the background, other workers and more machinery are visible in the dimly lit tunnel.

PROSPECTIVE

Mining Projects

• Prospective Mining Projects

According to Ghana's Mineral Commission, the following new exploration projects are in the pipeline for the coming years ^[4].

Table 12.

Company Name	Indicated Mineral Reserves
Azumah Resources	2.0 Moz
Cardinal Resources - Namdini	7.0 Moz
Resolute Resources - Bibani	640,000 oz
Pelangio - Manfo	493,000 oz
Castlepeak - Apankrah	To Be Determined

• Mineral Policy - Recent Changes

In the recent years Ghana's gold mining operators were affected by several changes undertaken by the government in attempts to better regulate the industry and increase the country's mining revenue. In 2012, the government of Ghana (GoG) increased corporate tax from 25 to 35% and changed capital allowances to 20% over 5 years from 80% deduction in the first year and 50% per annum on the remaining balance. In 2015, the Revised Investment Agreement was ratified by Parliament. As a result, the tax stabilisation was changed from the mine lifetime to 15 years of commercial production for each mine.

When the stabilisation period is over, a mining company can obtain an extension, provided it commits to invest a minimum of \$300M per mine ^[4]. The government also closed the loophole on tax avoidance, ensuring that mining companies begin paying taxes within five years of operating in the country. Mining firms also pay more for ground rentals. In early 2016 concession rates were increased for the first time since 1986, from less than GHS0.01 (US \$0.003) per ha of leased land to GHS14 (US \$3.56) ^[5].

It was estimated the country lost around US \$5 billion worth of revenue due to unaccounted gold exports to the United Arab Emirates. In February 2018, GoG started talks to approve regulations authorising the Precious Minerals Marketing Company (PMMC) to certify all exports conducted by mining firms in attempts to tighten control of the sector and tax it appropriately. PMMC inspectors now have permanent access to companies' facilities during gold pours to take samples for analysis and taking part in the pre-shipment processes ^[6].



Taxing REGIME

• Taxing Regime

The taxation of gold mining activities in Ghana is defined in the Petroleum Revenue Management Act. Entities holding large-scale mining licenses are liable for paying to the Ghana Revenue Authority:

- Corporate tax (35%) with a capital allowance regime of 20%
- Capital gains tax (15%)
- Withholding tax for foreign residents (15%) and
- Royalties (5% on gross revenue)

Royalties are 5% on the company's gross revenue, except for some companies (Newmont, Gold Fields Ltd.) which have entered into a special agreement with the government. These operators pay between 3 and 5% royalty on gross revenue under 'sliding scale royalty system' based on the monthly prices of gold ^[4].

There is no distinction between duties, royalties and taxes payable by domestic parties and those payable by foreign parties ^[11].

Table 13. Ghana's Mining Sector Fiscal Regime ^[4]

Taxes and Incentives	
Mineral Rights (Mining Lease)	Annual payment
Capital Allowances	20% straight line
Carried forward losses for taxation purposes	5 years
Corporate Income tax rate	35%
Mineral royalty	5% on gross revenue

Table 14 Sliding Royalty Rates ^[4]

Royalty Rate	Gold Prices
3%	\$0-1,300/oz
3.5%	\$1,300-1,449.99/oz
4%	\$1,450-2,299.99/oz
5%	\$2,300-unlimited/oz

• Value Added Tax

Value Added Tax (VAT) registration is required for businesses with a turnover that exceeds:

- GHS200,000 (\$42,463) over a twelve-month period; or
- GHS50,000 (\$10,616) over a three-month period, whichever is achieved earlier

A non-resident business requires a physical representative to register^[7].

From 01 July, 2017, by virtue of the Value Added Tax (Amendment) Act, 2017 (Act 948), the following tax rates apply:

- Services: 17.5%
- Manufacturing: 17.5%
- Wholesalers: 3%
- Retailers: 3%^[8].

Refunds Credit is given to offset the following month's liability. A request for a refund may be made if the company has an outstanding credit for a period of at least three months. A company must set up a GRA General Refund Account to receive VAT refunds^[7].

Mining companies in Ghana have reported problems with recovering overpaid VAT. Statistics provided by the Ghana Chamber of Mines (GCM) shows as at December 2016 mining companies were owed GHS 279,367,251 (US \$59 million) in VAT refund. This issue poses a serious obstacle especially in the times of high inflation and significant depreciation of the local currency, undermining the companies' cash flow.

The situation worsened after the government decided to stop issuing Treasury Credit Notes (TCN), which could be used to offset other liabilities. The government had tried to address this difficulty by allocating additional funds into the refund account, but the problem persists^[9].

There is no VAT on gold export^[10].

• State Participation

The government retains a free -carried 10% equity share in mining entities. Special shares may also be requested, separate to a free carried interest^[4].

• Mining Licensing

Companies are required to submit an application to the Minister of Lands and Natural Resources through the Minerals Commission. The application must be accompanied by:

- Details of the financial and technical resources available for the proposed mineral operations;
- An estimate of the amount of money proposed to be spent on the operations;
- Details of the proposed mineral operations;
- Information on the employment and training of Ghanaians in the proposed mine

• Tax Advantages

Companies conducting mining activities in Ghana can benefit from following tax advantages and incentives:

- Reduced customs import duties on plant, machinery, equipment and accessories imported specifically and exclusively for mineral operations
- Transferability of capital
- Transferability of dividends, or deferment of stamp duty
- Personal remittance quotas for expatriate personnel free from any tax imposed by any enactment for the transfer of external currency out of Ghana ^[11].

• Licensing

The current licensing regime is based on the first- come- first- served system provided the applicant has met the requirements specified in the mining law. However, there are plans to introduce tender submissions for mining areas believed to store richer mineral deposits ^[4].

There are different rights to apply for:

- Reconnaissance (12 months)/ Restricted reconnaissance or prospecting licence for industrial minerals (12 months and 3 years respectively)
- Prospecting (up to 3 years: 2 years with possible one year extension)
- Mining lease (up to 30 years)/ Restricted mining lease (up to 15 years) ^[4].

Interested parties may obtain any or all of them, however, the usual order is to acquire exploratory licences (reconnaissance and prospecting) and next convert to a mining lease if exploration is successful.

Table 15. Reconnaissance vs. Prospecting License

License Type	Rights and Restrictions
Reconnaissance	Allows holders to conduct initial exploratory work and search for minerals in the reconnaissance area. The holder is not permitted to drill, excavate or undertake any operations under the surface.
Prospecting	Allows holders to carry activities necessary to establish the economic value of any deposit in the prospecting area. It gives the right to purposely win minerals.

• Mineral Rights Extension

The prospecting license is generally granted for two years but following the complaints from companies this is not enough to complete the programme, a further one-year extension was often granted by the Mineral Commission. This opportunity was abused by a number of companies, who continuously requested an extension despite being in the position to apply for a renewal. Such practices led to changes in the law and thus since 1 July 2010 the following rules apply:

- Only prospecting licences may be extended (reconnaissance licences and mining leases cannot be extended);
- An extension for a prospecting licence will be granted once, and for a term of one year,
- An extension will not be granted to non-performing companies ^[11].

• Mining lease renewal

Under current legislation, the holder of a mining lease may apply to the Minister of Lands and Natural Resources for an extension of the lease up to 30 years. A mineral right cannot, in whole or in part, be transferred, assigned, mortgaged without prior approval of the Ministry ^[11].

• Other considerations

Ghana has been placed on the 120th place in the World Bank's 'Ease of doing business' ranking [12]. Relatively low corruption rates in comparison with other African countries, political stability and high probability of exploration success make Ghana an attractive place to explore gold. However, beside regulatory and tax regimes, there are issues to consider before starting a business in Ghana:

• Bureaucracy

Despite efforts to simplify business procedures, many administrative tasks are still time consuming, as a result of inconsistent regulations. Everything from opening a business account to registering a company can drag on for weeks or even months.

• Low level of digitization

Many procedures that can be handled electronically are still conducted 'on paper' in Ghana. This means significant amount of paperwork to be filled and managed. Consequently, the time required for their processing can be long. It is not unusual for foreign companies in Ghana, even the small ones, to employ full-time staff dedicated entirely to completing administrative tasks.

• Erratic Electric Power Supply

There are inefficiencies and lack of infrastructure in Ghana's power generation and transmission sectors. Some companies try to resolve the problem by using on site generating sets, which increases the costs of production. The confidence in the load shedding time table, published by the Electricity Company of Ghana, which is making business planning difficult ^[13].

- **High cost of borrowing**

It is crucial for companies starting their business operations in Ghana to have sufficient cash flow to keep their business going, as the bank interest rates are very high, above 20% ^[14].

- **Budget deficits**

Due to high debt service costs, Ghana is classified by the IMF as a country at high risk of debt distress. At the end of 2016, the budget deficit was of 10.2% of GDP, 2016 up from an estimated 5.3% at the beginning of 2016 and a Government debt to GDP ratio of almost 74% ^[15].



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Mali

West African Gold Mining Market Research

Overview

Mali is Africa's third-largest gold producer after South Africa and Ghana. In 2017, industrial production of gold reached 49.6 tonnes in 2017, up 5 percent from the previous year. Industrial mining currently makes up only half of Mali's gold output, with about 50 tonnes a year produced by artisanal miners. The Mali's estimated Gold reserves are 822 tonnes, or around 16 years of output at current production levels ^[30, 31].



Largest Gold Mines

Major gold mines, namely Morila and Yatela have reached the ends of their life cycle and the fate of the country's largest mine- Sadiola, remains uncertain. On the other hand, B2Gold's giant Fekola project started production in 2017, while Hummingbird Resources' Yanfolila began production in late 2017 and is expected to produce 130,000 oz in 2018 ^[30,31].

Table 16. Mali's Operating Gold Mines

Mine Name	Operator
Sadiola	IAMGold, AngloGold Ashanti
Morila	AngloGold Ashanti
Yatela	AngloGold Ashanti
Fekola	B2Gold
Yanfolila	Hummingbird Resources

• Sadiola

The Sadiola Gold Mine is located in southwest Mali, West Africa near the Senegal Mali border, approximately 70 kilometres south of the town of Kayes. It was opened in 1997, after liberalization of the industry, and had an immense impact on the Mali's economy, allowing the country to become the third top gold producer in Africa in 2001.

The project is a joint venture between Canadian miner IAMGOLD (41% share), operator AngloGold Ashanti (41%) and the Government of Mali (18%). The mine is nearing the end of its supply of oxide ore and an expansion is necessary. A \$300m to \$400m project to mine sulphides at Sadiola is being considered that could keep it operational for another 20 years, but the that negotiations over the extension deal have stalled with the local government and the future of the mine is uncertain ^[32,33,34,35]

Table 17. Sadiola Gold Mine Profile ^[32,33,34,35]

Mine Name	Sadiola
Operator:	IAMGold, AngloGold Ashanti
Yearly Gold Production (2017)	200,000oz
Reserves	3.4 million oz
Mining method	Open pit

• **Morilla**

Morila gold mine is scheduled for closure in 2020 ^[36].

• **Yatela**

Situated, 25 km north of Sadiola, in the Kayes Region of Mali, Yatela is a joint venture between IAMGOLD (40% share), AngloGold Ashanti (40%) and the Mali Government (20%). The mine has already reached the end of its productive life, and closure activities continue ^[37].

• **Fekola**

Situated on the border between Mali and Senegal, Fekola is the latest addition to the Mali's gold mining in-dustry. It opened in 2017. The Fekola deposit is located about 40 km south of the city of Kéniéba. In 2017, the annual production totalled 111,450 oz and is estimated to produce between 400,000oz and 410,000oz of gold in 2018 ^[38].

Table 18. *Fekola Gold Mine Profile* ^[38]

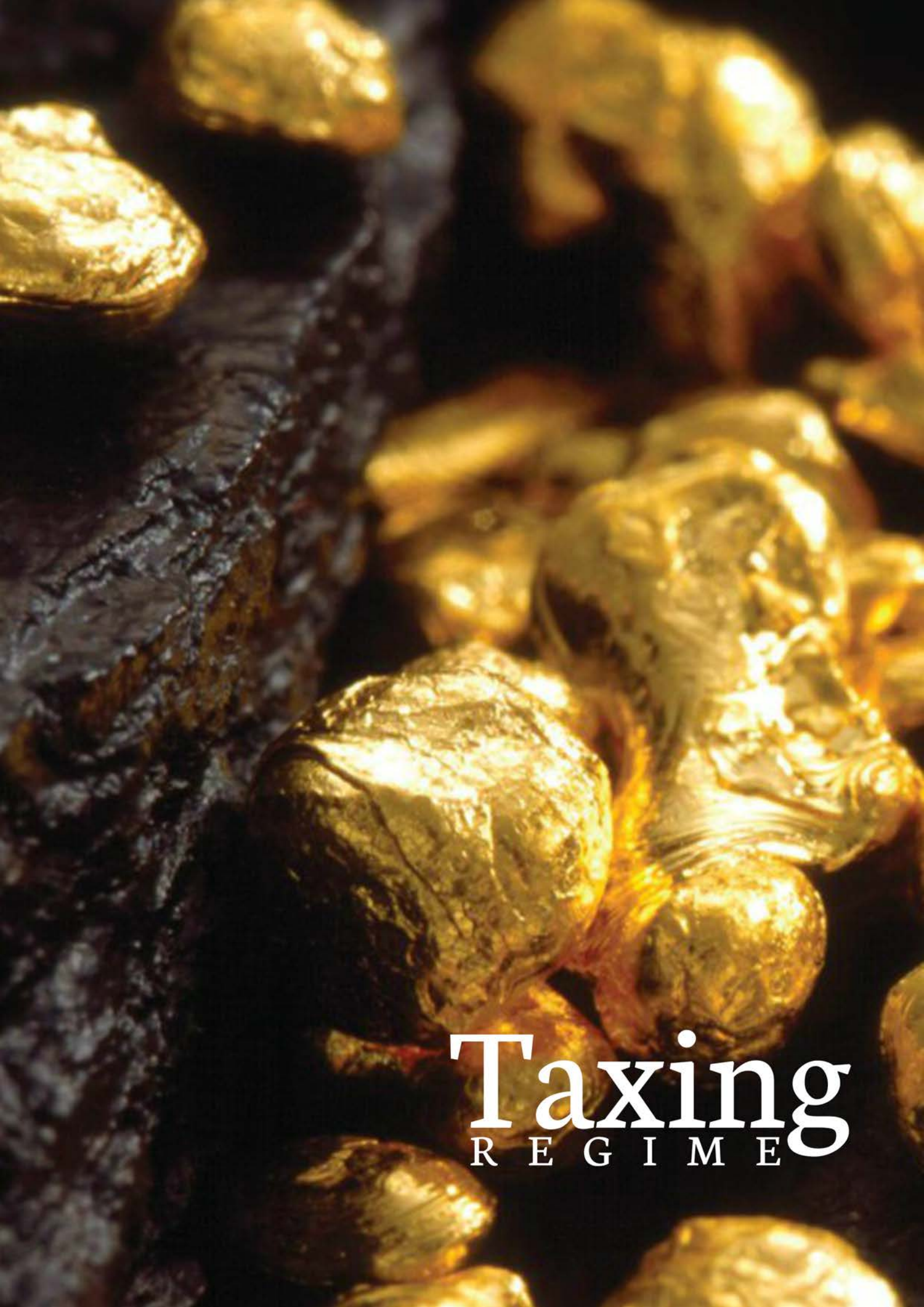
Mine Name	Fekola
Operator:	B2Gold
Yearly Gold Production (2017)	111,450 oz
Reserves	2.9 million oz
Life of Mine	Unknown
Mining method	Open pit

• **Main Development Projects**

- Kobada - AGG Mali
- Syama - Resolute Resources

• **Main Exploration Projects**

- Kandiolé Sud - Sarama Resources Ltd
- Bourdala - Acacia
- Gourbassi- Acacia
- Siribaya - IAM Gold
- Niaouleni - Frontline Gold
- Massigui- Birimian
- Dankassa - Birimian
- Korokoro- Goldex Resources Corporation



Taxing

R E G I M E

• Taxing Regime

The main taxes and fees imposed on companies operating in the mining sector include:

- Corporate Income tax:
- Value-Added Tax (VAT)
- Withholding Tax
- Royalties.

• Corporate Income Tax

The current rate of corporate income tax in Mali is 30% ^[39]. Mining companies have this rate reduced to 25% for the first 15 years of production ^[40]. Firms are allowed to deduct up to 28% of their net profits from taxable income. This allowance must be earned, however, in that it cannot exceed 50% of the firm's current expenditures on exploration and development ^[41].

• Value-Added Tax (VAT)

The standard VAT rate in Mali is 18% ^[39]. Prospectors and explorers are exempt from paying VAT for three years ^[40].

Table 19. Withholding taxes rates for mining companies in Mali ^[40]

Dividends	10%
Interests	10% in respect of interest on business debt, and 13% on bonds
Royalties	17.5%
Technical service fees	17.5%

• Royalties

The royalty rate for gold is 3% . This is so called an ad valorem tax, the basis of which is the square-mine value of extracted substances, exported or not, minus intermediary fees and expenses ^[42]. Additional taxes apply if the company exceeds 10% of expected production ^[40].

Many mines in Mali are protected from changes to the fiscal regime for 30 years via stabilization agreements, but Mali's government is negotiating with mining companies to draft a new mining code which would to reduce those protections to the lifespan of the mine ^[43].

• State Participation

The government has the right to a 10% non-dilutable free carried interest in the capital of a company holding an exploitation permit, in addition to an option to acquire another 10% for cash. Domestic investors can acquire at least 5% of the shares of the exploitation company^[40].

• Tax Advantages

Holders of prospecting authorisations and exploration permits are exempted from all taxes, including VAT, except for the following:

- The mining taxes, royalties and fees referred to above;
- Youth employment tax and vocational training tax;
- The housing tax;
- Expenses and payroll taxes due by employees, as prescribed by the regulations;
- Tax on salaries and wages due by employees;
- Road tax discs on vehicles, except heavy equipment exclusively used for prospecting or exploration operations;
- Tax on insurance contracts, except for site vehicles and / or other vehicles exclusively used for exploration or prospecting operations;
- Registration fees;
- Contribution to the import verification programme; and
- Statistical charges^[42]

• Licensing

Mining licenses are awarded on a 'first come first served' basis^[44]. The following mining titles are available:

- Exploration authorisation
- Prospection authorisation
- Research permit
- Mechanical artisanal exploitation authorisation
- Exploitation authorisation for small mines
- Exploitation permit^[44].



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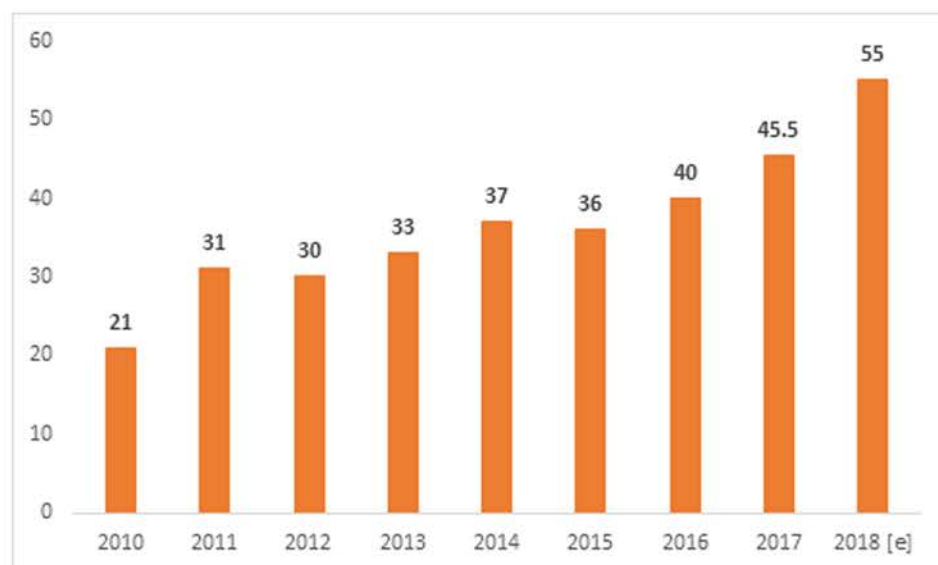
Burkina Faso

West African Gold Mining Market Research

Overview

The gold mining sector in Burkina Faso is regarded as one of the most dynamic in West Africa. In 2017, the production hit 45.5 tonnes of gold. This result put Burkina as Africa's fourth-biggest gold producer – after South Africa, Ghana and Mali. In 2018, the production is expected to reach 55 tonnes. The 2018 projection would mark a tenfold increase in industrial production on a decade earlier^[45].

Figure 1. Burkina Faso Annual Gold Production 2010-2018 (tonnes)^[45, 46]



Largest Gold Mines and Operators

The country's major producing mines include Essakane, Mana, Inata, Taparko, Youga and Bissa.

• Essakane

Owned by Canada's IAMGOLD Corp, Essakane is located in the north east of the country, close to the border with Niger. With the annual production of 370,000 - 380,000 oz, it is the biggest single gold producer in the country. The commercial production started in July 2010 and it is carried out using open-pit methods. There are no further expansion plans on the horizon ^[47,48,40].

Table 20. Essakane Gold Mine Profile

Mine Name	Essakane
Operator:	IAMGOLD Corp
Yearly Gold Production (2017)	370,000-380,000 oz
P&P Reserves	3.0 million oz
Life of Mine	8 years
Mining method	Open pit

• Mana

Mana is located 260 km southwest of Ouagadougou. It has produced some 1.6 M oz since first gold in 2008. The plant has been expanded four times since commissioning to a current capacity of over 7,200 tonnes per day. The company is owned and operated by SEMAFO, a Canadian-based gold mining company ^[50].

Table 21. Mana Gold Mine Profile

Mine Name	Mana
Operator:	SEMAFO
Yearly Gold Production (2017)	206,400oz
Reserves	1.7 million oz
Life of Mine	7 years
Mining method	Open pit

• Bissa – Nordgold

Nordgold has three mines in Burkina Faso – Taparko, Bissa and Bouly (although Bouly functions as a satellite of Bissa). The three operations produced around 324,000 ounces of gold in 2016 ^[47]. Bissa is located approximately 85km north of Ouagadougou, the Capital City of Burkina Faso. It was launched in January 2013 and started full scale industrial production six months later. In 2017, the mine produced 195,700 oz of gold ^[47, 48, 49].

Table 22. Bissa Gold Mine Profile

Mine Name	Bissa
Operator:	Nordgold
Yearly Gold Production (2017)	195,000oz
P&P Reserves	1.97 million oz
Mining method	Open pit

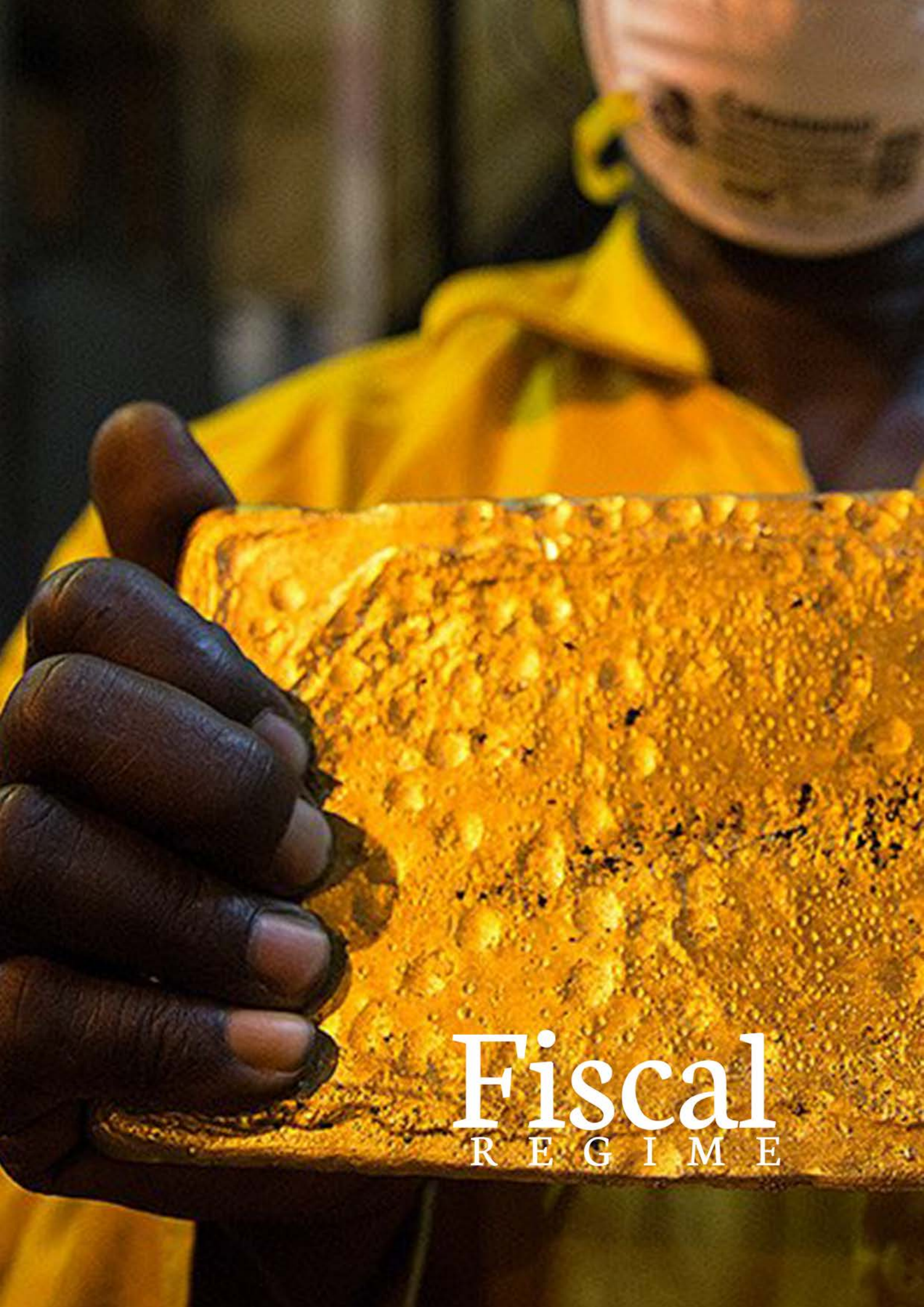
• Main Development Projects

- Bougou - SAMAF0
- Houndé - Endavour - Produced 68,000 oz starting in October 2017.
- Bandfora - Teranga Gold Corp
- Sanbrado (formerly known as Tanlouka) - West African Resources
- Bomboré - Orezone Gold Corporation
- Kiaka - B2Gold

• Main Exploration Projects

Burkina Faso's exploration scene is very active. Companies with projects in the exploration phase include: Centamin Mining, Predictive Discovery, Golden Rim Resources, Sarama Resources and Nexus Gold. The most promising projects are:

- Kiaka with 4.6 Moz measured, indicated and inferred resources. It is owned and operated by a subsidiary of Volta Resources, Kiaka Gold
- Konkera hosting a 3.2 Moz indicated and inferred resource, owed by Centamin
- South Houndé, Karankasso and Bondi projects owned by Sarama Resources ^[D].



Fiscal

R E G I M E

• Fiscal Regime

The fiscal regime that applies in Burkina Faso to the gold mining industry consists of a combination of:

- Corporate income tax (BIC)
- Value added tax (VAT)
- Royalties and taxes on mining activities (e.g., flat fees and surface fees).

Corporate Income tax for mining companies in Burkina Faso is 17.5% . Profits realized in Burkina Faso by branches of foreign companies are also subject to a branch withholding tax of 12.5% , which applies to 75% of the taxable profits^[52].

The VAT rate is 18% internally^[50].

Mining licence holders are also liable for royalties which are between 3 and 5% of the gross revenue, depending on the market price fixed by the London Metal Exchange:

- 3 per cent if the gold price is less than US\$1,000
- 4 per cent if the gold price is between US\$1,000 and US\$1,300 and
- 5 per cent if the gold price exceeds US\$1,300 [51].

Title holders are also liable for paying surface tax, which is based on the occupied land area and the duration of the title or authorisation. For large scale gold mines, the rates are as follow:

- Five initial years, CFA 7,500,000/square kilometre per year;
- Six to 10 years, CFA 10,000,000/square kilometre per year; and
- From the 11th year, CFA 15,000,000/square kilometre per year^[51].

• State participation

The Mining Code provides that the state shall be granted a 10% free equity participation in the company holding an exploitation licence^[51].

• Tax Advantages

Mining title holders are exempted during the exploration phase from paying VAT on importation and acquisition of goods required to carry out the geological or mining activities except for certain goods. Mining title holders also benefit from an exemption on: Industrial, business, agricultural profit or corporate tax;

- Minimum flat-rate perception tax;
- Contribution of business licensing tax;
- Tax instalments;
- Registration fees of capital increase.

These exemptions start from the date of the first commercial sale production.^[51]

• Mineral Licences

Mining permits are granted by the Council of Ministers after consultation with the Minister of Mines and the National Commission. Licenses are allocated on a 'first-come, first-serve' basis. no technical or financial criteria are considered for new license allocations. The acceptance of the applicants' dossiers is based on the administrative documents, provided for in the legislation, but not on the applicant's ability to make the expenses needed for the successful development of the mining site. Permit maps can be obtained without any restriction from the Bureau of Mines and Geology of Burkina Faso (BUMIGEB), on payment of fees depending on the data^[46].

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Senegal

West African Gold Mining Market Research

Overview

Senegal produces a modest, but growing, quantity of gold. In 2017, the production over 10,000 kg. This is 1,954 kg more compared to 2016, which was the result of an improved productivity in Kerekounda and Golouma West areas. Moreover, high grades of gold ore were discovered in Senegal's Kedougou (Kerekounda, Gora, Golouma South and West)^[53].

Largest Gold Mines

• Sabodala

Sabodala is a large-scale gold mine located about 650 km (404 miles) east of Dakar. First gold was poured in March 2009. In 2012, the mine expansion was completed to double its capacity from two to four million tons per annum. Currently, the mine comprises two deposits: namely Sabodala and Niakafiri, covering a total concession area of 20.2 km² (7.8 square miles). The mine is owned and operated by Sabodala Gold Operations (SGO), a Senegalese subsidiary owned by Teranga Gold Corporation based in Toronto, Canada, with the government of Senegal hold a 10% interest.

The mine's proven and probable reserves have been estimated at 2.7 Moz and the projected lifetime at 14 years. Between 2018 and 2022, Sabodala's gold production is expected to increase by 20% to more than 1 Moz and generate a total of \$230 million in free cash flow^[54,55].

Table 22. Sabodala Gold Mine Profile

Mine Name	Sabodala
Operator:	Teranga Gold Corporation
Yearly Gold Production (2017)	213,000 oz
P&P Reserves	2.7 million oz
Life of Mine (years)	14
Mining method	Open pit



• Mako

The Mako Gold Mine in eastern Senegal is operated by Toro Gold's 90% owned Senegalese subsidiary Petowal Mining Company SA. The remaining 10% is held by the Government of Senegal. The first gold was poured in January 2018, with the average annual production target of 137,000 per annum over first 6 years of production ^[55].

Table 23. Mako Gold Mine Profile ^[55]

Mine Name	Mako
Operator:	Toro Gold
Yearly Gold Production (2018)	137,000 oz (est)
P&P Resources	2.7 million oz
Mining method	Open pit

• Prospective Mining Projects

Randgold Resources, Massawa gold project is located within the Kanoumba permit in eastern Senegal and is nearing developmental phase.

IAMGold, a mid-tier Canadian miner is exploring as well. Its Boto Gold Project comprises 236 square kilometres and has an indicated resource of 1.6 million ounces ^[58].





Taxing

R E G I M E

Taxing Regime

The main taxes and fees imposed on companies operating in the mining sector include

- Corporate Income tax - the standard rate is 30%
- Value-Added Tax (VAT) - the standard rate is 18% ^[60]
- Royalties
- Salary withholding taxes on mining and quarrying

Table 24. Withholding taxes rates in Senegal ^[62]

	Residents	Non-residents
Dividends	10%	10%
Interests	16%	16%
Royalties	20%	20%
Technical service fees	20%	20%
Others (VAT)	18%	18%

• Surface royalties

The annual surface royalties payable by the title holders are:

- small mine permit is CFA 50,000 per hectare; and
- mining permit is CFA 250,000 per square kilometre.

• Mining Tax

The mining tax is payable quarterly, levied on the market value of the commercialised product as follows:

- Gold concentrate: 5%
- Gold processed abroad: 5%
- Gold locally processed: 3.5%

• Tax Advantages

During the period commencing on the grant of the mining title and ending on the date of first commercial production (Investment Period), a mining company is still exempt from all taxes and fees, including value-added tax and the COSEC port charge.

• Local development fund

Mining title holders must now contribute annually to a local development fund, levied at 0.5% of turnover less annual taxes.

• Corporate Income Tax

Branches and companies are liable for corporate income tax at the rate of 30% ^[63].

• Export Tax

The exemption from export tax has been removed by the recent Mining Code ^[61]

• State Participation

The state shall be granted a 10% free equity participation in the company holding an exploitation licence.

• Licensing

Mining licenses and oil and gas production-sharing contracts (PSCs) are awarded on a 'first come first served' basis. Mining licenses are awarded by the Directorate of Mines and Geology of the Ministry of Mines and Industry ^[59].

The type of mining titles available for mining activities are:

- Small mine permit - limited to an area of 500 hectares. A small mine permit has an initial term of five years. It is renewable for five years at a time without limit on the number of renewals. Small mine permit holders must commence mining within three months of the permit grant. The fee for the grant of a small mine permit is CFA 2,500,000

- Mining permit - no limitations on the scale of its operations. A mining permit is issued for an initial term of between 5-20 years. This initial term is renewable as many times as necessary until the resource is exhausted. mining permit holders must commence operations "as soon as possible" and, if operations have not commenced within one year from the date of the grant, the permit holder will be liable to penalties.

The permit may be revoked if the holder has not commenced work within 24 months.

Fee for a mining permit is CFA 10,000,000

Investors may also apply for a "semi-mechanised mining authorisation" for operations carried out on an area of less than 50 hectares ^[62].

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Niger

West African Gold Mining Market Research

Overview

Niger has a small commercial gold industry, but the exploration activity has increased since 2016 and there is a potential to see multiple producing mines in the next five years. The last available gold production numbers showed Niger to have produced 1,209 kg in 2015, up from 732 kg in 2014.

Commercially viable gold deposits are in Liptako and Tillaberi regions, near the border with Burkina Faso, and Djado about 700 km from Agadez and in Mount Ibl about 360 km from Agadez. Other potential gold rich areas include the Koma Bangou region and the Air Massif.

Largest Gold Mines

• The Samira Hill Gold Mine

Opened in 2014, the Samira Hill Gold Mine located in Tera district within the Tillabery region. It is the first commercial mine gold in Niger. It was primarily owned by SEMAFO (80%) and the government of Niger, In August 2013, mine operations were suspended and in December 2013, SEMAFO sold its interest in the Samira Hill to Societe Patrimoine des Mines du Niger SA (SOPAMIN). The production is presumed to stop in 2013^[64].

• Prospective Mining Projects

In December 9, 2016, Niger granted Endeavour Mining two mining permits, namely the Darguiti and Nassile, in Tillabéry. Through its subsidiary, Endeavour Niger, the company planned to invest \$2.5 million in each of the areas covered by the permits to search for gold and related substances. In Agadez, the firm received the “Tinkeradet 1” permit where it planned to invest a minimum of \$2 million over three first years of exploration^[67].

• Taxing Regime

The main taxes and fees imposed on companies operating in the mining sector include

- Corporate Income tax: the current rate is 30%^[68]
- Value-Added Tax (VAT) – the standard rate is 19%^[69]
- Withholding tax 10% (on 75% of the gross amount of the pre-tax profits)^[68] and
- Royalties – the basic rate of mining royalty is 5.5%^[70].

• Royalties

Mining royalties shall be calculated according to a specific formula and is between 5.5 – 12%^[70]

A = Mining products

B = Operating income C = B/A (%)

- 1) If C is lower than or equal to 20% , the mining royalty rate is 5,5% ;
- 2) If C is higher than 20% and lower than 50% , the mining royalty rate is 9% ;
- 3) If C is equal to 50% or above, the mining royalty rate is 12% [70].

• State Participation

Issuance by the State of a mining permit shall entitle the latter to free shares for property representing 10% of the capital [70].

• Licensing

- Exploration License - for surface and subsurface prospecting activities. The license is valid for a period of one year and are renewable for a period of one year.
- Prospecting Permit - the area of prospecting permit shall not exceed 2,000 km². Prospecting permits are valid for a period of three years. They may be renewed twice and for the period of three years.
- Mining Permit - Small scale mining permit is valid for a period of five years. These permits can be renewed three time for a period of up to five years. Large scale mining licences are valid for a period of twenty years. They may be renewed twice for a period of ten years each. Holders of small scale mining permits shall start deposit development and mining activities within the period of one year after the permit is issued. Holders of large scale mining permits have two years to start operations.

The Niger Mining Code defines 'small scale mining' as any permanent mine with a minimum of physical facilities and using industrial, or semi-industrial processed according to standard practices and following the discovery of a deposit [70].



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Ivory Coast

West African Gold Mining Market Research

Overview

For many years, gold mining sector in Ivory Coast experienced relative neglect, mainly due to government's preference for agricultural development. In 2014, the country's Mining Code was amended to attract foreign investment.

According to industry experts, the potential for gold mining is great, as Ivory Coast contains more than a third of a regional belt of gold-bearing rock known as the Birimian Greenstone, but produces only about 10 per cent of the belt's output^[72]. In 2017, the country gold production totalled 25.395 tonnes^[73].

Largest Gold Mines and Operators

There are five operating mines in Ivory Coast. The major operators are Endeavour Mining and Perseus Mining.

Table 25. Ivory Coast's Gold Mines

Mine Name	Operator
Ity	Endeavour Mining
Tongon	Randgold Resources
Agbaou	Endeavour Mining, SEDEMI
Sissingue	Perseus Mining
Bonikro	Amara Mining

• Ity

Ity Mine is located about 480 km northwest of Abidjan in southern Côte d'Ivoire. The first modern gold production started in 1991 and since then the mine produced over 1.2 million ounces of gold. On 2017, the production totalled 59,026 oz ^[74,75]

Table 26. Ity Gold Mine Profile

Mine Name	Ity
Operator:	Endeavour Mining (80%), Drogba Group (10%)
Yearly Gold Production (2017)	59,026 oz
Reserves	3 million oz
Life of Mine (years)	13
Mining method	Open pit



• Tongon

Tongon mine comprises two open pit operations and based on current reserves, has just over three years of life. In 2017, the mine produced 288,680 oz of gold ^[76].

Table 27. Tongon Gold Mine Profile

Mine Name	Tongon
Operator:	Randgold Resources
Yearly Gold Production (2017)	288,680 oz
Reserves	1.2 million oz
Mining method	Open pit

• Agbaou

Agbaou mine is situated about 200 km north of Abidjan. The mine started commercial production in January 2017. The production reached 177,191 oz at the end of 2017 ^[77].

Table 28. Agbaou Gold Mine Profile

Mine Name	Agbaou
Operator:	Endeavour Mining (80%), SODEMI (5%)
Yearly Gold Production (2017)	177,191 oz
Reserves	668,000 oz
Mining method	Open pit



• Sissingué

Gold production at Sissingué commenced in January 2018. Estimated life of mine gold production total of 358,000oz including approximately 80,000 oz per annum for the first 3.25 years of production and approximately 70,000 oz pa over the full five-year life of mine ^[78].

Table 29. Sissingué Gold Mine Profile

Mine Name	Sissingué
Operator:	Perseus Mining
Yearly Gold Production (2018)	80,000 oz
M&I Reserves	800,000 oz
Life of Mine	5 years
Mining method	Open pit

• Bonikro

Bonikro was purchased by the Forbes and Manhattan Group and the African Finance Corporation consortium from Newcrest. The mine produced 128,327 oz of gold in the 2017 financial year and is forecast to produce between 130,000 oz and 155,000 oz in the 2018 financial year ^[79, 80].



A large yellow mining truck is the central focus, positioned in a quarry. The truck is viewed from a low angle, showing its massive tires and the front of its body. In the background, there are several large, grey industrial buildings and a conveyor belt system. The sky is a hazy, brownish-orange color, suggesting a dusty or overcast environment. The overall scene is industrial and rugged.

MAIN

Development Projects

Main Development Projects

• Yaoure

The project is being developed by Perseus Mining. Definitive Feasibility Study was completed and released in November 2017. JORC-compliant Ore Reserve was estimate of 26.8Mt at 1.76g/t containing 1.52 million ounces of gold. Average annual production of 215,000 oz is projected for the first five years of operations, with average all in sustaining costs (AISC) of US\$734/oz^[81].

Main Exploration Projects

• Dabakala, Abengourou, Alepe - Red Rock Resources

Red Rock in cooperation with local companies (Nemex Resources CI SARRL and Barclay Resources CI SARRL) is exploring gold manganese across three licenses (Dabakala, Abengourou and Alepe) in eastern Ivory Coast^[82].

• Boundiali - Randgold Rock Resources

Drilling results on the Boundiali permit have identified a massive system of multiple mineralised shears meeting Randgold's investment criteria^[83].

• Prikro - Altus Strategies Plc

In 2018, Altus Strategies Plc via its 100% owned subsidiary Aeos Gold Ltd obtained an exploration licence in the Prikro and Koun-Fao Departments in eastern Ivory Coast. The Prikro project comprises a single exploration licence in the Prikro and Koun-Fao^[84].

• Toro Gold PDCI

has three large exploration permits directly and has an interest in a further four permits indirectly, as follows:

- Boundiali permit
- Ferkessedougou permit
- Kounahiri permit
- Kokoumbo permit (Joint Venture with Ivoir Négoce)
- Beriaboukro permit (Joint Venture with GIV)
- Ferkessedougou Nord permit (Joint Venture with GIV)
- Boundiali Nord Permit (Joint Venture with DSResources^[85]).



Taxing

REGIME

• Mahalé, Mbengué and Napié – Perseus Mining

• Tax Regime

The main taxes and fees imposed on companies operating in the mining sector include royalties, salary withholding tax, VAT and industrial and commercial profits tax.

Tax on industrial and commercial profits in Ivory Coast is levied at 25% ^[86].

Table 30. Resident Companies Tax Rates in Ivory Coast ^[87].

Tax	Rate
Corporation tax	25%
Capital gains	Part of business income
Dividends	2-15%
Interest	1-18%
Royalties	3-6%
Management fees	20%
Withholding tax (Local transactions)	7.5%
Tax on salaries for local employees	2.8%
Tax on salaries for expatriate employees	12%

• Royalties

The royalty rate for gold is 3% . This is an ad valorem tax is payable based on the company's turnover minus the refining and transport costs ^[88].

• VAT

VAT is levied only in respect of business activities that are carried on Ivory Coast territory at a standard rate of 18% ^[87].

• State Participation

Issuance by the State of a mining permit shall entitle the latter to free shares for property representing 10% of the capital. Additional participation to be negotiated but limited to 15% unless the State contributes to the exploration phase from the outset ^[88].

• Tax advantages and Incentives

Multiple tax exemptions exist including:

1. Exemption of payment of up to 50% of the registration fees for capital increase in a mining company
2. Exemption on import duties including VAT on import of materials, machinery and equipment for mining activities
3. Exemption of taxes on exportation of the mining products ^[89].

• Licences

Mining licences are awarded on a ‘first come first served’ basis ^[90]. There are different rights to apply for:

Exploration permit - Applicants for an exploration permit must meet specific technical and financial criteria. A minimum exploration budget of CFA1.6 million francs per square metres is also required for the first four years. A CFA 20 million francs minimum share capital is required. The exploration area cannot exceed 400 square kilometres. The permit is valid for four years and is renewable twice for the period of two years ^[91].

Exploitation permit - The mining convention is valid for 12 years, renewable for successive periods of a maximum of 10 years ^[9]. The time limit to start the development works is one year ^[91].

Table 31. Surface Royalties Tax Rates in Ivory Coast ^[88].

Exploration Permit	
Granting	CFA 1,000/km ² /year
1st Renewal	CFA 2,000/km ² /year
2nd Renewal	CFA 5,000/km ² /year
Exceptional Renewal	CFA 10,000/km ² /year
Exploitation Permit	
Granting	CFA 50,000/km ² /year
Renewal	CFA 50,000/km ² /year

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West African Mining Countries - Taxing Regime Comparison

	Ghana	Mali	Burkina Faso	Senegal	Niger	Ivory Coast
Corporate Tax Rate (%)	35	30	17.5	30	30	25
Mining Royalty Rate (%)	5	3	3-5	5	5.5	3
Govt. free carried (%)	10	10	10	10	10	10
VAT (%)	3/17.5	18	18	18	19	18





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