

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 6-K

**REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES EXCHANGE
ACT OF 1934**

For the month of February 2020

Commission File Number 001-12284

GOLDEN STAR RESOURCES LTD.

(Translation of registrant's name into English)

**150 King Street West
Suite 1200
Toronto, Ontario
M5H 1J9, Canada**

(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

Form 20-F Form 40-F

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): _____

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): _____

INCORPORATION BY REFERENCE

Exhibits 99.1 and 99.2 included in this report on Form 6-K are each hereby incorporated by reference in the Registration Statements on Form S-8 of the Registrant, as each may be amended from time to time (File Nos. 333-105820, 333-105821, 333-118958, 333-169047, 333-175542, 333-211926 and 333-218064), and Form F-10 of the Registrant, as may be amended from time to time (File No. 333-234005), to the extent not superseded by documents or reports subsequently filed by us under the Securities Act of 1933 or the Securities Exchange Act of 1934, in each case as amended.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

GOLDEN STAR RESOURCES LTD.

Date: February 18, 2020

(signed) André van Niekerk

André van Niekerk
Executive Vice President and Chief Financial Officer

EXHIBIT INDEX

Exhibit	Description of Furnished Exhibit
99.1	Management's Discussion and Analysis for the year ended December 31, 2019
99.2	Consolidated Financial Statements for the years ended December 31, 2019 and December 31, 2018
99.3	Consent of PricewaterhouseCoopers LLP

GOLDEN STAR

The logo for Golden Star, featuring a stylized eight-pointed star with a white center and gold points, positioned between the letters 'T' and 'R'.

Management's Discussion and Analysis

For the Year Ended December 31, 2019

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MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") provides information that management believes is relevant to an assessment and understanding of the consolidated financial condition and results of operations of Golden Star Resources Ltd. and its subsidiaries ("Golden Star" or "the Company" or "we" or "our"). This MD&A should be read in conjunction with the Company's consolidated financial statements and related notes for the year ended December 31, 2019, which are prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board. This MD&A includes information available to, and is dated, February 18, 2020. Unless noted otherwise, all currency amounts are stated in U.S. dollars and all financial information presented in this MD&A is prepared in accordance with IFRS.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

This MD&A contains "forward-looking information" within the meaning of applicable Canadian securities laws and "forward-looking statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995 concerning the business, operations and financial performance and condition of Golden Star. Generally, forward-looking information and statements can be identified by the use of forward-looking terminology such as "plans", "expects", "is expected", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates", "believes" or variations of such words and phrases (including negative or grammatical variations) or statements that certain actions, events or results "may", "could", "would", "might" or "will be taken", "occur" or "be achieved" or the negative connotation or grammatical variation thereof. Forward-looking information and statements in this MD&A include, but are not limited to, information or statements with respect to: gold production, cash operating costs, and all-in sustaining costs estimates and guidance for 2020 on a consolidated and per mine basis; the expected allocation of the Company's sources of production; sustaining and development capital expenditure estimates and guidance for 2020 on a consolidated and per mine basis; the Company's achievement of 2020 consolidated guidance; the expected range of consolidated gold production for 2020; expected grade and mining rates for 2020; expected management changes at the Company and its subsidiaries in the first half of 2020; the expected closing of the Company's Toronto office and relocation of the executive team in the first half of 2020; the anticipated effectiveness of the Hedging Program over the next 12 months; the accuracy of CSA Global's evaluation of outcomes of Phase 2 design and schedule review of Prestea Underground and its impact on the anticipated time frame to bring Prestea into a profitable operation and expected 2020 budget for capital expenditures; the implementation of Long Hole Open Stopping at Prestea and the timing thereof, as well as the impact on development productivity at Prestea; the implementation of the redesign of Alimak stopping from 21L - 24L at Prestea and the reduction of development dilution and improved dilution; the Company's debt servicing obligations for 2020; the ability of Wassa to offset losses at Prestea; the ability to improve the total grade endowment of the Father Brown/ADK project; the intended reduction of costs for the next twelve months; the timing for rehabilitation work and the expected discounted rehabilitation costs; identification of acquisition and growth opportunities; the ability of Prestea being a sustainably profitable mine in the future; the timing for an updated mine plan for Prestea; capital expenditures, including the quantum of those expenditures that are discretionary; and the Company having sufficient cash available to support its operations and mandatory expenditures for the next twelve months.

Forward-looking information and statements are made based upon certain assumptions and other important factors that, if untrue, could cause the actual results, performance or achievements of Golden Star to be materially different from future results, performance or achievements expressed or implied by such statements. Such statements and information are based on numerous assumptions regarding present and future business strategies and the environment in which Golden Star will operate in the future, including the price of gold, anticipated costs and ability to achieve goals. Certain important factors that could cause actual results, performances or achievements to differ materially from those set forth in the forward-looking information and statements include, among others, gold price volatility, discrepancies between actual and estimated production, mineral reserves and resources and metallurgical recoveries, mining operational and development risks, litigation risks, liquidity risks, suppliers suspending or denying delivery of products or services, regulatory restrictions (including environmental regulatory restrictions and liability), actions by governmental authorities (including changes in taxation), currency fluctuations, the speculative nature of gold exploration, the global economic climate, dilution, share price volatility, the availability of capital on reasonable terms or at all, local and community impacts and issues, results of pending or future feasibility studies, competition, loss of key employees, additional funding requirements and defective title to mineral claims or property. Although Golden Star has attempted to identify important factors that could cause actual results, performance or achievements to differ materially from those described in forward-looking information and statements, there may be other factors that cause actual results, performance or achievements not to be as anticipated, estimated or intended.

Forward-looking information and statements are subject to known and unknown risks, uncertainties and other important factors that may cause the actual results, performance or achievements of Golden Star to be materially different from those expressed or implied by such forward-looking information and statements, including but not limited to: risks related to international operations, including economic and political instability in foreign jurisdictions in which Golden Star operates; risks related to current global financial conditions; actual results of current exploration activities; environmental risks; future prices of gold; possible variations

in mineral reserves and mineral resources, grade or recovery rates; mine development and operating risks; an inability to obtain power for operations on favourable terms or at all; mining plant or equipment breakdowns or failures; an inability to obtain products or services for operations or mine development from vendors and suppliers on reasonable terms, including pricing, or at all; accidents, labor disputes and other risks of the mining industry; delays in obtaining governmental approvals or financing or in the completion of development or construction activities; risks related to indebtedness and the service of such indebtedness, as well as those factors discussed in the section entitled “Risk Factors” in Golden Star's Annual Information Form for the year ended December 31, 2018 (filed on March 29, 2019). Although Golden Star has attempted to identify important factors that could cause actual results, performances and achievements to differ materially from those contained in forward-looking information and statements, there may be other factors that cause results, performance and achievements not to be as anticipated, estimated or intended. There can be no assurance that such statements will prove to be accurate, as actual results, performance, and achievements and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking information and statements. Forward-looking information and statements are made as of the date hereof and accordingly are subject to change after such date. Except as otherwise indicated by Golden Star, these statements do not reflect the potential impact of any non-recurring or other special items or of any dispositions, monetizations, mergers, acquisitions, other business combinations or other transactions that may be announced or that may occur after the date hereof. Forward-looking information and statements are provided for the purpose of providing information about management's current expectations and plans and allowing investors and others to get a better understanding of the Company's operating environment. Golden Star does not undertake to update any forward-looking information and statements that are included in this MD&A, except as required by applicable securities laws.

CAUTIONARY NOTE REGARDING RESERVES AND RESOURCES

Scientific and technical information contained in this MD&A was reviewed and approved by S. Mitchel Wasel, BSc Geology, who is a Qualified Person pursuant to National Instrument 43-101 (“NI 43-101”). Mr. Wasel is Vice President Exploration for Golden Star and an active member of the Australasian Institute of Mining and Metallurgy. All mineral reserves and mineral resources have been calculated in accordance with the standards of the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) and in compliance with the requirements of NI 43-101. All mineral resources are reported inclusive of mineral reserves. Mineral resources which are not mineral reserves do not have demonstrated economic viability. Information on data verification performed on, and other scientific and technical information relating to, the mineral properties mentioned in this MD&A that are considered to be material mineral properties of the Company are contained in Golden Star's Annual Information Form for the year ended December 31, 2018 and the following current technical reports for those properties available at www.sedar.com: (i) Wassa - “NI 43-101 Technical Report on Resources and Reserves, Golden Star Resources, Wassa Gold Mine, Ghana” effective date December 31, 2018; and (ii) Prestea Underground - “NI 43-101 Technical Report on Resources and Reserves, Golden Star Resources, Bogoso/Prestea Gold Mine, Ghana” effective date December 31, 2017.

Cautionary Note to U.S. Investors

This MD&A has been prepared in accordance with the requirements of the securities laws in effect in Canada, which differ materially from the requirements of United States securities laws applicable to U.S. companies. Information concerning our mineral properties has been prepared in accordance with the requirements of Canadian securities laws, which differ in material respects from the requirements of the United States Securities and Exchange Commission (the “SEC”) set forth in Industry Guide 7. Under the SEC's Industry Guide 7, mineralization may not be classified as a “reserve” unless the determination has been made that the mineralization could be economically and legally produced or extracted at the time of the reserve determination, and the SEC does not recognize the reporting of mineral deposits which do not meet the SEC Industry Guide 7 definition of “Reserve”. In accordance with NI 43-101, the terms “mineral reserve”, “proven mineral reserve”, “probable mineral reserve”, “mineral resource”, “measured mineral resource”, “indicated mineral resource” and “inferred mineral resource” are defined in accordance with CIM standards. While the terms “mineral resource”, “measured mineral resource”, “indicated mineral resource” and “inferred mineral resource” are recognized and required by NI 43-101, the SEC does not recognize them. You are cautioned that, except for that portion of mineral resources classified as mineral reserves, mineral resources do not have demonstrated economic viability. Inferred mineral resources have a high degree of uncertainty as to their existence and as to whether they can be economically or legally mined. It cannot be assumed that all or any part of an inferred mineral resource will ever be upgraded to a higher category. Therefore, you are cautioned not to assume that all or any part of an inferred mineral resource exists, that it can be economically or legally mined, or that it will ever be upgraded to a higher category. Likewise, you are cautioned not to assume that all or any part of measured mineral resources or indicated mineral resources will ever be upgraded into mineral reserves.

OVERVIEW OF GOLDEN STAR

Golden Star is an established, African-focused gold producer that holds a 90% interest in two producing gold mines in Ghana.

The Wassa Complex (“Wassa”) became an underground-only operation in January 2017. The Prestea Complex (“Prestea”) comprises the Prestea Open Pits and the Prestea Underground Mine (“Prestea Underground”) and is planned to become an underground-only operation. The Wassa Underground Mine (“Wassa Underground”) achieved commercial production on January 1, 2017, and Prestea Underground achieved commercial production on February 1, 2018.

Golden Star’s objective is to grow into a best-in-class, mid-tier gold producer. We aim to expand the Company and its production profile through the exploration and development of our existing mines, particularly Wassa, and through strategic value accretive acquisitions.

As the winner of the Prospectors & Developers Association of Canada’s 2018 Environmental and Social Responsibility Award, we are committed to leaving a positive and sustainable legacy in the locations where we operate.

The Company is a reporting issuer or the equivalent in all provinces of Canada, in Ghana and in the United States, and files disclosure documents with securities regulatory authorities in Canada and Ghana, and with the SEC in the United States.

SUMMARY OF OPERATING AND FINANCIAL RESULTS

OPERATING SUMMARY		Three Months Ended December 31,		For the Years Ended December 31,	
		2019	2018	2019	2018
Wassa gold sold	oz	41,890	37,171	156,489	149,568
Prestea gold sold	oz	11,523	11,230	47,700	75,411
Total gold sold	oz	53,413	48,401	204,189	224,979
Wassa gold produced	oz	41,335	37,562	156,166	149,697
Prestea gold produced	oz	11,336	11,284	47,603	75,087
Total gold produced	oz	52,671	48,846	203,769	224,784
Average realized gold price ¹	\$/oz	1,410	1,185	1,342	1,225
Cost of sales per ounce - Consolidated ²	\$/oz	1,080	1,351	1,055	1,156
Cost of sales per ounce - Wassa ²	\$/oz	799	836	813	898
Cost of sales per ounce - Prestea ²	\$/oz	2,101	3,054	1,848	1,681
Cash operating cost per ounce - Consolidated ²	\$/oz	831	905	832	847
Cash operating cost per ounce - Wassa ²	\$/oz	615	614	633	629
Cash operating cost per ounce - Prestea ²	\$/oz	1,616	1,867	1,484	1,292
All-in sustaining cost per ounce - Consolidated ²	\$/oz	1,227	1,218	1,159	1,107
All-in sustaining cost per ounce - Wassa ²	\$/oz	959	933	922	886
All-in sustaining cost per ounce - Prestea ²	\$/oz	2,202	2,164	1,937	1,558

¹ Average realized gold price per ounce in the year ended December 31, 2018 excludes 2,049 pre-commercial production ounces sold at Prestea Underground in January 2018. Average realized gold price per ounce for the three months and year ended December 31, 2019 excludes a \$9.3 million non-cash cumulative adjustment to revenue related to the Streaming Agreement. See Revenue discussion under Corporate Developments for an explanation of the non-cash cumulative adjustment.

² See “Non-GAAP Financial Measures” section for a reconciliation of cost of sales per ounce, cash operating cost per ounce and all-in sustaining cost per ounce to cost of sales excluding depreciation and amortization.

FINANCIAL SUMMARY		Three Months Ended December 31,		For the Years Ended December 31,	
		2019	2018 ³	2019	2018 ³
Gold revenues	\$'000	66,061	57,339	264,737	273,017
Cost of sales excluding depreciation and amortization	\$'000	49,232	57,565	186,340	223,729
Depreciation and amortization	\$'000	8,464	7,824	29,054	33,939
Mine operating margin/(loss)	\$'000	8,365	(8,050)	49,343	15,349
General and administrative expense	\$'000	4,029	2,244	19,091	16,428
Loss/(gain) on fair value of financial instruments, net	\$'000	2,986	(3,274)	1,642	(6,786)
Impairment charges	\$'000	56,762	—	56,762	—
Income tax expense	\$'000	9,715	1,525	27,439	12,350
Net loss attributable to Golden Star shareholders	\$'000	(62,434)	(9,318)	(67,434)	(18,123)
Adjusted net income/(loss) attributable to Golden Star shareholders ¹	\$'000	5,975	(5,211)	17,910	(1,916)
Loss per share attributable to Golden Star shareholders - basic	\$/share	(0.57)	(0.09)	(0.62)	(0.21)
Loss per share attributable to Golden Star shareholders - diluted	\$/share	(0.57)	(0.09)	(0.62)	(0.21)
Adjusted income/(loss) per share attributable to Golden Star shareholders - basic ¹	\$/share	0.05	(0.05)	0.16	(0.02)
Cash provided by/(used in) operations	\$'000	13,111	(24,676)	22,841	(7,555)
Cash provided by/(used in) operations before working capital changes ²	\$'000	9,432	(9,416)	36,829	9,617
Cash provided by/(used in) operations per share - basic	\$/share	0.12	(0.23)	0.21	(0.09)
Cash provided by/(used in) operations before working capital changes per share - basic ²	\$/share	0.09	(0.09)	0.34	0.11
Capital expenditures	\$'000	26,296	15,280	73,381	46,834

¹ See “Non-GAAP Financial Measures” section for a reconciliation of adjusted net income/(loss) attributable to Golden Star shareholders and adjusted income/(loss) per share attributable to Golden Star shareholders-basic to net loss attributable to Golden Star shareholders.

² See “Non-GAAP Financial Measures” section for an explanation of the calculation of cash provided by/(used in) operations before working capital changes and cash provided by/(used in) operations before working capital changes per share - basic.

³ Per share data has been re-stated to reflect the share consolidation that was implemented on October 30, 2018.

- **Gold revenue totaled \$66.1 million in the fourth quarter of 2019, \$8.7 million higher than \$57.3 million in the same period in 2018.** The \$8.7 million increase consists of a \$18.0 million increase due to a 19% increase in the consolidated average realized gold price and a 10% increase in gold sold, offset by a \$9.3 million non-cash cumulative adjustment to revenue related to the Streaming Agreement. See Revenue discussion under Corporate Developments for an explanation of the non-cash cumulative adjustment. Excluding the \$9.3 million non-cash adjustment, gold revenue generated from Prestea increased 22% mainly due to a 19% increase in average realized gold price as gold sold was consistent with the same period in 2018. Gold revenue generated from Wassa increased by 34% due to a 19% increase in average realized gold price and a 13% increase in gold sold as a result of a 15% increase in underground gold sold as compared to the prior year. For the year ended December 31, 2019, gold revenue was \$264.7 million, \$8.3 million lower than \$273.0 million in 2018. The \$8.3 million decrease was mainly due to a \$9.3 million non-cash adjustment to deferred revenue recognized due to a remeasurement of the accounting for the Streaming Agreement related to prior periods, offset by a \$1.0 million increase due primarily to increased gold production from Wassa Underground, offset by a decrease in gold revenue at Prestea. Excluding the \$9.3 million non-cash adjustment, gold revenue totaled \$274.0 million, a slight increase compared to \$273.0 million in 2018.
- **Gold sales totaled 53,413 ounces in the fourth quarter of 2019, compared to 48,401 ounces sold in the same period in 2018.** Prestea gold sales of 11,523 ounces in the fourth quarter of 2019 were 3% higher than the same period in 2018. Wassa gold sales of 41,890 ounces in the fourth quarter of 2019 were 13% higher than the same period in 2018 as a result of a 13% increase in underground ore processed. For the year ended December 31, 2019, gold sales of 204,189 ounces were 9% lower than the 224,979 ounces sold in 2018 due to a decrease in production at Prestea as a result of the planned reduction from the Prestea Open Pits and lower than planned head grade at Prestea Underground due to a combination of excessive dilution and ore loss. This was offset by a slight increase in production at Wassa which was primarily due to an increase in Wassa Underground tonnes mined and processed.
- **Cost of sales excluding depreciation and amortization in the fourth quarter of 2019 totaled \$49.2 million compared to \$57.6 million in the same period in 2018.** Cost of sales excluding depreciation and amortization in the fourth quarter of 2019

decreased 14% compared to the same period in 2018 mainly due to a \$9.9 million decrease in severance charges. Severance charges of \$9.9 million in the same period in 2018 related to the Prestea improvement plan which included right-sizing the workforce at Prestea and optimizing the management and supervisory structure. Operating costs to metals inventory expense decreased \$1.1 million as Wassa drew down less on ore stockpiles during the period. Mine operating expenses increased \$1.7 million mainly due to higher costs associated with increased mining rates at Wassa Underground, offset by reduced production from the Prestea Open Pits. Royalty expense increased \$1.6 million due to higher gold revenue in the period as a result of a higher average realized gold price. For the year ended December 31, 2019, cost of sales excluding depreciation and amortization was \$186.3 million, a 17% decrease compared to \$223.7 million in the same period in 2018. The decrease is mainly due to a \$14.5 million decrease in severance charges as a result of the Prestea improvement plan in the prior year, a \$13.2 million decrease in operating costs from metal inventory, a \$17.7 million decrease in mine operating costs at Prestea as production decreased compared to the same period in 2018, and a \$4.4 million decrease in inventory net realizable value adjustments and write-offs primarily as a result of the materials and supplies inventories written off at Wassa in the prior period related to open pit mining.

- **Consolidated cost of sales per ounce was \$1,080 in the fourth quarter of 2019, 20% lower than \$1,351 in the same period in 2018. Consolidated cash operating cost per ounce was \$831 in the fourth quarter of 2019, 8% lower than \$905 in the same period in 2018.** Cash operating cost per ounce at Wassa in the fourth quarter of 2019 was \$615 per ounce consistent with \$614 per ounce in the same period in 2018 even though gold sold was higher compared to the same period in 2018 and mine operating expense increased due to an increase in total tonnes mined, as Wassa Underground has steadily increased its mining rates. Cash operating cost per ounce at Prestea decreased 13% from \$1,867 per ounce in the fourth quarter of 2018 to \$1,616 per ounce in the fourth quarter of 2019 due mainly to a decrease in mine operating expenses. Production rates at Prestea Underground continue to be lower than expected and have not been able to offset the lower production at the Prestea Open Pits as planned. For the year ended December 31, 2019, consolidated cash operating cost per ounce of \$832 decreased 8% from \$847 per ounce in 2018.
- **Depreciation and amortization expense totaled \$8.5 million in the fourth quarter of 2019 compared to \$7.8 million in the same period in 2018.** For the year ended December 31, 2019, depreciation and amortization expense was \$29.1 million, a 14% decrease from the \$33.9 million in 2018. The decrease in depreciation and amortization expense for the year ended December 31, 2019 was mainly due to a decrease at Wassa as a result of an increase in the total recoverable gold ounces over the life of mine of Wassa Underground.
- **General and administrative expense totaled \$4.0 million in the fourth quarter of 2019, compared to \$2.2 million in the same period in 2018.** The increase in general and administrative expense for the fourth quarter of 2019 was due primarily to an increase in share-based compensation expense compared to the same period in 2018. General and administrative expense, excluding share-based compensation totaled \$3.5 million compared to \$3.7 million in the same period in 2018. For the year ended December 31, 2019, general and administrative expense totaled \$19.1 million compared to \$16.4 million in the same period in 2018. The increase relates primarily to a \$1.8 million increase in share-based compensation expense compared to 2018.
- **Finance expense totaled \$2.8 million before a non-cash cumulative adjustment of \$6.2 million to interest on the financing component of deferred revenue related to the Streaming Agreement (\$3.4 million recovery after the adjustment) in the fourth quarter of 2019, compared to \$3.8 million in the same period in 2018.** See Revenue discussion under Corporate Developments for an explanation of the non-cash cumulative adjustment. Excluding the adjustment, finance expense decreased for the fourth quarter of 2019 compared to the same period in 2018. The decrease was due primarily to a \$0.4 million decrease in Ecobank loan interest and a \$1.8 million decrease in interest and accretion related to the Vendor Agreement (as defined below), as the Credit Facility proceeds were used to repay the Ecobank loans and Vendor Agreement. This decrease was partially offset by \$0.8 million of interest expense on the Credit Facility. For the three months ended December 31, 2019 a total of \$0.7 million in interest payments were made, compared to \$1.1 million in the same period in 2018. For the year ended December 31, 2019, finance expense totaled \$13.8 million before the adjustment to interest on the financing component of deferred revenue related to prior periods (\$7.6 million after the adjustment) compared to \$18.1 million in the same period in 2018. Excluding the adjustment, the decrease was mainly due to a \$2.0 million decrease in Royal Gold loan interest and amortization of Royal Gold loan financing fee as the loan was fully paid in the prior year, and a \$1.9 million decrease in interest and accretion related to the Vendor Agreement. For the year ended December 31, 2019, a total of \$7.1 million in interest payments were made, compared to \$7.9 million in 2018.
- **The Company recorded a loss of \$3.0 million on fair value of financial instruments in the fourth quarter of 2019 compared to a \$3.3 million gain in the same period in 2018.** The \$3.0 million loss consists of \$2.5 million related to a non-cash revaluation loss on the embedded derivative liability of the 7% Convertible Debentures and \$0.5 million related to a non-cash revaluation loss on the non-hedge derivative asset. The \$3.3 million fair value gain recognized in the fourth quarter of 2018 was related to a non-cash revaluation gain on the embedded derivative liability of the 7% Convertible Debentures. For the year ended December 31, 2019, the Company recorded a \$1.6 million loss on fair value of financial instruments,

compared to a \$6.8 million gain in the same period in 2018. The \$1.6 million loss consists of \$1.4 million related to a non-cash revaluation loss on the embedded derivative liability of the 7% Convertible Debentures and \$0.2 million related to a non-cash revaluation loss on the non-hedge derivative asset. The \$6.8 million gain in the same period in 2018 related to a non-cash revaluation gain on the embedded derivative liability of the 7% Convertible Debentures. The valuation techniques used for these financial instruments are disclosed in the “Financial Instruments” section of this MD&A.

- **Income tax expense was \$9.7 million in the fourth quarter of 2019 compared to \$1.5 million for the same period in 2018.** For the year ended December 31, 2019, income tax expense was \$27.4 million, compared to \$12.4 million in 2018. The increase in income tax expense for the quarter and year ended December 31, 2019 compared to the same periods in 2018 relates to the increase in mine operating margin at Wassa.
- **Other expense totaled \$7.0 million in the fourth quarter of 2019, compared to other income of \$1.5 million for the same period in 2018.** The \$8.4 million increase is primarily due to \$3.2 million of termination costs related to the relocation of the corporate office and changes in senior management in 2019 and \$4.7 million in mineral rights fees. The mineral rights fees relate to an assessment made by the Minerals Commission in Ghana for the years 2012 to 2018 for mineral rights fees due under the Minerals and Mining Regulations of 2012 not previously assessed. For the year ended December 31, 2019, other expenses totaled \$11.6 million compared to income of \$3.6 million in 2018. The \$15.2 million increase is mainly due to \$7.2 million of termination costs related to the relocation of the corporate office and changes in senior management in 2019, \$4.7 million in mineral rights fees, and a decrease in non-cash gain on the reduction of asset retirement obligations which created other income of \$3.1 million in 2018. The majority of the relocation and termination costs were accrued during the year ended December 31, 2019, therefore the Company expects lower charges to be incurred in 2020.
- **Net loss attributable to Golden Star shareholders for the fourth quarter of 2019 totaled \$62.4 million or \$0.57 loss per share (basic), compared to a net loss of \$9.3 million or \$0.09 loss per share (basic) in the same period in 2018.** The increase in net loss and loss per share attributable to Golden Star shareholders in the fourth quarter of 2019 was mainly due to a \$56.8 million increase in impairment charges, a \$8.2 million increase in income taxes, and a \$1.8 million increase in general and administrative expenses, offset by a \$16.4 million increase in mine operating margin. For the year ended December 31, 2019, net loss attributable to Golden Star shareholders totaled \$67.4 million or \$0.62 loss per share (basic), compared to a net loss of \$18.1 million or \$0.21 loss per share (basic) in the same period in 2018. The increase in loss is mainly due to a \$56.8 million increase in impairment charges, a \$15.1 million increase in income tax expense, a \$2.7 million increase in general and administration expenses, a \$15.2 million increase in other expense, offset by a \$34.0 million increase in mine operating margin. In the fourth quarter of 2019, the Company completed its annual budgeting process. Management observed a decrease in the Prestea mine’s cash flow reflecting adjustments to key mine planning, cost and working capital assumptions following the conclusion of the independent review of the underground operations at Prestea which resulted in a trigger for an impairment test, resulting in an impairment charge of \$56.8 million to the consolidated statement of operations and comprehensive loss and a reduction in the carrying value of Prestea’s assets.
- **Adjusted net income attributable to Golden Star shareholders (see “Non-GAAP Financial Measures” section) was \$6.0 million in the fourth quarter of 2019, compared to adjusted net loss attributable to Golden Star shareholders of \$5.2 million for the same period in 2018.** The increase in adjusted net income attributable to Golden Star shareholders for the fourth quarter of 2019 compared to the same period in 2018 was primarily due to a \$16.4 million increase in mine operating margin, offset by a \$8.4 million increase in other expense compared to the same period in 2018. For the year ended December 31, 2019, the adjusted net income attributable to Golden Star shareholders was \$17.9 million compared to \$1.9 million net loss for the same period in 2018. The increase in adjusted net income attributable to Golden Star shareholders was mainly due to a \$34.0 million increase in mine operating margin and decrease in finance expense, offset by an increase in general and administrative expenses (excluding share-based compensation), and \$15.2 million increase in other expense.
- **Cash provided by operations before working capital changes (see “Non-GAAP Financial Measures” section) was \$9.4 million for the fourth quarter of 2019, compared to \$9.4 million used in the same period in 2018.** The increase in cash provided by operations before working capital changes was due primarily to a \$16.4 million increase in mine operating margin. For the year ended December 31, 2019, cash provided by operations before working capital changes was \$36.8 million compared to \$9.6 million in the same period in 2018. The increase was primarily due to a \$34.0 million increase in mine operating margin, partially offset by an increase in consolidated general and administrative expense (excluding share-based compensation).
- **Capital expenditures for the fourth quarter of 2019 totaled \$26.3 million compared to \$15.3 million in the same period in 2018.** Capital expenditures at Wassa during the fourth quarter of 2019 comprised 83% of total capital expenditures and totaled \$21.7 million, which included \$5.4 million on the paste-fill plant, \$4.1 million on Wassa Underground capitalized development, \$4.4 million on mobile equipment, \$2.3 million on electrical upgrades, \$1.1 million on the pumping station, \$0.4 million on exploration drilling, \$0.3 million on the construction of a ventilation raise, \$0.4 million related to the tailings storage facility, and the remainder on other equipment and capital expenditures. Capital expenditures at Prestea during the

fourth quarter of 2019 comprised 17% of total capital expenditures and totaled \$4.4 million, which included \$3.7 million on sustaining capital related to Prestea Underground, and \$0.3 million on other equipment and capital expenditures.

OUTLOOK FOR 2020

Production and cost guidance

	Gold production	Cash operating costs	All-in sustaining costs
	thousands of ounces	\$ per ounce	\$ per ounce
Wassa	155 - 165	620 - 660	930 - 990
Prestea	40 - 45	1,400 - 1,550	1,650 - 1,850
Consolidated	195 - 210	790 - 850	1,080 - 1,180

Capital expenditure guidance

	Sustaining	Development	Total
	\$ millions	\$ millions	\$ millions
Wassa	23.0 - 25.0	19.0 - 21.0	42.0 - 46.0
Prestea	6.5 - 7.5	2.5 - 3.0	9.0 - 10.5
Exploration	—	3.5	3.5
Consolidated	29.5 - 32.5	25.0 - 27.5	54.5 - 60.0

CORPORATE DEVELOPMENTS

Impairment Charges

In the fourth quarter of 2019, the Company completed its annual budgeting process. Management observed a decrease in the Prestea mine's cash flow reflecting adjustments to key mine planning, cost and working capital assumptions following the conclusion of the independent review of the underground operations at Prestea which resulted in a trigger for an impairment test.

The recoverable amount of the Prestea CGU of \$nil was determined based on a discounted cash flow analysis of an indicative life of mine model. This life of mine model is management's best estimate of the recoverable amount of Prestea's assets at December 31, 2019.

The impairment test concluded that the recoverable amount of the Prestea CGU using a Value In Use model was lower than its carrying value as at December 31, 2019. This resulted in an impairment charge of \$56.8 million to the consolidated statement of operations and comprehensive loss and a reduction in the carrying value of Prestea's assets.

Key Assumptions:

The key assumptions used in determining the recoverable amount of the Prestea CGU include gold price, discount rate and life of mine.

	2019 Test
Assumptions	
Gold Price per oz - short term	\$1,435 - \$1,500
Gold Price per oz - long term	\$1,400
Discount Rate	7%
Life of Mine (years)	7

Changes in gold price and the discount rate assumptions can have a material impact on the recoverable value of each CGU. A significant change in gold prices will result in a reassessment of our life of mine plans, including the determination of reserves and resources which will impact on the recoverable amount of the CGUs.

The Company ran sensitivities at Prestea assuming a +/- \$100/oz price for gold as well as a +/- 1% change in the discount rate using the existing discounted cash flow model. Management concluded that an increase of \$100/oz over the life of the mine would

reduce the impairment charge to \$30.0 million. None of the other changes would have had a material impact on the impairment charge.

Gold Price - Management estimated gold prices by considering the average of the most recent market commodity price forecasts from a number of recognized financial analysts.

Discount rate - A pre-tax discount rate was based on the Company's estimated weighted average cost of capital.

Life of Mine - The life of mine was estimated using management's latest information including Prestea's latest reserves and resources estimates as well as information gathered from the independent operational review.

Revenue

Spot gold prices were \$1,515 per ounce at December 31, 2019, up from \$1,282 per ounce at December 31, 2018. Excluding the \$9.3 million non-cash cumulative adjustment to revenue related to the Streaming Agreement, the Company realized an average gold price of \$1,342 per ounce for gold sales during 2019, compared to an average realized gold price of \$1,225 per ounce in 2018. The spot gold price on February 17, 2020 was \$1,581 per ounce.

As the Company's Streaming Agreement contains a variable component, each time there is a significant change in the underlying total expected gold production of the Company's mines a cumulative catch-up adjustment to revenue is required. In 2019, the Company realized an adjustment to revenue and finance costs due to an increase in the Company's resource and reserve estimates related primarily to the Wassa mine. The result of the adjustment was to reduce revenue by \$9.3 million, reduce finance expense by \$6.2 million and increase deferred revenue by \$3.1 million.

Excluding the \$9.3 million non-cash cumulative adjustment, revenue from spot sales during the year ended December 31, 2019 resulted in an average realized gold price of 1,396 per ounce whereas revenue recognized from the gold purchase and sale agreement (the "Streaming Agreement") with RGLD Gold AG, a wholly-owned subsidiary of Royal Gold Inc., resulted in an average realized gold price of \$891 per ounce.

	For the Years Ended December 31, 2019		
	\$'000	Ounces	Realized price per ounce
Revenue - Stream arrangement			
Cash proceeds	\$ 6,027		
Deferred revenue recognized before cumulative catch-up adjustment	13,334		
	\$ 19,361	21,720	\$ 891
Revenue - Spot sales	254,638	182,469	1,396
Total	273,999	204,189	\$ 1,342

Changes to Executive Team and Relocation of Corporate Office

Andrew Wray was appointed President and Chief Executive Officer effective May 1, 2019, following Sam Coetzer's departure on April 30, 2019. Over the subsequent months, other changes were made:

- Graham Crew was appointed Executive Vice President and Chief Operating Officer effective July 8, 2019;
- Daniel Owiredu, the Company's Chief Operating Officer to July 7, 2019, served as the Company's President from July 8 to December 31, 2019 and, effective January 1, 2020, became Chairman of the Board of Directors of Golden Star (Wassa) Ltd. and of Golden Star (Bogoso/Prestea) Ltd.;
- Nathalie Lion Haddad, Executive Vice President, Head of People, joined Golden Star on September 16, 2019;
- Martin Raffield, formerly the Company's Executive Vice President, Chief Technical Officer, left the Company effective September 30, 2019;
- Peter Spora was appointed Executive Vice President, Growth & Discovery effective November 1, 2019;
- Philipa Varris, who had previously served as the Company's Vice President, Corporate Responsibility in Ghana, was appointed Executive Vice President, Head of Sustainability of Golden Star effective January 1, 2020; and
- Paul Thomson joined Golden Star on January 27, 2020 and was appointed Executive Vice President, Chief Financial Officer, following the transition of the Chief Financial Officer responsibilities from André van Niekerk.

As announced on October 22, 2019, the Company will be relocating its corporate office to London, England.

\$60 Million Secured Credit Facility

On October 17, 2019, the Company closed the \$60 million senior secured credit facility with Macquarie Bank Limited (the "Credit Facility") previously announced on July 31, 2019.

Golden Star used the proceeds to repay the Ecobank Loan III, Ecobank Loan IV, and the long-term payable under the Vendor Agreement with Volta River Authority (the "Vendor Agreement"). The remaining balance is available for general corporate purposes.

The Credit Facility is repayable in equal quarterly installments of \$5 million of principal, commencing on June 30, 2020. The final maturity date of the Credit Facility is March 31, 2023. The interest rate is 4.5% plus the applicable USD LIBOR rate. The Credit Facility is subject to normal course financial covenants including a Debt Service Coverage Ratio of greater than 1.20:1 and a Net Debt to EBITDA ratio of less than 3.00:1.

Consent to La Mancha to Acquire Additional Shares

On September 10, 2019, the Company announced that La Mancha Holding S.à.r.l. ("La Mancha") had requested its consent to La Mancha acquiring up to an additional 5% of the issued and outstanding common shares of the Company through ordinary market or block trade purchases.

The Investor Rights Agreement entered into between Golden Star and La Mancha on August 1, 2018, as amended on September 10, 2019, in connection with La Mancha's equity investment of US\$125.7 million to acquire a 30% stake in Golden Star, restricted La Mancha from acquiring any additional common shares beyond 30% until October 2020 without the prior consent of Golden Star. The Company consented to La Mancha acquiring up to an additional 5% of its issued and outstanding common shares for a total 35% investment in the Company.

Appointments to Board of Directors

On September 5, 2019, the Company announced that Ms. Ani Markova, MBA, CFA, CDID had been appointed to the Board of Directors. Ms. Markova replaced Graham Crew as a nominee of La Mancha on the Board of Directors following Mr. Crew's appointment as Chief Operating Officer of Golden Star.

On February 3, 2020, the Company announced that Karim Nasr had been appointed to the Board of Directors, replacing Naguib Sawiris as a nominee of La Mancha who stepped down from the Board given the range of other commitments which he has.

Gold Hedging Program

On August 8, 2019, the Company reported that the Company had established a discretionary gold price protection program (the "Hedging Program") to provide gold price protection for the projected production from the Prestea Mine over the next 12 months as the results of the ongoing operational review that has been implemented at the operation.

Zero cost collars, with a \$1,400/oz floor and a \$1,750/oz ceiling, have been put into place for 50,000 ounces of gold over a 12-month period. The gold hedges, arranged through Macquarie Bank Limited, will mature on a monthly basis at a frequency of approximately 4,167 ounces per month.

In the fourth quarter of 2019, the Company recognized an unrealized loss of \$0.2 million on the non-hedge accounted collar contracts.

Exploration Update

Wassa

During the fourth quarter, no surface drilling was performed at Wassa Underground mine. The 2019 exploration drilling program was completed in mid-September. The 2019 drilling programs at Wassa resulted in an additional 59 holes for approximately 45,000 metres. The additional surface and underground drilling is currently being validated and will be used to update the geological interpretations and subsequent resource models. The new geological interpretation is being used for mineral resource estimations that will be updated for year-end resource and reserve statements. The 2019 drilling at Wassa had three goals: conversion of Inferred Mineral Resources to Indicated Mineral Resources, definition drilling and the expansion of current Inferred Mineral Resources. The drilling successfully converted portions of the Inferred Mineral Resources to Indicated Mineral Resources and resulted in better defining mineralization at depth and within the hanging and footwall of the main B Shoot mineralization. Deeper drilling into the wide zones of mineralization at depth has shown that instead of a single high grade mineralized zone there are now four sub parallel zones. This new understanding will be incorporated into the year-end resource grade estimation.

Father Brown

Drilling was completed on the Father Brown project in Q2 2019 and totalled 28 holes for 14,500 metres. The drill results have been used to update a conceptual in-house resource model which in turn has been utilized by consultants to evaluate the potential economics of the project. The results of this concept study have shown that the current Indicated and Inferred Mineral Resource

at the Father Brown deposit has marginal economics. To progress toward a positive project decision, the project needs to improve the total grade endowment, ideally with higher grade material. The following steps will need to be carried out:

- Re-run grade estimate with high grade domain to reflect the higher than modelled grades observed in the Father Brown pit.
- Test ADK model with potential extensions and determine whether drilling to target these will deliver an attractive outcome.
- Rank Father Brown/ADK project against other development options (e.g. Wassa growth etc).

Prestea Underground

During the fourth quarter, no drilling was performed at Prestea Underground. For 2019, a total of 63 holes were completed with 12,424 metres being drilled. Most of this drilling was infill drilling to the north of the existing stopes on 24 level. From this drilling, a new resource block model will be created to form the basis for a new mine plan.

Operational Review of Prestea

Following the completion of CSA Global's ("CSA") independent review and Phase 2 design, Prestea underground mine is progressing with the implementation of a revised mining plan. Other recommendations from the independent review are also progressing within Project Okode.

Extraction of the 17L - 21L has been redesigned for Long Hole Open Stoping ("LHOS") and development has commenced with the new design using conventional equipment. Orders have been placed to mechanise the LHOS zones including a development jumbo, long hole drill, an additional loader (scoop) and a small truck to haul material to 17L. The jumbo is expected to be delivered during the first half of 2020 and is expected to significantly improve development productivity. An operational readiness plan for the implementation of LHOS mining method is currently being implemented.

In the Alimak stoping area from 21L - 24L stopes have been redesigned to reduce the overall hanging wall span as recommended by CSA, this is achieved by reducing the height where possible to improve travel times and stope turnover rates. Where the height cannot be reduced due to lack of access, the strike length of the stopes has been reduced to improve stability. A slightly narrower Alimak platform is being trialled to reduce development dilution and is also expected to improve dilution as these trial stopes come into production. Ventilation connections have been completed on 24L enabling development focus to move to the set-up of stopes to the North and South of the current block.

Several other initiatives recommended by CSA and prioritised by the site team are being managed under Project Okode supported by a Project Manager and Operations Specialist as well as dedicated project teams on site. Some of these initiatives include increased drilling density for resource definition, overbreak controls, maintenance improvements, mine planning and mine design changes and various productivity improvements.

WASSA OPERATIONS

Golden Star (Wassa) Limited, a 90% owned subsidiary of the Company owns and operates the Wassa Complex. Wassa is located in the southwestern region of Ghana, approximately 35 kilometers northeast of the town of Tarkwa. In 2018, Golden Star operated the Wassa Main Pit (an open pit operation) and Wassa Underground (an underground operation). As of February 1, 2018, Wassa became an underground-only operation. Wassa has a non-refractory processing plant (the “Wassa processing plant”) consisting of a carbon-in-leach (“CIL”) system with a capacity of 2.7 million tonnes per annum. In the first half of 2018, ore from both the Wassa Main Pit and Wassa Underground was processed at the Wassa processing plant, while in the first half of 2019 ore from Wassa Underground and stockpiles were processed at the Wassa processing plant.

		Three Months Ended December 31,		For the Years Ended December 31,	
		2019	2018	2019	2018
WASSA FINANCIAL RESULTS					
Revenue	\$'000	53,551	44,109	203,820	183,078
Mine operating expenses	\$'000	26,182	22,044	98,722	86,916
Severance charges	\$'000	—	—	225	4,970
Royalties	\$'000	3,060	2,316	10,877	9,508
Operating costs (to)/from metals inventory	\$'000	(414)	789	299	7,184
Inventory net realizable value adjustment and write-off	\$'000	—	349	—	3,684
Cost of sales excluding depreciation and amortization	\$'000	28,828	25,498	110,123	112,262
Depreciation and amortization	\$'000	4,657	5,593	17,134	22,066
Mine operating margin	\$'000	20,066	13,018	76,563	48,750
Capital expenditures	\$'000	21,667	13,898	60,123	35,420
WASSA OPERATING RESULTS					
Ore mined - Main Pit	t	—	—	—	54,281
Ore mined - Underground	t	375,958	309,504	1,421,742	1,075,218
Ore mined - Total	t	375,958	309,504	1,421,742	1,129,499
Waste mined - Main Pit	t	—	—	—	72,538
Waste mined - Underground	t	121,861	89,288	363,004	309,265
Waste mined - Total	t	121,861	89,288	363,004	381,803
Ore processed - Main Pit/Stockpiles	t	40,282	92,211	160,581	525,666
Ore processed - Underground	t	349,133	309,504	1,387,905	1,075,218
Ore processed - Total	t	389,415	401,715	1,548,486	1,600,884
Grade processed - Main Pit/Stockpiles	g/t	0.68	0.66	0.65	0.76
Grade processed - Underground	g/t	3.78	3.80	3.57	4.18
Recovery	%	95.4	95.4	95.6	95.7
Gold produced - Main Pit/Stockpiles	oz	738	1,851	3,250	12,436
Gold produced - Underground	oz	40,597	35,711	152,916	137,261
Gold produced - Total	oz	41,335	37,562	156,166	149,697
Gold sold - Main Pit/Stockpiles	oz	738	1,460	3,250	12,307
Gold sold - Underground	oz	41,152	35,711	153,239	137,261
Gold sold - Total	oz	41,890	37,171	156,489	149,568
Cost of sales per ounce ¹	\$/oz	799	836	813	898
Cash operating cost per ounce ¹	\$/oz	615	614	633	629
All-in sustaining cost per ounce ¹	\$/oz	959	933	922	886

¹ See “Non-GAAP Financial Measures” section for a reconciliation of cost of sales per ounce, cash operating cost per ounce and all-in sustaining cost per ounce to cost of sales excluding depreciation and amortization.

For the three months ended December 31, 2019 compared to the three months ended December 31, 2018

Production

Gold production from Wassa was 41,335 ounces for the fourth quarter of 2019, a 10% increase from the 37,562 ounces produced during the same period in 2018. This increase in production was primarily due to an increase in underground tonnes mined in processed compared to the same period in 2018.

Wassa Underground

Wassa Underground produced 40,597 ounces of gold (or approximately 98% of Wassa's total production) in the fourth quarter of 2019, compared to 35,711 ounces in the same period in 2018 (or approximately 95% of Wassa's total production). This 14% increase in production was mainly due to a 21% increase in ore tonnes mined and 13% increase in ore tonnes processed, resulting from productivity improvements. Mining rates at Wassa Underground increased to approximately 4,090 tpd on average in the fourth quarter of 2019 compared to approximately 3,360 tpd in the same period in 2018. Underground ore processed increased 13% to 349,133 tonnes in the fourth quarter of 2019 compared to 309,504 tonnes in the same period in 2018.

Wassa Main Pit/Stockpiles

Wassa Main Pit produced 738 ounces of gold in the fourth quarter of 2019, compared to 1,851 ounces in the same period in 2018. This decrease in production is a result of a 56% decrease in stockpile ore tonnes processed, offset by a 3% increase in stockpile ore grade processed compared to the same period in 2018.

Gold revenue

Gold revenue for the fourth quarter of 2019 was \$53.6 million, \$9.4 million higher than \$44.1 million in the same period in 2018. The \$9.4 million increase consists of a \$15.1 million increase due mainly to an increase in gold sold and average realized price, offset by a \$5.7 million non-cash cumulative adjustment to revenue related to the Streaming Agreement. See Revenue discussion under Corporate Developments for an explanation of the non-cash cumulative adjustment. Gold sold increased 13% to 41,890 ounces for the fourth quarter of 2019, compared to 37,171 ounces in the same period in 2018. The increase was primarily due to an increase in underground tonnes mined and processed compared to the same period in 2018. The average realized gold price was \$1,413 per ounce for the fourth quarter of 2019 compared to \$1,187 per ounce in the same period in 2018. Excluding the \$5.7 million non-cash adjustment, gold revenue increased 34% from \$44.1 million in the same period in 2018.

Cost of sales excluding depreciation and amortization

Cost of sales excluding depreciation and amortization was \$28.8 million for the fourth quarter of 2019, compared to \$25.5 million for the same period in 2018. The increase was due primarily to a \$4.1 million increase in mine operating expenses, resulting from an increase in total tonnes mined, as Wassa Underground has steadily increased its mining rates, and a \$0.7 million increase in royalty expense due to higher gold revenue. Partially offsetting these increases was a \$1.2 million decrease in operating costs from metals inventory, and a \$0.3 million decrease in inventory net realizable value adjustment and write-off as materials and supplies inventories related to open pit mining were written off in the same period in 2018.

Depreciation and amortization

Depreciation and amortization expense decreased to \$4.7 million for the fourth quarter of 2019, compared to \$5.6 million for the same period in 2018 due mainly to an increase in the total recoverable gold ounces over the life of mine of Wassa Underground.

Costs per ounce

Cost of sales per ounce decreased 4% to \$799 for the fourth quarter of 2019 from \$836 in the same period in 2018. Cash operating cost per ounce remained consistent at \$615 compared to \$614 for the same period in 2018. All-in sustaining cost per ounce increased 3% to \$959 from \$933 for the same period in 2018 mainly due to an increase in sustaining capital expenditures.

Capital expenditures

Capital expenditures for the fourth quarter of 2019 totaled \$21.7 million compared with \$13.9 million incurred during the same period in 2018. The increase in capital expenditures was due primarily to a \$5.4 million increase related to the paste-fill plant, a \$4.2 million increase in mobile equipment, a \$2.3 million increase in electrical upgrades, and a \$1.1 million increase in the pumping station, offset by a \$4.1 million decrease in exploration drilling compared to the same period in 2018.

For the year ended December 31, 2019 compared to the year ended December 31, 2018

Production

Gold production from Wassa was 156,166 ounces for the year ended December 31, 2019, a 4% increase from the 149,697 ounces produced in 2018. This increase in production was due to the increase in tonnes mined and processed at the Wassa Underground mine compared to 2018. As of February 1, 2018, Wassa became an underground-only mining operation, however, open pit stock piled ore continued to be processed.

Wassa Underground

Wassa Underground produced 152,916 ounces of gold (or approximately 98% of Wassa's total production) for the year ended December 31, 2019, compared to 137,261 ounces in 2018 (or approximately 92% of Wassa's total production). This 11% increase in production was related to increased tonnes mined and processed, resulting from productivity improvements. This was partially offset by a 15% decrease in grade due to limited flexibility with the mine plan. Mining rates at Wassa Underground increased to approximately 3,900 tpd on average for the year ended December 31, 2019, compared to approximately 2,950 tpd in 2018. Ore processed increased 29% for the year ended December 31, 2019 to 1,387,905 tonnes compared to 1,075,218 tonnes in 2018.

Wassa Main Pit/Stockpiles

Wassa Main Pit produced 3,250 ounces for the year ended December 31, 2019, compared to 12,436 in the same period in 2018. This decrease in production is a result of a 69% decrease in stockpile ore tonnes processed and a 14% decrease in stockpile ore grade processed compared to the same period in 2018. Also, 54,281 ore tonnes were mined in the prior year.

Gold revenue

Gold revenue for the year ended December 31, 2019 was \$203.8 million, \$20.7 million higher than \$183.1 million in 2018. The \$20.7 million increase consists of a \$26.4 million increase due mainly to an increase in gold sold and average realized price, offset by a \$5.7 million non-cash cumulative adjustment to revenue related to the Streaming Agreement. See Revenue discussion under Corporate Developments for an explanation of the non-cash cumulative adjustment. Gold sold increased 5% to 156,489 ounces for the year ended December 31, 2019 compared to 149,568 ounces in 2018. The increase was primarily a result of increased gold production from Wassa Underground. The average realized gold price was \$1,339 per ounce for the year ended December 31, 2019 compared to \$1,224 per ounce in 2018. Excluding the \$5.7 million non-cash adjustment, gold revenue increased 14% from \$183.1 million in 2018.

Cost of sales excluding depreciation and amortization

Cost of sales excluding depreciation and amortization was \$110.1 million for the year ended December 31, 2019 compared to \$112.3 million in 2018. The decrease was due primarily to a \$4.7 million decrease in severance charges as suspension of the Wassa surface mining operation was completed in early 2018, a \$3.7 million decrease in inventory net realizable value adjustment and write-off as materials and supplies inventories related to open pit mining were written off in the same period in 2018, and a \$6.9 million decrease in operating costs from metals inventory due to a reduction in drawdown of ore stockpiles compared to the same period in 2018. Partially offsetting these decreases were a \$11.8 million increase in mine operating expenses, resulting from an increase in total tonnes mined, as Wassa Underground has steadily increased its mining rates and a \$1.4 million increase in royalty expense due to higher gold revenue.

Depreciation and amortization

Depreciation and amortization expense decreased to \$17.1 million for the year ended December 31, 2019 compared to \$22.1 million in 2018 due mainly to an increase in the total recoverable gold ounces over the life of mine of Wassa Underground.

Costs per ounce

Cost of sales per ounce decreased 9% to \$813 for the year ended December 31, 2019 compared to \$898 in 2018. Cash operating cost per ounce remained consistent at \$633 for the year ended December 31, 2019 compared to \$629 in 2018. All-in sustaining cost per ounce increased 4% to \$922 for the year ended December 31, 2019 from \$886 in 2018 mainly due to an increase in sustaining capital expenditures.

Capital expenditures

Capital expenditures for the year ended December 31, 2019 totaled \$60.1 million compared to \$35.4 million during 2018. The increase in capital expenditures is due primarily to an increase of \$8.2 million in exploration drilling, a \$7.0 million increase in the paste-fill plant, a \$4.2 million increase in mobile equipment, a \$2.4 million increase in electrical upgrades, a \$2.5 million increase in the pumping station, a \$2.2 million increase related to the construction of a ventilation raise and a \$2.5 million increase related to the tailing storage facility. Offsetting these increases was a \$1.7 million decrease in capitalized development related to a decrease in development meters compared to 2018.

PRESTEA OPERATIONS

Golden Star (Bogoso/Prestea) Limited, a 90% owned subsidiary of the Company owns and operates the Prestea Complex located near the town of Prestea, Ghana. The Prestea Complex consists of Prestea Underground (an underground operation), the Prestea Open Pits (neighboring open pits formed from oxide deposits) and associated support facilities. Prestea has a CIL processing facility with capacity of up to 1.5 million tonnes per annum, located 14 km away at Bogoso, which is suitable for treating non-refractory gold ore (the “non-refractory plant”). Ore from both Prestea Underground and the Prestea Open Pits is processed in the non-refractory plant. Prestea Underground achieved commercial production on February 1, 2018.

		Three Months Ended December 31,		For the Years Ended December 31,	
		2019	2018	2019	2018
PRESTEA FINANCIAL RESULTS					
Revenue	\$'000	12,510	13,230	60,917	89,939
Mine operating expenses	\$'000	18,549	20,982	71,427	89,112
Severance charges	\$'000	31	9,882	143	9,888
Royalties	\$'000	1,586	693	4,083	4,794
Operating costs from/(to) metals inventory	\$'000	73	(11)	(652)	5,702
Inventory net realizable value adjustment and write-off	\$'000	165	521	1,216	1,971
Cost of sales excluding depreciation and amortization	\$'000	20,404	32,067	76,217	111,467
Depreciation and amortization	\$'000	3,807	2,231	11,920	11,873
Mine operating loss	\$'000	(11,701)	(21,068)	(27,220)	(33,401)
Capital expenditures	\$'000	4,389	1,382	13,018	11,414
PRESTEA OPERATING RESULTS					
Ore mined - Open pits	t	112,419	32,275	493,924	374,218
Ore mined - Underground	t	34,426	29,654	152,330	128,048
Ore mined - Total	t	146,845	61,929	646,254	502,266
Waste mined - Open pits	t	207,322	89,638	749,660	921,054
Waste mined - Underground	t	9,111	3,008	17,446	7,403
Waste mined - Total	t	216,433	92,646	767,106	928,457
Ore processed - Open pits	t	117,404	185,014	567,119	1,179,414
Ore processed - Underground	t	34,426	24,168	152,330	122,562
Ore processed - Total	t	151,830	209,182	719,449	1,301,976
Grade processed - Open pits	g/t	1.45	1.01	1.56	1.20
Grade processed - Underground	g/t	6.87	8.56	5.58	10.12
Recovery	%	86.0	84.9	85.7	86.8
Gold produced - Open pits	oz	4,781	4,632	23,422	37,623
Gold produced - Underground	oz	6,555	6,652	24,181	37,464
Gold produced - Total	oz	11,336	11,284	47,603	75,087
Gold sold - Open pits	oz	4,871	4,578	23,422	37,947
Gold sold - Underground	oz	6,652	6,652	24,278	37,464
Gold sold - Total	oz	11,523	11,230	47,700	75,411
Cost of sales per ounce ¹	\$/oz	2,101	3,054	1,848	1,681
Cash operating cost per ounce ¹	\$/oz	1,616	1,867	1,484	1,292
All-in sustaining cost per ounce ¹	\$/oz	2,202	2,164	1,937	1,558

¹ See “Non-GAAP Financial Measures” section for a reconciliation of cost of sales per ounce, cash operating cost per ounce and all-in sustaining cost per ounce to cost of sales excluding depreciation and amortization.

For the three months ended December 31, 2019 compared to the three months ended December 31, 2018

Production

Gold production from Prestea was 11,336 ounces in the fourth quarter of 2019, consistent with the 11,284 ounces produced during the same period in 2018.

Prestea Open Pits

The Prestea Open Pits produced 4,781 ounces in the fourth quarter of 2019, compared to 4,632 ounces in the same period in 2018. The Prestea Open Pits were expected to complete gold production in 2019, however mining continued into the fourth quarter of 2019 with additional ore being sourced from the pits close to Bogoso. Production increased slightly in the fourth quarter of 2019 compared to the same period in 2018, as a result of a 44% increase in ore grade processed, offset by a 37% decrease in ore tonnes processed.

Prestea Underground

Prestea Underground produced 6,555 ounces in the fourth quarter of 2019 compared to 6,652 ounces in the same period in 2018 with the slight decrease resulting from a 20% decrease in ore grade processed, offset partially by a 42% increase in ore tonnes processed.

Gold revenue

Gold revenue for the fourth quarter of 2019 was \$12.5 million, \$0.7 million lower than \$13.2 million in the same period in 2018. The \$0.7 million decrease consists of a \$3.6 million non-cash cumulative adjustment to revenue related to the Streaming Agreement, offset by a \$2.9 million increase due mainly to an increase in average realized price. See Revenue discussion under Corporate Developments for an explanation of the non-cash cumulative adjustment. The average realized gold price increased 19% to \$1,399 per ounce for the fourth quarter of 2019 compared to \$1,178 per ounce for the same period in 2018. Excluding the \$3.6 million non-cash adjustment, gold revenue increased 22% from \$13.2 million in the same period of 2018.

Cost of sales excluding depreciation and amortization

Cost of sales excluding depreciation and amortization was \$20.4 million for the fourth quarter of 2019, compared to \$32.1 million for the same period in 2018. The decrease was due primarily to a \$9.9 million decrease in severance charges as the Prestea improvement plan was implemented in the same period in 2018, a \$2.4 million decrease in mine operating expenses related to less ore processed from Prestea Open Pits, and a \$0.4 million decrease inventory net realizable value adjustment and write-off, offset by a \$0.1 million increase in operating costs from metals inventory.

Depreciation and amortization

Depreciation and amortization expense increased to \$3.8 million for the fourth quarter of 2019, compared to \$2.2 million for the same period in 2018 due mainly to an adjustment for the year in fourth quarter of 2019.

Costs per ounce

Cost of sales per ounce decreased 31% to \$2,101 for the fourth quarter of 2019 from \$3,054 in the same period in 2018. Cash operating cost per ounce of \$1,616 decreased 13% from \$1,867 for the same period in 2018. The decrease in costs per ounce were primarily due to lower mine operating expenses. All-in sustaining cost per ounce increased 2% to \$2,202 from \$2,164 for the same period in 2018.

Capital expenditures

Capital expenditures for the fourth quarter of 2019 totaled \$4.4 million compared to \$1.4 million incurred during the same period in 2018. The increase relates primarily to an increase capitalized development.

For the year ended December 31, 2019 compared to the year ended December 31, 2018

Production

Gold production from Prestea was 47,603 ounces for the year ended December 31, 2019, a 37% decrease from the 75,087 ounces produced in 2018. This decrease in production was due primarily to the planned reduction from the Prestea Open Pits and the slower than expected ramp up at Prestea Underground.

Prestea Open Pits

The Prestea Open Pits produced 23,422 ounces for the year ended December 31, 2019, compared to 37,623 ounces in 2018. This decrease in production was planned, as the Prestea Open Pits were expected to complete gold production in 2018. Mining continued into the fourth quarter of 2019 with additional ore being sourced from the pits close to Bogoso.

Prestea Underground

Prestea Underground produced 24,181 ounces for the year ended December 31, 2019, compared to 37,464 ounces in 2018. Production decreased 35% compared to the same period in 2018, as a result of a 45% decrease in ore grade processed, offset partially by a 24% increase in ore tonnes processed. Production was affected by lower grade as a result of unplanned waste zones within the stopes and unplanned dilution.

Gold revenue

Gold revenue for the year ended December 31, 2019 was \$60.9 million, \$29.0 million lower than \$89.9 million in 2018. The \$29.0 million decrease consists of a \$3.6 million non-cash cumulative adjustment to revenue related to the Streaming Agreement, and a \$25.4 million decrease due to a decrease in gold sold, offset by an increase in average realized gold price. See Revenue discussion under Corporate Developments for an explanation of the non-cash cumulative adjustment. Gold sold decreased 37% to 47,700 ounces for the year ended December 31, 2019 compared to 75,411 ounces in 2018, as a result of a decrease in gold production from the Prestea Open Pits and Prestea Underground. The average realized gold price increased 10% to \$1,353 per ounce for the year ended December 31, 2019 compared to \$1,226 per ounce in 2018. Excluding the \$3.6 million non-cash adjustment, gold revenue decreased 28% from \$89.9 million in 2018

Cost of sales excluding depreciation and amortization

Cost of sales excluding depreciation and amortization was \$76.2 million for the year ended December 31, 2019, compared to \$111.5 million in 2018. The decrease was due primarily to a \$9.7 million decrease in severance charges as the Prestea improvement plan was implemented in the same period in 2018, a \$17.7 million decrease in mine operating expenses related to less production, and a \$6.4 million decrease in operating costs to metals inventory.

Depreciation and amortization

Depreciation and amortization expense for the year ended December 31, 2019 was \$11.9 million, consistent with 2018.

Costs per ounce

Cost of sales per ounce increased 10% to \$1,848 for the year ended December 31, 2019, compared to \$1,681 in 2018. Cash operating cost per ounce increased 15% to \$1,484 for the year ended December 31, 2019 compared to \$1,292 in 2018. All-in sustaining cost per ounce increased 24% to \$1,937 for the year ended December 31, 2019 compared to \$1,558 in 2018. The increase in cost per ounce was primarily due to the decrease in ounces sold for the year ended December 31, 2019 compared to 2018, offset slightly by a decrease in mine operating expenses.

Capital expenditures

Capital expenditures for the year ended December 31, 2019 totaled \$13.0 million, compared to \$11.4 million incurred in 2018. The increase relates primarily to an increase in capitalized development plant upgrade costs.

SUMMARIZED QUARTERLY FINANCIAL RESULTS

(Stated in thousands of U.S dollars except per share data)	Three Months Ended,							
	Q4 2019	Q3 2019	Q2 2019	Q1 2019	Q4 2018 ²	Q3 2018 ²	Q2 2018 ²	Q1 2018 ²
Revenues	\$ 66,061	\$ 69,504	\$ 61,915	\$ 67,257	\$ 57,339	\$ 67,738	\$ 77,121	\$ 70,819
Cost of sales excluding depreciation and amortization	49,232	46,798	46,506	43,804	57,565	48,873	57,717	59,574
Net (loss)/income	(69,359)	4,926	(10,882)	(2,659)	(11,894)	(4,222)	(7,560)	(395)
Net (loss)/income attributable to shareholders of Golden Star	(62,434)	5,960	(9,036)	(1,924)	(9,318)	(3,178)	(6,642)	1,015
Adjusted net income/(loss) attributable to Golden Star shareholders ¹	5,975	6,961	872	9,394	(5,211)	3,011	2,408	(2,124)
Net (loss)/income per share attributable to Golden Star shareholders - basic	(0.57)	0.05	(0.08)	(0.02)	(0.09)	(0.04)	(0.09)	0.01
Net (loss)/income per share attributable to Golden Star shareholders - diluted	(0.57)	0.02	(0.08)	(0.02)	(0.09)	(0.04)	(0.09)	(0.03)
Adjusted income/(loss) per share attributable to Golden Star shareholders - basic ¹	0.05	0.06	0.01	0.09	(0.05)	0.04	0.03	(0.03)

¹ See "Non-GAAP Financial Measures" section for a reconciliation of adjusted net income/(loss) attributable to Golden Star shareholders and adjusted income/(loss) per share attributable to Golden Star shareholders (basic) to net loss attributable to Golden Star shareholders.

² Per share quarterly financial information has been re-stated to reflect the share consolidation that was implemented on October 30, 2018.

SELECTED ANNUAL INFORMATION

(Stated in thousands of U.S. dollars except per share data)	As of December 31, 2019	As of December 31, 2018	As of December 31, 2017
Cash and cash equivalents	\$ 53,367	\$ 96,507	\$ 27,787
Working capital ¹	(16,557)	5,850	(61,563)
Total assets	374,060	417,987	360,389
Long-term financial liabilities	90,782	73,224	79,741
Equity/(deficit)	(32,123)	42,037	(41,754)

	For the years ended December 31,		
	2019	2018	2017
Revenue	264,737	273,017	315,497
Net (loss)/income attributable to Golden Star	(67,434)	(18,123)	38,771
(Loss)/income per share attributable to Golden Star shareholders - basic	(0.62)	(0.21)	0.52
(Loss)/income per share attributable to Golden Star shareholders - diluted	(0.62)	(0.21)	0.48

¹ Working Capital is calculated as Current Assets minus Current Liabilities as disclosed on the Consolidated Balance Sheet.

LIQUIDITY AND FINANCIAL CONDITION

The Company held \$53.4 million in cash and cash equivalents as at December 31, 2019 compared to \$96.5 million in cash and cash equivalents at December 31, 2018. During the year ended December 31, 2019, operations provided \$22.8 million, investing activities used \$67.4 million and financing activities provided \$1.4 million of cash.

Before working capital changes, operations provided \$36.8 million of operating cash flow during the year ended December 31, 2019, compared to \$9.6 million in the same period in 2018. Cash provided by operations before working capital changes increased primarily due to an increase in consolidated mine operating margin related to Wassa, as Wassa Underground gold sold increased compared to the same period in 2018.

Working capital used \$14.0 million during the year ended December 31, 2019, compared to \$17.2 million in the same period in 2018. The working capital changes included a \$0.8 million increase in accounts payable and accrued liabilities, a \$6.4 million decrease in other liability as the final amount owing on the Company's Performance Share Unit ("PSU") liability was paid in April 2019, a \$4.9 million increase in inventory, a \$3.3 million increase in accounts receivable, and a \$0.2 million increase in prepaids and other. Accounts payable and accrued liabilities increased slightly from \$78.5 million at December 31, 2018 to \$90.8 million at December 31, 2019.

Investing activities used \$67.4 million during the year ended December 31, 2019, which included \$17.3 million on exploration drilling, \$35.9 million on the development of Wassa Underground, \$9.7 million on the development of Prestea Underground and \$10.0 million on equipment purchases and other. Offsetting these capital expenditures was a \$1.5 million increase in accounts payable and deposits on mine equipment and material.

Financing activities provided \$1.4 million during the year ended December 31, 2019, compared to \$124.2 million in the same period in 2018. Financing activities were comprised of the \$57.4 million Credit Facility proceeds net of fees and \$1.3 million received on exercise of options, offset by \$57.2 million in principal repayments of the Ecobank loans and the Vendor Agreement.

LIQUIDITY OUTLOOK

As at December 31, 2019, the Company had \$53.4 million in cash and a working capital deficit of \$16.6 million, compared to \$96.5 million in cash and working capital of \$5.9 million at December 31, 2018.

The Company expects to incur \$54.5 to \$60.0 million on capital expenditures during 2020 of which \$25.0 to \$27.5 million is discretionary.

Based on the Company's cash balance together with the operating cash flow that the Company anticipates generating, the Company expects to have sufficient cash available to support its operations and mandatory expenditures for the next twelve months.

TABLE OF CONTRACTUAL OBLIGATIONS

As at December 31, 2019, the Company is committed to the following:

(Stated in thousands of U.S dollars)	Payment due by period				Total
	Less than 1 Year	1 to 3 years	4 to 5 years	More than 5 Years	
Accounts payable and accrued liabilities	\$ 90,842	\$ —	\$ —	\$ —	\$ 90,842
Debt ¹	15,987	92,031	5,607	254	113,879
Interest on long-term debt	7,378	7,321	150	5	14,854
Purchase obligations	17,318	—	—	—	17,318
Rehabilitation provisions ²	5,826	17,749	25,877	24,316	73,768
Total	137,351	117,101	31,634	24,575	310,661

¹ Includes the outstanding repayment amounts from the 7% Convertible Debentures maturing on August 15, 2021, finance leases and the Credit Facility.

² Rehabilitation provisions indicates the expected undiscounted cash flows for each period.

RELATED PARTY TRANSACTIONS

There were no material related party transactions for the year ended December 31, 2019 and 2018 other than compensation of key management personnel which is presented in Note 22 of the consolidated financial statements for the year ended December 31, 2019 and December 31, 2018. Key management personnel are defined as members of the Board of Directors and certain senior officers. Compensation of key management personnel are made on terms equivalent to those prevailing in an arm's length transaction.

OFF-BALANCE SHEET ARRANGEMENTS

The Company has no material off-balance sheet arrangements.

NON-GAAP FINANCIAL MEASURES

In this MD&A, we use the terms “cash operating cost”, “cash operating cost per ounce”, “all-in sustaining costs”, “all-in sustaining costs per ounce”, “adjusted net income/(loss) attributable to Golden Star shareholders”, “adjusted income/(loss) per share attributable to Golden Star shareholders - basic”, “cash provided by operations before working capital changes”, and “cash provided by operations before working capital changes per share - basic”.

“Cost of sales excluding depreciation and amortization” as found in the statements of operations includes all mine-site operating costs, including the costs of mining, ore processing, maintenance, work-in-process inventory changes, mine-site overhead as well as production taxes, royalties, severance charges and by-product credits, but excludes exploration costs, property holding costs, corporate office general and administrative expenses, foreign currency gains and losses, gains and losses on asset sales, interest expense, gains and losses on derivatives, gains and losses on investments and income tax expense/benefit.

“Cost of sales per ounce” is equal to cost of sales excluding depreciation and amortization for the period plus depreciation and amortization for the period divided by the number of ounces of gold sold (excluding pre-commercial production ounces sold) during the period.

“Cash operating cost” for a period is equal to “cost of sales excluding depreciation and amortization” for the period less royalties, the cash component of metals inventory net realizable value adjustments, materials and supplies write-off and severance charges, and “cash operating cost per ounce” is that amount divided by the number of ounces of gold sold (excluding pre-commercial production ounces sold) during the period. We use cash operating cost per ounce as a key operating metric. We monitor this measure monthly, comparing each month's values to prior periods' values to detect trends that may indicate increases or decreases in operating efficiencies. We provide this measure to investors to allow them to also monitor operational efficiencies of the Company's mines. We calculate this measure for both individual operating units and on a consolidated basis. Since cash operating costs do not incorporate revenues, changes in working capital or non-operating cash costs, they are not necessarily indicative of operating profit or cash flow from operations as determined under IFRS. Changes in numerous factors including, but not limited to, mining rates, milling rates, ore grade, gold recovery, costs of labor, consumables and mine site general and administrative activities can cause these measures to increase or decrease. We believe that these measures are similar to the measures of other gold mining companies, but may not be comparable to similarly titled measures in every instance.

“All-in sustaining costs” commences with cash operating costs and then adds the cash component of metals inventory net realizable value adjustments, royalties, sustaining capital expenditures, corporate general and administrative costs (excluding share-based compensation expenses and severance), and accretion of rehabilitation provision. For mine site all-in sustaining costs, corporate general and administrative costs (excluding share-based compensation expenses and severance) are allocated based on gold sold by each operation. “All-in sustaining costs per ounce” is that amount divided by the number of ounces of gold sold (excluding pre-commercial production ounces sold) during the period. This measure seeks to represent the total costs of producing gold from current operations, and therefore it does not include capital expenditures attributable to projects or mine expansions, exploration and evaluation costs attributable to growth projects, income tax payments, interest costs or dividend payments. Consequently, this measure is not representative of all of the Company's cash expenditures. In addition, the calculation of all-in sustaining costs does not include depreciation expense as it does not reflect the impact of expenditures incurred in prior periods. Therefore, it is not indicative of the Company's overall profitability. Share-based compensation expenses are also excluded from the calculation of all-in sustaining costs as the Company believes that such expenses may not be representative of the actual payout on equity and liability-based awards.

The Company believes that “all-in sustaining costs” will better meet the needs of analysts, investors and other stakeholders of the Company in understanding the costs associated with producing gold, understanding the economics of gold mining, assessing the operating performance and the Company's ability to generate free cash flow from current operations and to generate free cash flow on an overall Company basis. Due to the capital intensive nature of the industry and the long useful lives over which these items are depreciated, there can be a disconnect between net earnings calculated in accordance with IFRS and the amount of free cash flow that is being generated by a mine. In the current market environment for gold mining equities, many investors and analysts are more focused on the ability of gold mining companies to generate free cash flow from current operations, and consequently the Company believes these measures are useful non-IFRS operating metrics (“non-GAAP measures”) and supplement the IFRS disclosures made by the Company. These measures are not representative of all of Golden Star's cash expenditures as they do not include income tax payments or interest costs. Non-GAAP measures are intended to provide additional information only and do not have standardized definitions under IFRS and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. These measures are not necessarily indicative of operating profit or cash flow from operations as determined under IFRS. The table below reconciles these non-GAAP measures to the most directly comparable IFRS measures and, where applicable, previous periods have been recalculated to conform to the current definition.

The table below reconciles consolidated cost of sales excluding depreciation and amortization to cost of sales per ounce, cash operating cost per ounce and all-in sustaining cost per ounce:

	Three Months Ended December 31,		For the Years Ended December 31,	
	2019	2018	2019	2018
(Stated in thousands of U.S dollars except cost per ounce data)				
Cost of sales excluding depreciation and amortization	49,232	57,565	186,340	223,729
Depreciation and amortization	8,464	7,824	29,054	33,939
Cost of sales	57,696	65,389	215,394	257,668
Cost of sales excluding depreciation and amortization	49,232	57,565	186,340	223,729
Severance charges	(31)	(9,882)	(368)	(14,858)
Royalties	(4,646)	(3,009)	(14,960)	(14,302)
Inventory net realizable value adjustment and write-off	(165)	(870)	(1,216)	(5,655)
Cash operating costs	44,390	43,804	169,796	188,914
Royalties	4,646	3,009	14,960	14,302
Inventory net realizable value adjustment and write-off	165	870	1,216	5,655
Accretion of rehabilitation provision	184	173	730	691
General and administrative costs, excluding share-based compensation	3,528	3,712	15,972	15,150
Sustaining capital expenditures	12,622	7,397	34,044	22,159
All-in sustaining costs	65,535	58,965	236,718	246,871
Ounces sold ¹	53,413	48,401	204,189	222,930
Cost of sales per ounce	\$ 1,080	\$ 1,351	\$ 1,055	\$ 1,156
Cash operating cost per ounce	\$ 831	\$ 905	\$ 832	\$ 847
All-in sustaining cost per ounce	\$ 1,227	\$ 1,218	\$ 1,159	\$ 1,107

¹ Ounces sold used in the calculation of cost of sales per ounce, cash operating cost per ounce and all-in sustaining cost per ounce excludes 2,049 pre-commercial production ounces sold at Prestea Underground in January 2018.

The tables below reconcile cost of sales excluding depreciation and amortization to cash operating cost per ounce for each of the operating mines:

	For the Three Months Ended December 31, 2019		
	Wassa	Prestea	Combined
(Stated in thousands of U.S dollars except cost per ounce data)			
Cost of sales excluding depreciation and amortization	28,828	20,404	49,232
Depreciation and amortization	4,657	3,807	8,464
Cost of sales	<u>33,485</u>	<u>24,211</u>	<u>57,696</u>
Cost of sales excluding depreciation and amortization	28,828	20,404	49,232
Severance charges	—	(31)	(31)
Royalties	(3,060)	(1,586)	(4,646)
Cash operating costs	<u>25,768</u>	<u>18,622</u>	<u>44,390</u>
Royalties	3,060	1,586	4,646
Accretion of rehabilitation provision	48	136	184
General and administrative costs, excluding share-based compensation	2,767	761	3,528
Sustaining capital expenditures	8,517	4,104	12,622
All-in sustaining costs	<u>40,160</u>	<u>25,375</u>	<u>65,535</u>
Ounces sold	41,890	11,523	53,413
Cost of sales per ounce	\$ 799	\$ 2,101	\$ 1,080
Cash operating cost per ounce	\$ 615	\$ 1,616	\$ 831
All-in sustaining cost per ounce	\$ 959	\$ 2,202	\$ 1,227

	For the For the Years Ended December 31, 2019		
	Wassa	Prestea	Combined
(Stated in thousands of U.S dollars except cost per ounce data)			
Cost of sales excluding depreciation and amortization	110,123	76,217	186,340
Depreciation and amortization	17,134	11,920	29,054
Cost of sales	<u>127,257</u>	<u>88,137</u>	<u>215,394</u>
Cost of sales excluding depreciation and amortization	110,123	76,217	186,340
Severance charges	(225)	(143)	(368)
Royalties	(10,877)	(4,083)	(14,960)
Inventory net realizable value adjustment and write-off	—	(1,216)	(1,216)
Cash operating costs	<u>99,021</u>	<u>70,775</u>	<u>169,796</u>
Royalties	10,877	4,083	14,960
Inventory net realizable value adjustment and write-off	—	1,216	1,216
Accretion of rehabilitation provision	191	539	730
General and administrative costs, excluding share-based compensation	12,241	3,731	15,972
Sustaining capital expenditures	22,014	12,031	34,044
All-in sustaining costs	<u>144,344</u>	<u>92,375</u>	<u>236,718</u>
Ounces sold	156,489	47,700	204,189
Cost of sales per ounce	\$ 813	\$ 1,848	\$ 1,055
Cash operating cost per ounce	\$ 633	\$ 1,484	\$ 832
All-in sustaining cost per ounce	\$ 922	\$ 1,937	\$ 1,159

	For the Three Months Ended December 31, 2018		
	Wassa	Prestea	Combined
(Stated in thousands of U.S dollars except cost per ounce data)			
Cost of sales excluding depreciation and amortization	25,498	32,067	57,565
Depreciation and amortization	5,593	2,231	7,824
Cost of sales	31,091	34,298	65,389
Cost of sales excluding depreciation and amortization	25,498	32,067	57,565
Severance charges	—	(9,882)	(9,882)
Royalties	(2,316)	(693)	(3,009)
Inventory net realizable value adjustment and write-off	(349)	(521)	(870)
Cash operating costs	22,833	20,971	43,804
Royalties	2,316	693	3,009
Inventory net realizable value adjustment and write-off	349	521	870
Accretion of rehabilitation provision	41	132	173
General and administrative costs, excluding share-based compensation	2,851	861	3,712
Sustaining capital expenditures	6,278	1,119	7,397
All-in sustaining costs	34,668	24,297	58,965
Ounces sold	37,171	11,230	48,401
Cost of sales per ounce	\$ 836	\$ 3,054	\$ 1,351
Cash operating cost per ounce	\$ 614	\$ 1,867	\$ 905
All-in sustaining cost per ounce	\$ 933	\$ 2,164	\$ 1,218

	For the For the Years Ended December 31, 2018		
	Wassa	Prestea	Combined
(Stated in thousands of U.S dollars except cost per ounce data)			
Cost of sales excluding depreciation and amortization	112,262	111,467	223,729
Depreciation and amortization	22,066	11,873	33,939
Cost of sales	134,328	123,340	257,668
Cost of sales excluding depreciation and amortization	112,262	111,467	223,729
Severance charges	(4,970)	(9,888)	(14,858)
Royalties	(9,508)	(4,794)	(14,302)
Inventory net realizable value adjustment and write-off	(3,684)	(1,971)	(5,655)
Cash operating costs	94,100	94,814	188,914
Royalties	9,508	4,794	14,302
Inventory net realizable value adjustment and write-off	3,684	1,971	5,655
Accretion of rehabilitation provision	163	528	691
General and administrative costs, excluding share-based compensation	10,072	5,078	15,150
Sustaining capital expenditures	15,062	7,097	22,159
All-in sustaining costs	132,589	114,282	246,871
Ounces sold ¹	149,568	73,362	222,930
Cost of sales per ounce	\$ 898	\$ 1,681	\$ 1,156
Cash operating cost per ounce	\$ 629	\$ 1,292	\$ 847
All-in sustaining cost per ounce	\$ 886	\$ 1,558	\$ 1,107

¹ Ounces sold used in the calculation of cost of sales per ounce and cash operating cost per ounce in the year ended December 31, 2018 excludes 2,049 pre-commercial production ounces sold at Prestea Underground in January 2018.

“Cash provided by operations before working capital changes” is calculated by subtracting the “changes in working capital” from “net cash provided by operating activities” as found in the statements of cash flows. “Cash provided by operations before working capital changes per share - basic” is “Cash provided by operations before working capital changes” divided by the basic weighted average number of shares outstanding for the period.

We use cash operating cost per ounce and cash provided by operations before working capital changes as key operating metrics. We monitor these measures monthly, comparing each month's values to the values in prior periods to detect trends that may indicate increases or decreases in operating efficiencies. These measures are also compared against budget to alert management of trends that may cause actual results to deviate from planned operational results. We provide these measures to investors to allow them to also monitor operational efficiencies of the mines owned by the Company.

Cash operating cost per ounce and cash provided by operations before working capital changes should be considered non-GAAP financial measures as defined in Canadian securities laws and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. There are material limitations associated with the use of such non-GAAP measures. Since these measures do not incorporate revenues, changes in working capital or non-operating cash costs, they are not necessarily indicative of operating profit or cash flow from operations as determined under IFRS. Changes in numerous factors including, but not limited to, mining rates, milling rates, ore grade, gold recovery, costs of labor, consumables and mine site general and administrative activities can cause these measures to increase or decrease. We believe that these measures are similar to the measures of other gold mining companies, but may not be comparable to similarly titled measures in every instance.

Adjusted net income/(loss) attributable to Golden Star shareholders

The table below shows the reconciliation of net loss attributable to Golden Star shareholders to adjusted net income/(loss) attributable to Golden Star shareholders and adjusted income/(loss) per share attributable to Golden Star shareholders:

	Three Months Ended December 31,		For the Years Ended December 31,	
	2019	2018	2019	2018
(Stated in thousands of U.S dollars except per share data)				
Net loss attributable to Golden Star shareholders	(62,434)	(9,318)	(67,434)	(18,123)
Add back/(deduct):				
Share-based compensation expense	501	(1,468)	3,119	1,278
Loss/(gain) on fair value of financial instruments	2,986	(3,274)	1,642	(6,786)
Severance charges	31	9,882	368	14,858
Corporate office relocation costs ¹	3,182	—	7,221	—
Gain on change in asset retirement obligations	(906)	(1,575)	(179)	(3,080)
Deferred income tax expense	9,298	1,525	21,148	12,350
Impairment charges	56,762	—	56,762	—
Variable consideration adjustment ²	3,073	—	3,073	—
	12,493	(4,228)	25,720	497
Adjustments attributable to non-controlling interest	(6,518)	(983)	(7,810)	(2,413)
Adjusted net income/(loss) attributable to Golden Star shareholders	5,975	(5,211)	17,910	(1,916)
Adjusted income/(loss) per share attributable to Golden Star shareholders - basic	\$ 0.05	\$ (0.05)	\$ 0.16	\$ (0.02)
Weighted average shares outstanding - basic (millions) ³	109.4	108.5	109.0	84.3

¹ Corporate office relocation costs includes termination costs related to the change in senior management and staff due to the planned relocation of the corporate office that were incurred in 2019.

² Cumulative adjustment to revenue and finance costs related to the Streaming Agreement. See Revenue discussion under Corporate Developments for an explanation of the non-cash cumulative adjustment.

³ Weighted average shares outstanding - basic has been re-stated to reflect the share consolidation that was implemented on October 30, 2018.

The Company uses “Adjusted net income/(loss) attributable to Golden Star shareholders” for its own internal purposes. Management’s internal budgets and forecasts and public guidance do not reflect the items which have been excluded from the determination of adjusted net income attributable to Golden Star shareholders. Consequently, the presentation of adjusted net income attributable to Golden Star shareholders enables shareholders to better understand the underlying operating performance of our core mining business through the eyes of management. Management periodically evaluates the components of adjusted net

earnings based on an internal assessment of performance measures that are useful for evaluating the operating performance of our business and a review of non-GAAP measures used by mining industry analysts and other mining companies.

“Adjusted net income/(loss) attributable to Golden Star shareholders - basic” is calculated by adjusting net loss attributable to Golden Star shareholders for share-based compensation expenses, gain/loss on fair value of financial instruments, severance charges, loss/gain on change in asset retirement obligations, deferred income tax expense, non-cash cumulative adjustment to revenue and finance costs related to the Streaming Agreement, and impairment. The Company has excluded the non-cash cumulative adjustment to revenue from adjusted net income/(loss) as the amount is non-recurring, the amount is non-cash in nature and management does not include the amount when reviewing and assessing the performance of the operations. “Adjusted income/(loss) per share attributable to Golden Star shareholders” for the period is “Adjusted net income/(loss) attributable to Golden Star shareholders” divided by the weighted average number of shares outstanding using the basic method of earnings per share.

Adjusted net income/(loss) attributable to Golden Star shareholders and adjusted income/(loss) per share attributable to Golden Star shareholders should be considered non-GAAP financial measures as defined in the Canadian securities laws and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with GAAP. There are material limitations associated with the use of such non-GAAP measures. Since these measures do not incorporate all non-cash expense and income items, changes in working capital and non-operating cash costs, they are not necessarily indicative of operating profit or cash flow from operations as determined under IFRS. Changes in numerous factors including, but not limited to, our share price, risk-free interest rates, gold prices, mining rates, milling rates, ore grade, gold recovery, costs of labor, consumables and mine site general and administrative activities can cause these measures to increase or decrease. The Company believes that these measures are similar to the measures of other gold mining companies, but may not be comparable to similarly titled measures in every instance.

OUTSTANDING SHARE DATA

As of February 18, 2020, there were 109,551,361 common shares of the Company issued and outstanding, 3,632,583 stock options outstanding, 1,290,159 deferred share units outstanding, 568,064 share units of 2017 PRSUs outstanding and 7% Convertible Debentures which are convertible into an aggregate of 11,444,000 common shares.

CRITICAL ACCOUNTING JUDGMENTS, ESTIMATES AND ASSUMPTIONS

The critical accounting judgments, estimates and assumptions are disclosed in Note 4 of the audited consolidated financial statements for the year ended December 31, 2019.

CHANGES IN ACCOUNTING POLICIES

The Company has adopted the following new and revised standards, effective January 1, 2019. These changes were made in accordance with the applicable transitional provisions.

IFRS 16 *Leases* specifies how an IFRS reporter will recognize, measure, present and disclose leases. The standard provides a single lessee accounting model, requiring lessees to recognize assets and liabilities for all leases unless the lease term is twelve months or less or the underlying asset has a low value. Lessors continue to classify leases as operating or finance, with IFRS 16's approach to lessor accounting substantially unchanged from its predecessor, IAS 17. IFRS 16 was issued in January 2016 and applies to annual reporting periods beginning on or after January 1, 2019.

On January 1, 2019, the Company adopted the requirements of IFRS 16 *Leases*. As a result, the Company updated its accounting policy for leases to align with the requirements of IFRS 16. The Company elected to use the modified retrospective approach to initially adopt IFRS 16 which resulted in recognizing the cumulative effect of prior period amounts as an adjustment to the opening balance sheet through opening deficit on January 1, 2019.

Under IFRS 16, the Company recognized lease liabilities in relation to leases which had previously been classified as ‘operating leases’ under the principles of IAS 17 *Leases*. These liabilities were measured at the present value of the remaining lease payments, discounted using the lessee's incremental borrowing rate as of January 1, 2019. The weighted average lessee's incremental borrowing rate applied to the lease liabilities on January 1, 2019 was 7.5%.

The associated right-of-use assets for property leases were measured on a retrospective basis as if the new rules had always been applied. The change in accounting policy affected the following items in the balance sheet on January 1, 2019:

- Mining interests (plant and equipment) - increase of \$0.7 million
- Long term debt (finance leases) - increase of \$0.5 million

The net impact on retained earnings on January 1, 2019 was a decrease of \$0.1 million.

IFRIC 23 *Uncertainty over income tax treatments* clarifies how the recognition and measurement requirements of IAS 12, Income Taxes, are applied where there is uncertainty over income tax treatments effective for years beginning on or after January 1, 2019. There was no accounting impact to the financial statements on adoption of this standard.

FINANCIAL INSTRUMENTS

(Stated in thousands of U.S dollars)	Fair value at December 31, 2019	Basis of measurement	Associated risks
Cash and cash equivalents \$	53,367	Amortized cost	Interest/Credit/Foreign exchange
Accounts receivable	6,503	Amortized cost	Foreign exchange/Credit
Trade and other payables	83,061	Amortized cost	Foreign exchange/Interest
Finance leases	2,381	Amortized cost	Interest
7% Convertible Debentures	47,002	Amortized cost	Interest
Macquarie Credit Facility	57,386	Amortized cost	Interest
Long-term derivative liability	5,608	Fair value through profit and loss	Market price
Non-hedge derivative liability	211	Fair value through profit and loss	Market price

Amortized cost - Cash and cash equivalents, accounts receivable, trade and other payables, the 7% Convertible Debentures, the Credit Facility and the finance leases approximate their carrying values as the interest rates are comparable to current market rates.

Fair value through profit or loss - The fair value of the long-term derivative liability relating to the 7% Convertible Debentures is estimated using a convertible note valuation model. For the year ended December 31, 2019, a total loss of \$1.4 million was recorded to the statement of operations. The non-hedge derivative liability relating to collar contracts is estimated using pricing models that utilize a variety of observable inputs that are a combination of quoted prices, applicable yield curves and credit spreads. For the year ended December 31, 2019, the Company recognized an unrealized loss of \$0.2 million.

DISCLOSURES ABOUT RISKS

The Company's exposure to significant risks include, but are not limited to, the following risks: change in interest rates on our debt, change in foreign currency exchange rates, commodity price fluctuations, liquidity risk and credit risk. In recognition of the Company's outstanding accounts payable, the Company cannot guarantee that vendors or suppliers will not suspend or deny delivery of products or services to the Company.

In the fourth quarter of 2019, the Company completed its annual budgeting process. Management observed a decrease in the Prestea mine's cash flow reflecting adjustments to key mine planning, cost and working capital assumptions following the conclusion of the independent review of the underground operations at Prestea which resulted in a trigger for an impairment test, resulting in an impairment charge of \$56.8 million to the consolidated statement of operations and comprehensive loss and a reduction in the carrying value of Prestea's assets.

Possible adverse effects of the coronavirus outbreak on future operating results.

During January 2020, it was reported that there had been an outbreak of a new coronavirus in China. In an effort to halt the outbreak, the Chinese government has, among other things, placed significant restrictions on travel within China and closed businesses for several weeks. These disruptions could impact our suppliers (or those of our contractors) based in China, which in turn could adversely impact our operating results. In addition, any spread or escalation of the outbreak outside of China could also have an increased impact on our suppliers (or those of our contractors) in other parts of the world, and could generally result in a global economic slowdown, which in turn could adversely impact our operating results.

For a complete discussion of the risks, refer to the Company's Annual Information Form for the year ended December 31, 2018 available on the SEDAR website at www.sedar.com. Additional and/or updated risk factors, if applicable, will be included in our annual information form for the year ended December 31, 2019, which will be filed on SEDAR at www.sedar.com.

CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

The Company's management, with the participation of its President and Chief Executive Officer and Executive Vice President and Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures. Based upon the

results of that evaluation, the Company's President and Chief Executive Officer and Executive Vice President and Chief Financial Officer have concluded that, as of December 31, 2019, the Company's disclosure controls and procedures were effective to provide reasonable assurance that the information required to be disclosed by the Company in reports it files is recorded, processed, summarized and reported, within the appropriate time periods and is accumulated and communicated to management, including the President and Chief Executive Officer and Executive Vice President and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Report on Internal Control Over Financial Reporting

The Company's management, with the participation of its President and Chief Executive Officer and Executive Vice President and Chief Financial Officer, are responsible for establishing and maintaining adequate internal control over financial reporting. Under the supervision of the President and Chief Executive Officer and Executive Vice President and Chief Financial Officer, the Company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS. The Company's internal control over financial reporting includes policies and procedures that:

- pertain to the maintenance of records that accurately and fairly reflect, in reasonable detail, the transactions and dispositions of assets of the Company;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with IFRS and that the Company's receipts and expenditures are made only in accordance with authorizations of management and the Company's directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company's assets that could have a material effect on the Company's consolidated financial statements.

The Company's management, including the President and Chief Executive Officer and Executive Vice President and Chief Financial Officer, believes that any disclosure controls and procedures or internal control over financial reporting, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, they cannot provide absolute assurance that all control issues and instances of fraud, if any, within the Company have been prevented or detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by unauthorized override of the control. The design of any control system also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Accordingly, because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Changes in Internal Control Over Financial Reporting

There has been no change in the Company's design of internal controls and procedures over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting during the period covered by this MD&A.

RISK FACTORS AND ADDITIONAL INFORMATION

The risk factors for the year ended December 31, 2019 are substantially the same as those disclosed and discussed under the headings "Risk Factors - General Risks", "Risk Factors - Governmental and Regulatory Risks" and "Risk Factors - Market Risks" in our annual information form for the year ended December 31, 2018. Additional and/or updated risk factors, if applicable, will be included in our annual information form for the year ended December 31, 2019, which will be filed on SEDAR at www.sedar.com.

GOLDEN STAR

The logo for Golden Star, featuring a stylized eight-pointed star with a white center and gold points, positioned between the letters 'S' and 'T' of the word 'STAR'.

Consolidated Financial Statements

For the Years Ended December 31, 2019 and December 31, 2018

MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL STATEMENTS

The accompanying consolidated financial statements of Golden Star Resources Ltd. (the "Company") and all information in this financial report are the responsibility of management. The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board ("IFRS") and, where appropriate, include management's best estimates and judgments.

Management maintains a system of internal control designed to provide reasonable assurance that assets are safeguarded from loss or unauthorized use, and that financial information is timely and reliable. However, any system of internal control over financial reporting, no matter how well designed and implemented, has inherent limitations and may not prevent or detect all misstatements.

The Board of Directors is responsible for ensuring that management fulfills its responsibilities for financial reporting and is ultimately responsible for reviewing and approving the consolidated financial statements.

The Board carries out this responsibility principally through its Audit Committee. The Board of Directors appoints the Audit Committee, and all of its members are independent directors. The Audit Committee meets periodically with management and the auditors to review internal controls, audit results, accounting principles and related matters. The Board of Directors approves the consolidated financial statements on recommendation from the Audit Committee.

PricewaterhouseCoopers LLP, an independent firm of Chartered Professional Accountants, was appointed by the shareholders at the last annual meeting to examine the consolidated financial statements and provide an independent professional opinion. PricewaterhouseCoopers LLP has full and free access to the Audit Committee.

"Andrew Wray"

Andrew Wray

President and Chief Executive Officer

"André van Niekerk"

André van Niekerk

Executive Vice President and Chief Financial Officer

Toronto, Canada

February 18, 2020

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Golden Star Resources Ltd.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Golden Star Resources Ltd. and its subsidiaries (together, the Company) as of December 31, 2019 and 2018, and the related consolidated statements of operations and comprehensive loss, cash flows and changes in shareholders' equity for the years then ended, including the related notes (collectively referred to as the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control – Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and its financial performance and its cash flows for the years then ended in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control – Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting on page 27 of the 2019 Management's Discussion and Analysis. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail,

accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

(Signed) "PricewaterhouseCoopers LLP"

Chartered Professional Accountants, Licensed Public Accountants

Toronto, Canada

February 18, 2020

We have served as the Company's auditor since at least 1992. We have not been able to determine the specific year we began serving as auditor of the Company.

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GOLDEN STAR RESOURCES LTD.
CONSOLIDATED STATEMENTS OF OPERATIONS
AND COMPREHENSIVE LOSS
(Stated in thousands of U.S. dollars except shares and per share data)

	Notes	For the Years Ended December 31,	
		2019	2018
Revenue	17	\$ 264,737	\$ 273,017
Cost of sales excluding depreciation and amortization	18	186,340	223,729
Depreciation and amortization		29,054	33,939
Mine operating margin		49,343	15,349
Other expenses/(income)			
Exploration expense		3,195	2,959
General and administrative		19,091	16,428
Finance expense, net	20	7,623	18,072
Other expense/(income)	21	11,565	(3,603)
Impairment charges	19	56,762	—
Loss/(gain) on fair value of financial instruments, net	5	1,642	(6,786)
Loss before tax		(50,535)	(11,721)
Income tax expense	8	27,439	12,350
Net loss and comprehensive loss		\$ (77,974)	\$ (24,071)
Net loss attributable to non-controlling interest		(10,540)	(5,948)
Net loss attributable to Golden Star shareholders		\$ (67,434)	\$ (18,123)
Net loss per share attributable to Golden Star shareholders			
Basic	16	\$ (0.62)	\$ (0.21)
Diluted	16	\$ (0.62)	\$ (0.21)
Weighted average shares outstanding-basic (millions)		109.0	84.3
Weighted average shares outstanding-diluted (millions)		109.0	84.3

The accompanying notes are an integral part of the consolidated financial statements.

GOLDEN STAR RESOURCES LTD.
CONSOLIDATED BALANCE SHEETS
(Stated in thousands of U.S. dollars)

	Notes	As of December 31, 2019	As of December 31, 2018
ASSETS			
CURRENT ASSETS			
Cash and cash equivalents		\$ 53,367	\$ 96,507
Accounts receivable		6,503	3,213
Inventories	6	38,860	35,196
Prepays and other		8,559	5,291
Total Current Assets		<u>107,289</u>	<u>140,207</u>
RESTRICTED CASH		2,082	6,545
MINING INTERESTS	7	264,689	270,640
DEFERRED TAX ASSETS		—	595
Total Assets		<u>\$ 374,060</u>	<u>\$ 417,987</u>
LIABILITIES			
CURRENT LIABILITIES			
Accounts payable and accrued liabilities	9	\$ 90,842	\$ 78,484
Current portion of rehabilitation provisions	10	5,826	7,665
Current portion of deferred revenue	11	11,191	14,316
Current portion of long term debt	12	15,987	27,482
Other liability	15	—	6,410
Total Current Liabilities		<u>123,846</u>	<u>134,357</u>
REHABILITATION PROVISIONS	10	62,609	58,560
DEFERRED REVENUE	11	102,784	105,632
LONG TERM DEBT	12	90,782	73,224
DERIVATIVE LIABILITY	5	5,608	4,177
DEFERRED TAX LIABILITY	8	20,554	—
Total Liabilities		<u>406,183</u>	<u>375,950</u>
SHAREHOLDERS' EQUITY			
SHARE CAPITAL			
First preferred shares, without par value, unlimited shares authorized. No shares issued and outstanding		—	—
Common shares, without par value, unlimited shares authorized	13	910,205	908,035
CONTRIBUTED SURPLUS		38,964	37,258
DEFICIT		(898,779)	(831,283)
Shareholders' equity attributable to Golden Star shareholders		<u>50,390</u>	<u>114,010</u>
NON-CONTROLLING INTEREST		(82,513)	(71,973)
Total Equity		<u>(32,123)</u>	<u>42,037</u>
Total Liabilities and Shareholders' Equity		<u>\$ 374,060</u>	<u>\$ 417,987</u>

The accompanying notes are an integral part of the consolidated financial statements.

Signed on behalf of the Board,

"Timothy C. Baker"
Timothy C. Baker, Director

"Robert E. Doyle"
Robert E. Doyle, Director

GOLDEN STAR RESOURCES LTD.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Stated in thousands of U.S. dollars)

	Notes	For the Years Ended December 31,	
		2019	2018
OPERATING ACTIVITIES:			
Net loss		\$ (77,974)	\$ (24,071)
Reconciliation of net loss to net cash provided by/(used in) operating activities:			
Depreciation and amortization		29,608	33,975
Impairment charges	19	56,762	—
Share-based compensation	15	3,119	1,278
Income tax expense	8	27,439	12,350
Loss/(gain) on fair value of 7% Convertible Debentures embedded derivative	5	1,431	(6,786)
Recognition of deferred revenue	11	(13,334)	(13,738)
Reclamation expenditures	10	(3,171)	(5,316)
Other	25	12,949	11,925
Changes in working capital	25	(13,988)	(17,172)
Net cash provided by/(used in) operating activities		22,841	(7,555)
INVESTING ACTIVITIES:			
Additions to mining interests		(73,381)	(44,935)
Proceeds from asset disposal		—	38
Change in accounts payable and deposits on mine equipment and material		1,507	(3,014)
Decrease/(increase) in restricted cash		4,463	(40)
Net cash used in investing activities		(67,411)	(47,951)
FINANCING ACTIVITIES:			
Principal payments on debt	12	(57,225)	(15,607)
Proceeds from debt agreements, net	12	57,386	35,000
Royal Gold loan repayment		—	(20,000)
Shares issued, net		—	124,772
Exercise of options		1,269	61
Net cash provided by financing activities		1,430	124,226
(Decrease)/increase in cash and cash equivalents		(43,140)	68,720
Cash and cash equivalents, beginning of period		96,507	27,787
Cash and cash equivalents, end of period		\$ 53,367	\$ 96,507

See Note 21 for supplemental cash flow information.

The accompanying notes are an integral part of the consolidated financial statements.

GOLDEN STAR RESOURCES LTD.
CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY
(Stated in thousands of U.S. dollars except share data)

	Number of Common Shares	Share Capital	Contributed Surplus	Deficit	Non-Controlling Interest	Total Shareholders' Equity
Balance at December 31, 2017	76,116,215	\$ 783,167	\$ 35,284	\$ (794,180)	\$ (66,025)	\$ (41,754)
Impact of adopting IFRS 15 on January 1, 2018	—	—	—	(18,980)	—	(18,980)
Balance at January 1, 2018 (restated)	76,116,215	783,167	35,284	(813,160)	(66,025)	(60,734)
Shares issued	32,642,100	125,672	—	—	—	125,672
Shares issued under DSUs	36,194	20	(165)	—	—	(145)
Shares issued under options	24,500	77	(16)	—	—	61
Options granted net of forfeitures	—	—	1,248	—	—	1,248
Deferred share units granted	—	—	565	—	—	565
Performance and restricted share units granted	—	—	342	—	—	342
Share issue costs	—	(901)	—	—	—	(901)
Net loss	—	—	—	(18,123)	(5,948)	(24,071)
Balance at December 31, 2018	108,819,009	\$ 908,035	\$ 37,258	\$ (831,283)	\$ (71,973)	\$ 42,037
Impact of adopting IFRS 16 on January 1, 2019 (see Note 3)	—	—	—	(62)	—	(62)
Balance at January 1, 2019 (restated)	108,819,009	908,035	37,258	(831,345)	(71,973)	41,975
Shares issued under options	437,772	2,054	(784)	—	—	1,270
Options granted net of forfeitures	—	—	1,890	—	—	1,890
Deferred share units granted	—	—	689	—	—	689
Performance and restricted share units granted	—	—	592	—	—	592
PRSU settlement, net of tax	128,282	116	(681)	—	—	(565)
Net loss	—	—	—	(67,434)	(10,540)	(77,974)
Balance at December 31, 2019	109,385,063	\$ 910,205	\$ 38,964	\$ (898,779)	\$ (82,513)	\$ (32,123)

The accompanying notes are an integral part of the consolidated financial statements.

GOLDEN STAR RESOURCES LTD.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(All currency amounts in tables are in thousands of U.S. dollars unless noted otherwise)

1. NATURE OF OPERATIONS

Golden Star Resources Ltd. ("Golden Star" or "the Company" or "we" or "our") is an international gold mining and exploration company incorporated under the *Canada Business Corporations Act* and headquartered in Toronto, Canada. The Company's shares are listed on the Toronto Stock Exchange under the symbol GSC, the NYSE American (formerly NYSE MKT) under the symbol GSS and the Ghana Stock Exchange under the symbol GSR. The Company's registered office is located at 150 King Street West, Suite 1200, Toronto, Ontario, M5H 1J9, Canada.

Through our 90% owned subsidiary, Golden Star (Wassa) Limited, we own and operate the Wassa open-pit gold mine, the Wassa underground mine and a carbon-in-leach processing plant (collectively, "Wassa"), located northeast of the town of Tarkwa, Ghana. Through our 90% owned subsidiary Golden Star (Bogoso/Prestea) Limited, we own and operate the Bogoso gold mining and processing operations, the Prestea open-pit mining operations and the Prestea underground mine (collectively "Prestea") located near the town of Prestea, Ghana. We also hold and manage interests in several gold exploration projects in Ghana and in Brazil.

2. BASIS OF PRESENTATION

Statement of compliance

The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards ("IFRS"), as issued by the International Accounting Standards Board ("IASB") and with interpretations of the International Financial Reporting Interpretations Committee ("IFRIC") which the Canadian Accounting Standards Board has approved for incorporation into Part 1 of the CPA Canada Handbook – Accounting.

These consolidated financial statements were approved by the Board of Directors of the Company on February 18, 2020.

Basis of presentation

These consolidated financial statements include the accounts of the Company and its subsidiaries, whether owned directly or indirectly. The financial statements of the subsidiaries are prepared for the same period as the Company using consistent accounting policies for all periods presented, except for the changes in accounting policies described in Note 3 below. All inter-company balances and transactions have been eliminated. Subsidiaries are entities controlled by the Company. Non-controlling interests in the net assets of consolidated subsidiaries are a separate component of the Company's equity.

These consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and discharge of all liabilities in the normal course of business.

The consolidated financial statements have been prepared on a historical cost basis, except for derivative financial instruments which are measured at fair value through profit or loss.

3. SUMMARY OF ACCOUNTING POLICIES

Cash and cash equivalents

Cash includes cash deposits in any currency residing in chequing and sweep accounts. Cash equivalents consist of money market funds and other highly liquid investments purchased with maturities of three months or less. Investments with maturities greater than three months and up to one year are classified as short-term investments, while those with maturities in excess of one year are classified as long-term investments. Cash equivalents and short-term investments are stated at amortized cost, which typically approximates market value.

Inventories

Inventory classifications include "stockpiled ore," "in-process inventory," "finished goods inventory" and "materials and supplies". The stated value of all production inventories include direct production costs and attributable overhead and depreciation incurred to bring the materials to their current point in the processing cycle. General and administrative costs for corporate offices are not included in any inventories.

Stockpiled ore represents coarse ore that has been extracted from the mine and is stored for future processing. Stockpiled ore is measured by estimating the number of tonnes (via truck counts or by physical surveys) added to, or removed from the stockpile,

the number of contained ounces (based on assay data) and estimated gold recovery percentage. Stockpiled ore value is based on the costs incurred (including depreciation and amortization) in bringing the ore to the stockpile. Costs are added to the stockpiled ore based on current mining costs per tonne and are removed at the average cost per tonne of ore in the stockpile.

In-process inventory represents material that is currently being treated in the processing plants to extract the contained gold and to transform it into a saleable product. The amount of gold in the in-process inventory is determined by assay and by measure of the quantities of the various gold-bearing materials in the recovery process. The in-process gold is valued at the average of the beginning inventory and the cost of material fed into the processing stream plus in-process conversion costs including applicable mine-site overheads, depreciation and amortization related to the processing facilities.

Finished goods inventory is saleable gold in the form of doré bars. Included in the costs are the direct costs of the mining and processing operations as well as direct mine-site overheads, amortization and depreciation.

Materials and supplies inventories consist mostly of equipment parts and other consumables required in the mining and ore processing activities.

All inventories are valued at the lower of average cost or net realizable value.

Property, plant and equipment

Property, plant and equipment assets, including machinery, processing equipment, mining equipment, mine site facilities, buildings, vehicles and expenditures that extend the life of such assets, are initially recorded at cost including acquisition and installation costs. Property, plant and equipment are subsequently measured at cost, less accumulated depreciation and accumulated impairment losses.

The costs of self-constructed assets include direct construction costs and direct overhead during the construction phase. Indirect overhead costs are not included in the cost of self-constructed assets.

Depreciation for mobile equipment and other assets having estimated lives shorter than the estimated life of the ore reserves is calculated using the straight-line method at rates which depreciate the cost of the assets, less their anticipated residual values, if any, over their estimated useful lives. Mobile mining equipment is amortized over a five year life. Assets, such as processing plants, power generators and buildings, which have an estimated life equal to or greater than the estimated life of the ore reserves, are amortized over the life of the proven and probable reserves of the associated mining property using a units-of-production amortization method, less their anticipated residual values, if any. The net book value of property, plant and equipment assets is charged against income if the mine site is abandoned and it is determined that the assets cannot be economically transferred to another project or sold.

The residual values, useful lives and method of depreciation of property, plant and equipment are reviewed at each reporting period end, and adjusted prospectively if appropriate.

Gains and losses on the disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount, and are recognized net in the consolidated statement of operations.

Mining properties

Mining property assets, including property acquisition costs, tailings storage facilities, mine-site development and drilling costs where proven and probable reserves have previously been established, pre-production waste stripping, condemnation drilling, roads, feasibility studies and wells are recorded at cost. The costs of self-constructed assets include direct construction costs, direct overhead costs and allocated interest during the construction phase. Indirect overhead costs are not included in the cost of self-constructed assets.

Mining property assets are amortized over the life of the proven and probable reserves to which they relate, using a units-of-production amortization method. At open pit mines the costs of removing overburden from an ore body in order to expose ore during its initial development period are capitalized.

Underground mine development costs

Underground mine development costs include development costs to build new shafts, drifts and ramps that will enable the Company to physically access ore underground. The time over which the Company will continue to incur these costs depends on the mine life. These underground development costs are capitalized as incurred. Capitalized underground development costs incurred to enable access to specific ore blocks or areas of the underground mine, and which only provide an economic benefit over the period of mining that ore block or area, are depreciated on a units-of-production basis, whereby the denominator is estimated ounces of gold in proven and probable reserves and the portion of resources within that ore block or area that is considered probable of economic extraction. If capitalized underground development costs provide an economic benefit over the entire mine life, the costs are depreciated on a units-of-production basis, whereby the denominator is the estimated ounces of gold in total accessible proven and probable reserves and the portion of resources that is considered probable of economic extraction.

Borrowing costs

Borrowing costs attributable to the acquisition, construction or production of a qualifying asset are capitalized. Qualifying assets are assets that require a significant amount of time to prepare for their intended use, including projects that are in the exploration and evaluation, development or construction stages. Capitalized borrowing costs are considered an element of the cost of the qualifying asset which is determined based on gross expenditures incurred on an asset. Capitalization ceases when the asset is substantially complete or if active development is suspended or ceases. Where the funds used to finance a qualifying asset form part of general borrowings, the amount capitalized is calculated using a weighted average of rates applicable to the relevant borrowings during the period. Where funds borrowed are directly attributable to a qualifying asset, the amount capitalized represents the borrowing costs specific to those borrowings. Other borrowing costs are recognized as an expense in the period in which they are incurred.

Impairment of long-lived assets

The Company assesses at each reporting period whether there is an indication that an asset or group of assets may be impaired. When impairment indicators exist, the Company estimates the recoverable amount of the asset and compares it against the asset's carrying amount. The recoverable amount is the higher of its fair value less cost of disposal ("FVLCD") and the asset's value in use ("VIU"). If the carrying amount exceeds the recoverable amount, an impairment loss is recorded in the consolidated statement of operations.

In assessing VIU, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset not already reflected in the estimates of future cash flows. The cash flows are based on best estimates of expected future cash flows from the continued use of the asset and its eventual disposal.

FVLCD is best evidenced if obtained from an active market or binding sale agreement. Where neither exists, the fair value is based on the best estimates available to reflect the amount that could be received from an arm's length transaction.

Future cash flows are based on estimated quantities of gold and other recoverable metals, expected price of gold (considering current and historical prices, price trends and related factors), production levels and cash costs of production, capital and reclamation costs, all based on detailed engineered life-of-mine plans.

Numerous factors including, but not limited to, unexpected grade changes, gold recovery variances, shortages of equipment and consumables, and equipment failures could impact our ability to achieve forecasted production schedules from proven and probable reserves. Additionally, commodity prices, capital expenditure requirements and reclamation costs could differ from the assumptions used in the cash flow models used to assess impairment. The ability to achieve the estimated quantities of recoverable minerals from exploration stage mineral interests involves further risks in addition to those factors applicable to mineral interests where proven and probable reserves have been identified, due to the lower level of confidence that the identified mineralized material can ultimately be mined economically.

If an impairment loss reverses in a subsequent period, the carrying amount (post reversal) of the related asset is increased to the revised estimate of recoverable amount to the extent that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognized for the asset previously. Reversals of impairment losses are recognized in the statement of operations in the period the reversals occur.

Material changes to any of the factors or assumptions discussed above could result in future asset impairments.

Rehabilitation provisions

The Company records a liability and corresponding asset for the present value of the estimated costs of legal and constructive obligations for future site reclamation and closure where the liability is probable and a reasonable estimate can be made of the obligation. The estimated present value of the obligation is reassessed on a periodic basis or when new material information becomes available. Increases or decreases to the obligation usually arise due to changes in legal or regulatory requirements, the extent of environmental remediation required, methods of reclamation, cost estimates, inflation rates, or discount rates. Changes to the provision for reclamation and remediation obligations related to operating mines, which are not the result of current production of inventory, are recorded with an offsetting change to the related asset. Changes to the provision for reclamation and remediation obligations related to suspended mine operations are recognized in the consolidated statements of operations and comprehensive loss. The present value is determined based on current market assessments of the time value of money using discount rates based on the risk-free rate maturing approximating the timing of expected expenditures to be incurred, and adjusted for country related risks. The periodic unwinding of the discount is recognized in the consolidated statement of operations as a finance expense.

Deferred revenue

From January 1, 2018, deferred revenue consists of: 1) initial cash payments received by the Company for future delivery of payable gold under the terms of the Company's Streaming Agreement as defined in Note 11, Deferred Revenue, and 2) a significant

financing component of the Company's Streaming Agreement. Deferred revenue is increased as interest expense is recognized based on the implicit interest rate of the discounted cash flows arising from the expected delivery of ounces under the Company's Streaming Agreement.

The amount by which the deferred revenue balance is reduced and recognized into revenue is based on a rate per ounce of gold delivered under the stream. This rate per ounce of gold delivered relating to the payments received by the Company is based on the remaining deferred revenue balance divided by the ounces that are expected to be delivered over the term of the Stream Agreement.

As the Company's Streaming Agreement contains a variable component, IFRS 15 requires that the transaction price be updated and re-allocated on an ongoing basis. As a result, the deferred revenue recognized per ounce of gold delivered under the Streaming Agreement will require an adjustment each time there is a significant change in the underlying gold production profile of a mine. Should a change in the transaction price be necessary, a cumulative catch-up adjustment to revenue will be made in the period in which the change occurs, to reflect the updated production profile expected to be delivered under the Streaming Agreement.

Foreign currency transactions

The Company's presentation currency of its consolidated financial statements is the U.S. dollar, as is the functional currency of its operations. The functional currency of all consolidated subsidiaries is the U.S. dollar. All values are rounded to the nearest thousand, unless otherwise stated.

Monetary assets and liabilities denominated in foreign currencies are translated into U.S. dollars at period end exchange rates. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are translated into U.S. dollars at the exchange rate at the date that the fair value was determined. Income and expense items are translated at the exchange rate in effect on the date of the transaction. Exchange gains and losses resulting from the translation of these amounts are included in net loss, except those arising on the translation of equity investments at fair value through other comprehensive income that are recorded in other comprehensive income. Non-monetary assets and liabilities denominated in foreign currencies that are measured at historical cost are translated at the exchange rate in effect at the transaction date.

Income taxes

Income taxes comprise the provision for (or recovery of) taxes actually paid or payable (current taxes) and for deferred taxes.

Current taxes are based on taxable earnings in the year. Current tax is calculated using tax rates and laws that were enacted or substantively enacted at the balance sheet date in the respective jurisdictions.

Current income tax assets and current income tax liabilities are only offset if a legally enforceable right exists to offset the amounts and the Company intends to settle on a net basis or to realize the asset and settle the liability simultaneously.

Deferred income tax assets and liabilities are recognized for the expected future tax consequences attributable to temporary differences between the tax basis of assets and liabilities and their reported amounts in the financial statements. Deferred income tax assets and liabilities are computed using enacted or substantially enacted income tax rates in effect when the temporary differences are expected to reverse. The effect on the deferred tax assets and liabilities of a change in tax rates is recognized in the period of substantial enactment. The provision for or the recovery of deferred taxes is based on the changes in deferred tax assets and liabilities during the period.

The carrying amount of deferred income tax assets or liabilities are reviewed at the end of each reporting period and recognized to the extent that it is probable that taxable earnings will be available against which deductible temporary differences can be utilized.

Net income/(loss) per share

Basic income/(loss) per share of common stock is calculated by dividing income available to Golden Star's common shareholders by the weighted average number of common shares issued and outstanding during the period. In periods with earnings, the calculation of diluted net income per common share uses the treasury stock method to compute the dilutive effects of stock options, convertible debentures and other potentially dilutive instruments. In periods of loss, diluted net loss per share is equal to basic loss per share.

Revenue recognition

Revenue from the sale of metal is recognized when the Company transfers control over to a customer. All of our spot sales of gold are transported to a South African gold refiner who locates a buyer and arranges for sale of our gold on the same day that the gold is shipped from the mine site. The sales price is based on the London P.M. fix on the day of shipment.

Revenue recognition for the Company's Streaming Agreement is disclosed in the accounting policy for deferred revenue.

Share-based compensation

Under the Company's Fourth Amended and Restated 1997 Stock Option Plan, common share options may be granted to executives, employees, consultants and non-employee directors. Compensation expense for such grants is recorded in the consolidated statements of operations and comprehensive loss, with a corresponding increase recorded in the contributed surplus account in the consolidated balance sheet. The expense is based on the fair value of the option at the time of grant, measured by reference to the fair value determined using a Black-Scholes valuation model, and is recognized over the vesting periods of the respective options on a graded basis. Consideration paid to the Company on exercise of options is credited to share capital.

Under the Company's Deferred Share Unit ("DSU") plan, DSUs may be granted to executive officers and directors. Compensation expense for such grants is recorded in the consolidated statements of operations and comprehensive loss with a corresponding increase recorded in the contributed surplus account in the consolidated balance sheets. The expense is based on the fair values at the time of grant and is recognized over the vesting periods of the respective DSUs. Upon exercise the Company's compensation committee may, at its discretion, issue cash, shares or a combination thereof.

Under the Company's Share Appreciation Rights ("SARs") plan allows SARs to be issued to executives, employees and directors. These awards are settled in cash on the exercise date equal to the Company's stock price less the strike price. Since these awards are settled in cash, the Company marks-to-market the associated expense for each award at the end of each reporting period using a Black-Scholes model. The Company accounts for these as liability awards and marks-to-market the fair value of the award until final settlement.

Under the Company's Performance Share Units ("PSU") plan, PSUs may be granted to executives, employees and non-employee directors. Each PSU represents one notional common share that is redeemed for cash based on the value of a common share at the end of the three year performance period, to the extent performance and vesting criteria have been met. The PSUs vest at the end of a three year performance. The cash award is determined by multiplying the number of units by the performance adjusting factor, which ranges from 0% to 200%. The performance factor is determined by comparing the Company's share price performance to the share price performance of a peer group of companies as listed in the PSU plan. As the Company was required to settle these awards in cash, they were accounted for as liability awards with corresponding compensation expense recognized. The final PSU grant vested on December 31, 2018 and as a result the Company did not recognize a PSU expense in 2019.

Under the Company's 2017 performance and restricted share unit plan (the "2017 PRSU Plan"), performance share units ("2017 PSUs") and restricted share units ("2017 RSUs" and, together with the 2017 PSUs, the "Share Units") may be issued to any employee or officer of the Company or its designated affiliates. Share Units may be redeemed for: (i) common shares issued from treasury; (ii) common shares purchased in the secondary market; (iii) a cash payment; or (iv) a combination of (i), (ii) and (iii).

Each PRSU represents one notional common share that is redeemed for common shares or common shares plus cash subject to the consent of the Company based on the value of a common share at the end of the three year performance period, to the extent performance and vesting criteria have been met. The PRSUs vest at the end of a three year performance period. The award is determined by multiplying the number of Share Units by the performance adjustment factor, which ranges from 0% to 200%. The performance adjustment factor is determined by comparing the Company's share price performance to the share price performance of a peer group of companies as listed in the 2017 PRSU Plan. As the Company has a practice of settling these awards in common shares, they are accounted for as equity awards with corresponding compensation expense recognized.

Right of Use Asset and Lease Liabilities

Until December 31, 2018 leases that transfer substantially all of the benefits and risks of ownership to the Company were recorded as finance leases and classified as property, plant and equipment with a corresponding amount recorded with current and long-term debt. All other leases were classified as operating leases under which leasing costs were expensed in the period incurred.

On January 1, 2019, the Company adopted the requirements of IFRS 16 *Leases*. As a result, the Company updated its accounting policy for leases to align with the requirements of IFRS 16. The Company elected to use the modified retrospective approach to initially adopt IFRS 16 which resulted in recognizing the cumulative effect of prior period amounts as an adjustment to the opening balance sheet through opening deficit on January 1, 2019.

From January 1, 2019, the Company recognizes a lease liability and a right-of-use asset at the lease commencement date.

The lease liability is initially measured as the present value of future lease payments discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, each operation's applicable incremental borrowing rate. The incremental borrowing rate is the rate which the operation would have to pay to borrow, over a similar term and with a similar security, the funds necessary to obtain an asset of similar value to the right-of-use asset in a similar economic environment.

Lease payments included in the measurement of the lease liability comprise the following: fixed payments, including in-substance fixed payments, less any lease incentives receivable, variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date, amounts expected to be payable by the Company under residual value

guarantees, the exercise price of a purchase option if the Company is reasonably certain to exercise that option, and payments of penalties for terminating the lease, if the Company expects to exercise an option to terminate the lease.

The lease liability is subsequently measured by increasing the carrying amount to reflect interest on the lease liability, reducing the carrying amount to reflect lease payments made, and remeasuring the carrying amount to reflect any reassessment or lease modifications.

The lease liability is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Company's estimate of the amount expected to be payable under a residual value guarantee, or if the Company changes its assessment of whether it will exercise a purchase, extension or termination option.

The right-of-use asset is initially measured at cost, which comprises the following: the amount of the initial measurement of the lease liability, any lease payments made at or before the commencement date, less any lease incentives received, any initial direct costs incurred by the Company, and an estimate of costs to be incurred by the Company in dismantling and removing the underlying asset, restoring the site on which it is located or restoring the underlying asset to the condition required by the terms and conditions of the lease, unless those costs are incurred to produce inventories.

The right-of-use asset is subsequently measured at cost, less any accumulated depreciation and any accumulated impairment losses, and adjusted for any remeasurement of the lease liability. It is depreciated in accordance with the Company's accounting policy for plant and equipment, from the commencement date to the earlier of the end of its useful life or the end of the lease term.

Each lease payment is allocated between the lease liability and finance cost. The finance cost is charged to net earnings over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

On the consolidated balance sheet, right-of-use assets and lease liabilities are reported in mineral properties, plant and equipment and debt and lease liabilities, respectively.

Financial instruments

The Company recognizes all financial assets initially at fair value and classifies them into one of the following measurement categories: fair value through profit or loss ("FVTPL"), fair value through other comprehensive income ("FVOCI") or amortized cost, as appropriate.

The Company recognizes all financial liabilities initially at fair value and classifies them as either FVTPL or loans and borrowings, as appropriate. The Company has not classified any of its derivatives as hedging instruments in an effective hedge.

Derivatives

From time to time the Company may utilize foreign exchange and commodity price derivatives to manage exposure to fluctuations in foreign currency exchange rates and gold prices, respectively. The Company does not employ derivative financial instruments for trading purposes or for speculative purposes. Derivative instruments are recorded on the balance sheet at fair value with changes in fair value recorded in the consolidated statement of operations. The Company did not have any foreign exchange derivatives outstanding at December 31, 2019.

7% Convertible Debentures embedded derivative

The Company's 7% Convertible Debentures embedded derivative is considered a financial instrument at FVTPL. The embedded derivative was recorded at fair value on the date of debt issuance. It is subsequently remeasured at fair value at each reporting date, and the changes in the fair value are recorded in the consolidated statement of operations. The fair value of the embedded derivative is determined using a convertible note valuation model, using assumptions based on market conditions existing at the reporting date.

Non-hedge derivative contracts

During the year ended December 31, 2019, the Company entered into costless collars consisting of puts and calls, on 50,000 ounces of gold with a floor price of \$1,400 per ounce and a ceiling price of \$1,750 per ounce with maturity dates ranging from October 2019 to September 2020. The non-hedge accounted collar contracts are considered fair value through profit or loss financial instruments with fair value determined using pricing models that utilize a variety of observable inputs that are a combination of quoted prices, applicable yield curves and credit spreads. The non-hedge derivative contracts are included with prepaids and other or accounts payable and accrued liabilities on the balance sheet.

Share capital

Common shares are classified as equity. Costs directly attributable to the issue of new shares or share options are shown in equity as a deduction, net of tax, from the gross proceeds.

Changes in accounting policies

The Company has adopted the following new and revised standards, effective January 1, 2019. These changes were made in accordance with the applicable transitional provisions.

IFRS 16 *Leases* specifies how an IFRS reporter will recognize, measure, present and disclose leases. The standard provides a single lessee accounting model, requiring lessees to recognize assets and liabilities for all leases unless the lease term is 12 months or less or the underlying asset has a low value. Lessors continue to classify leases as operating or finance, with IFRS 16's approach to lessor accounting substantially unchanged from its predecessor, IAS 17. IFRS 16 was issued in January 2016 and applies to annual reporting periods beginning on or after January 1, 2019. On adoption of this standard the Company elected to use the modified retrospective approach to initially adopt IFRS 16 which resulted in recognizing the cumulative effect of prior period amounts as an adjustment to the opening balance sheet through opening deficit on January 1, 2019. Under IFRS 16, the Company recognized lease liabilities in relation to leases which had previously been classified as "operating leases" under the principles of IAS 17 *Leases*. These liabilities were measured at the present value of the remaining lease payments, discounted using the lessee's incremental borrowing rate as of January 1, 2019. The weighted average lessee's incremental borrowing rate applied to the lease liabilities on January 1, 2019 was 7.5%. The associated right-of-use assets for property leases were measured on a retrospective basis as if the new rules had always been applied. The change in accounting policy resulted in an increase to mining interests (plant and equipment) of \$0.7 million and an increase to long term debt (finance leases) of \$0.5 million. The net impact on retained earnings on January 1, 2019 was a decrease of \$0.1 million.

IFRIC 23 *Uncertainty over income tax treatments* clarifies how the recognition and measurement requirements of IAS 12, *Income Taxes*, are applied where there is uncertainty over income tax treatments effective for years beginning on or after January 1, 2019. There was no accounting impact to the financial statements on adoption of this standard.

4. CRITICAL ACCOUNTING JUDGEMENTS, ESTIMATES AND ASSUMPTIONS

Preparation of our consolidated financial statements in conformity with IFRS requires management to make judgments, estimates and assumptions that can affect reported amounts of assets, liabilities, revenues and expenses and the accompanying disclosures. Estimates and assumptions are continuously evaluated and are based on management's historical experience and on other assumptions we believe to be reasonable under the circumstances. However, uncertainty about these judgments, estimates and assumptions could result in outcomes that require a material adjustment to the carrying amount of assets or liabilities affected in future periods.

Mineral reserves and resources

Determining mineral reserves and resources is a complex process involving numerous variables and is based on a professional evaluation using accepted international standards for the assessment of mineral reserves. Estimation is a subjective process, and the accuracy of such estimates is a function of the quantity and quality of available data, the assumptions made and judgments used in engineering and geological interpretation. Mineral reserve estimation may vary as a result of changes in the price of gold, production costs, and with additional knowledge of the ore deposits and mining conditions.

Differences between management's assumptions including economic assumptions such as metal prices and market conditions could have a material effect in the future on the Company's results and financial position, particularly a change in the rate of depreciation and amortization of the related mining assets and the recognition of deferred revenue.

Units of production depreciation

The mineral properties and a large portion of the property, plant and equipment is depreciated/amortized using the units of production method over the expected operating life of the mine based on estimated recoverable ounces of gold, which are the prime determinants of the life of a mine. Estimated recoverable ounces of gold include proven and probable mineral reserves. Changes in the estimated mineral reserves will result in changes to the depreciation charges over the remaining life of the operation. A decrease in the mineral reserves would increase depreciation and amortization expense and this could have a material impact on the operating results. The amortization base is updated on an annual basis based on the new mineral reserve and resource estimates.

Carrying value of assets and impairment charges

The Company undertakes a review of its assets at each reporting period to determine whether any indication of impairment exists. Where an indicator of impairment exists, a formal estimate of the recoverable amount of the asset or cash-generating unit ("CGU") is made, which is considered to be the higher of its FVLCD and VIU. An impairment loss is recognized when the carrying value of the asset or CGU is higher than the recoverable amount. In undertaking this review, management of the Company is required to make significant estimates of, amongst other things, discount rates, future production and sale volumes, metal prices, reserves and resource quantities, future operating and capital costs and reclamation costs to the end of the mine's life. These estimates are subject to various risks and uncertainties, which may ultimately have an effect on the expected recoverability of the carrying values

of the asset or CGU. In determining a CGU, management has examined the smallest identifiable group of assets that generates cash inflows that are largely independent of cash inflows from other assets or group of assets.

Assessment of impairment and reverse impairment indicators

Management applies significant judgment in assessing whether indicators of impairment or reverse impairment exist for an asset or group of assets which would necessitate impairment testing. Internal and external factors such as significant changes in the use of the asset, commodity prices and production costs are used by Management in determining whether there are any indicators.

Rehabilitation provisions

Environmental reclamation and closure liabilities are recognized at the time of environmental disturbance, in amounts equal to the discounted value of expected future reclamation and closure costs. The estimated future cash costs of such liabilities are based primarily upon environmental and regulatory requirements of the various jurisdictions in which we operate as well as any other constructive obligations that exist. The liability represents management's best estimates of cash required to settle the liability, inflation, assumptions of risks associated with future cash flows and the applicable risk-free interest rates for discounting the future cash outflow. The liability is reassessed and remeasured at each reporting date.

Fair value of financial instruments, including embedded derivatives

Where the fair value of financial assets and financial liabilities recorded in the financial statements cannot be derived from active markets, their fair value is determined using valuation techniques including the discounted cash flow model. The inputs to these models are taken from observable markets where possible, but where this is not feasible, a degree of judgment is required in establishing fair values. The judgments include considerations of inputs such as liquidity risk, credit risk and volatility. Changes in assumptions about these factors could affect the reported fair value of financial instruments.

When measuring the fair value of an asset or liability, the Company uses observable market data to the greatest extent possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows:

Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities

Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices)

Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs)

Income taxes

We deal with uncertainties and judgments in the application of complex tax regulations in the various jurisdictions where our properties are located. The amount of taxes paid is dependent upon many factors, including negotiations with taxing authorities in the various jurisdictions and resolution of disputes arising from our international tax audits. We recognize potential liabilities and record tax liabilities for anticipated tax audit issues in our various tax jurisdictions based on our best estimate of additional taxes payable. We adjust these tax estimates in light of changing facts and circumstances, however, due to the complexity of some of these uncertainties, the ultimate resolution may result in payment that is materially different from our estimates of our tax liabilities. If our estimate of tax liability proves to be less than the ultimate assessment, an additional charge to expense would result. If the estimate of tax liabilities proves to be greater than the ultimate assessment, a tax benefit is recognized.

A deferred tax asset is recognized to the extent that it is probable that taxable earnings will be available against which deductible temporary differences can be utilized.

Deferred revenue

Significant judgment is required in determining the appropriate accounting for the Streaming Agreement that has been entered into. Management has determined that based on the agreements reached that it assumes significant business risk associated with the timing and amount of ounces of gold being delivered. As such, the deposits received have been recorded as deferred revenue liabilities in the consolidated balance sheet.

The amount by which the deferred revenue balance is reduced and recognized into revenue is based on a rate per ounce of gold delivered under the stream. This rate per ounce of gold delivered relating to the payments received by the Company is based on the remaining deferred revenue balance divided by the ounces that are expected to be delivered over the term of the Stream Agreement.

As the Company's Streaming Agreement contains a variable component, IFRS 15 requires that the transaction price be updated and re-allocated on an ongoing basis. As a result, the deferred revenue recognized per ounce of gold delivered under the Streaming Agreement will require an adjustment each time there is a significant change in the underlying gold production profile of a mine.

Should a change in the transaction price be necessary, a retroactive adjustment to revenue will be made in the period in which the change occurs, to reflect the updated production profile expected to be delivered under the Streaming Agreement.

5. FINANCIAL INSTRUMENTS

The following tables illustrate the classification of the Company's recurring fair value measurements for financial instruments within the fair value hierarchy and their carrying values and fair values as at December 31, 2019 and December 31, 2018:

	Level	December 31, 2019		December 31, 2018	
		Carrying value	Fair value	Carrying value	Fair value
Financial Liabilities					
Fair value through profit or loss					
7% Convertible Debentures embedded derivative	3	5,608	5,608	4,177	4,177
Non-hedge derivative contracts	2	211	211	—	—

There were no non-recurring fair value measurements of financial instruments as at December 31, 2019.

The three levels of the fair value hierarchy are:

Level 1 - Unadjusted quoted prices in active markets for identical assets or liabilities;

Level 2 - Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly; and

Level 3 - Inputs that are not based on observable market data.

The Company's policy is to recognize transfers into and transfers out of the fair value hierarchy levels as of the date of the event or change in circumstances that caused the transfer. During the year ended December 31, 2019, there were no transfers between the levels of the fair value hierarchy.

Loss/(gain) on fair value of financial instruments in the Statements of Operations and Comprehensive Loss consists of the following:

	For the Years Ended December 31,	
	2019	2018
Loss/(gain) on fair value of 7% Convertible Debentures embedded derivative	\$ 1,431	\$ (6,786)
Unrealized loss on non-hedge derivative contracts	211	—
	<u>\$ 1,642</u>	<u>\$ (6,786)</u>

The valuation technique that is used to measure fair value is as follows:

7% Convertible Debentures embedded derivative

The debt component of the 7% Convertible Debentures is recorded at amortized cost using the effective interest rate method, and the conversion feature is classified as an embedded derivative measured at fair value through profit or loss.

The embedded derivative was valued at December 31, 2019 and December 31, 2018 using a convertible note valuation model. The significant inputs used in the convertible note valuation are as follows:

	December 31, 2019	December 31, 2018
Embedded derivative		
Risk premium	5.3%	5.0%
Borrowing costs	7.5%	10.0%
Expected volatility	45.0%	45.0%
Remaining life (years)	1.6	2.6

The following table presents the changes in the 7% Convertible Debentures embedded derivative for the year ended December 31, 2019:

	Fair value
Balance at December 31, 2018	\$ 4,177
Loss on fair value of 7% Convertible Debentures embedded derivative	1,431
Balance at December 31, 2019	\$ 5,608

If the risk premium increases by 10%, the fair value of the 7% Convertible Debentures embedded derivative would decrease and the related loss in the Statement of Operations would decrease by \$0.1 million at December 31, 2019.

If the borrowing costs increases by 10%, the fair value of the 7% Convertible Debentures embedded derivative would decrease and the related loss in the Statement of Operations would decrease by \$0.1 million at December 31, 2019.

If the expected volatility increases by 10%, the fair value of the 7% Convertible Debentures embedded derivative would increase and the related loss in the Statement of Operations would increase by \$0.7 million at December 31, 2019.

Non-hedge derivative contracts

During the year ended December 31, 2019, the Company entered into costless collars consisting of puts and calls, on 50,000 ounces of gold with a floor price of \$1,400 per ounce and a ceiling price of \$1,750 per ounce with maturity dates ranging from October 2019 to September 2020.

The non-hedge accounted collar contracts are considered fair value through profit or loss financial instruments with fair value determined using pricing models that utilize a variety of observable inputs that are a combination of quoted prices, applicable yield curves and credit spreads. The non-hedge derivative contracts are included with accounts payable and accrued liabilities on the balance sheet.

During the year ended December 31, 2019, the Company recognized an unrealized loss of \$0.2 million on the non-hedge accounted collar contracts.

6. INVENTORIES

Inventories include the following components:

	As of December 31, 2019	As of December 31, 2018
Stockpiled ore	\$ 7,578	\$ 6,613
In-process ore	2,721	4,188
Materials and supplies	28,167	23,659
Finished goods	394	736
Total	\$ 38,860	\$ 35,196

The cost of inventories expensed for the year ended December 31, 2019 and 2018 was \$171.4 million and \$209.4 million, respectively.

Net realizable value adjustments of \$1.2 million were recorded for stockpiled ore in the year ended December 31, 2019 (year ended December 31, 2018 - \$2.8 million).

7. MINING INTERESTS

The following table shows the breakdown of the cost, accumulated depreciation and net book value of plant and equipment, mining properties and construction in progress:

	Plant and equipment	Mining properties	Construction in progress	Total
Cost				
As of December 31, 2017	479,214	798,433	126,923	1,404,570
Additions	95	677	45,485	46,257
Transfers	16,516	127,902	(144,418)	—
Capitalized interest	—	—	579	579
Change in rehabilitation provision estimate	—	3,218	—	3,218
Disposals and other	(17,065)	—	—	(17,065)
Balance at December 31, 2018	\$ 478,760	\$ 930,230	\$ 28,569	\$ 1,437,559
Additions	2,869	288	72,615	75,772
Transfers	11,586	71,337	(82,923)	—
Change in rehabilitation provision estimate	—	4,830	—	4,830
Disposals and other	(621)	—	—	(621)
Balance at December 31, 2019	\$ 492,594	\$ 1,006,685	\$ 18,261	\$ 1,517,540
Accumulated depreciation				
As of December 31, 2017	437,292	713,220	—	1,150,512
Depreciation and amortization	12,349	20,900	—	33,249
Disposals and other	(16,842)	—	—	(16,842)
Balance at December 31, 2018	\$ 432,799	\$ 734,120	\$ —	\$ 1,166,919
Depreciation and amortization	10,582	19,044	—	29,626
Disposals and other	(456)	—	—	(456)
Impairment charges (see Note 19)	7,338	49,424	—	56,762
Balance at December 31, 2019	\$ 450,263	\$ 802,588	\$ —	\$ 1,252,851
Carrying amount				
Balance at December 31, 2018	\$ 45,961	\$ 196,110	\$ 28,569	\$ 270,640
Balance at December 31, 2019	\$ 42,331	\$ 204,097	\$ 18,261	\$ 264,689

Additions to plant and equipment include right-of-use assets related to the Company's corporate office space. As at December 31, 2019, the right-of-use assets had net carrying amounts of \$3.3 million (December 31, 2018 - \$3.0 million). The total minimum lease payments are disclosed in Note 12 - Debt.

8. INCOME TAXES

We recognize deferred tax assets and liabilities based on the difference between the financial reporting and tax basis of assets and liabilities using the tax rates enacted or substantively enacted when the temporary differences are expected to reverse. Deferred tax assets are fully recognized when we conclude sufficient positive evidence exists to demonstrate that it is probable that a deferred tax asset will be realized. These factors included, but are not limited to, (a) historic and expected future levels of taxable income; (b) tax plans that affect whether tax assets can be realized; and (c) the nature, amount and expected timing of reversal of taxable temporary differences. Levels of future income are affected by market price of gold, forecasted future costs of production and quantities of proven and probable gold reserves. If these factors or other circumstances changes, the Company records an adjustment to the recognition of deferred tax asset to reflect the Company's latest assessment of the amount of deferred tax asset that is probable to be realized.

Our net deferred tax (liabilities)/assets at December 31, 2019 and 2018 include the following components:

	<u>December 31, 2019</u>	<u>December 31, 2018</u>
Deferred tax assets		
Tax losses carried forward	\$ —	\$ 10,322
Deductible temporary differences relating to provisions	4,672	5,995
Deferred tax liabilities		
Mine property costs	25,226	15,723
Net deferred tax (liabilities)/assets	<u>\$ (20,554)</u>	<u>\$ 594</u>

The composition of our unrecognized deferred tax assets by tax jurisdiction is summarized as follows:

	<u>December 31, 2019</u>	<u>December 31, 2018</u>
Deductible temporary differences		
Canada	\$ 7,006	\$ 8,844
Ghana	49,869	31,509
	<u>\$ 56,875</u>	<u>\$ 40,353</u>
Tax losses		
Canada	\$ 60,195	\$ 50,718
U.S.	138	175
Ghana	305,261	287,545
	<u>\$ 365,594</u>	<u>\$ 338,438</u>
Total unrecognized deferred tax assets		
Canada	\$ 67,201	\$ 59,562
U.S.	138	175
Ghana	355,130	319,054
	<u>\$ 422,469</u>	<u>\$ 378,791</u>

The income tax expense includes the following components:

	<u>For the years ended December 31,</u>	
	<u>2019</u>	<u>2018</u>
Current tax expense		
Current tax on net earnings	\$ 6,291	\$ —
Deferred tax expense		
Originating and reversal of temporary differences in the current year	21,148	12,350
Income tax expense	<u>\$ 27,439</u>	<u>\$ 12,350</u>

A reconciliation of expected income tax on net loss before minority interest at statutory rates with the actual income tax expense is as follows:

	For the years ended December 31,	
	2019	2018
Net loss before tax	\$ (50,534)	\$ (11,721)
Statutory tax rate	26.5%	26.5%
Tax benefit at statutory rate	\$ (13,392)	\$ (3,106)
Foreign tax rates	(21,367)	(15,562)
Other	—	132
Non taxable/deductible items	1,914	(676)
Change in unrecognized deferred tax assets due to exchange rates	(2,424)	3,427
Change in unrecognized deferred tax assets due to impairment	19,867	—
Change in unrecognized deferred tax assets	42,841	28,135
Deferred income tax expense	\$ 27,439	\$ 12,350

At December 31, 2019, the Company had a tax pool and loss carryovers expiring as follows:

	Canada	Ghana	Other
2020	\$ —	\$ 63,099	\$ —
2021	—	12,822	—
2022	—	—	—
2023	—	80,486	—
2024	—	130,324	—
2026	8,519	—	—
2027	12,918	—	—
2028	11,659	—	—
2029	17,679	—	—
2030	15,802	—	—
2031	29,646	—	—
2032	14,351	—	—
2033	6,177	—	174
2034	—	—	364
2035	8,450	—	1
2036	13,777	—	120
2037	15,565	—	—
2038	27,439	—	—
2039	24,997	—	—
Indefinite	40,347	585,443	—
Total	\$ 247,326	\$ 872,174	\$ 659

The total of \$872.2 million of the Ghana tax pool is usable against taxable income generated at Prestea.

The Ghana Revenue Authority (“GRA”) has issued a tax assessment to the company’s subsidiary (Golden Star (Wassa) Limited) related to 2014-2016. The assessment claimed a reduction in the tax losses attributable by \$29 million. The company believes that the majority of the matters noted in the assessment are incorrect and has filed an appeal in an attempt to resolve these matters. Overall, it is the company’s current assessment that the relevant assessments and claims by the GRA are without merit. No amounts have been recorded for any potential liability and the company intends to defend any follow up in relation to this matter should it arise. The amount of loss, if any, cannot be determined at the current time.

9. ACCOUNTS PAYABLE AND ACCRUED LIABILITIES

Accounts payable and accrued liabilities include the following components:

	As of December 31, 2019	As of December 31, 2018
Trade and other payables	\$ 44,494	\$ 42,947
Accrued liabilities	38,567	25,522
Payroll related liabilities	7,781	10,015
Total	\$ 90,842	\$ 78,484

10. REHABILITATION PROVISIONS

At December 31, 2019, the total undiscounted amount of future cash needs for rehabilitation was estimated to be \$73.8 million. A discount rate assumption of 2%, inflation rate assumption of 2% and a risk premium of 5% were used in both 2019 and 2018 to value the rehabilitation provisions. The changes in the carrying amount of the rehabilitation provisions are as follows:

	For the Years Ended December 31,	
	2019	2018
Beginning balance	\$ 66,225	\$ 70,712
Accretion of rehabilitation provisions	730	691
Changes in estimates	4,651	138
Cost of reclamation work performed	(3,171)	(5,316)
Balance at the end of the period	\$ 68,435	\$ 66,225
Current portion	\$ 5,826	\$ 7,665
Long term portion	62,609	58,560
Total	\$ 68,435	\$ 66,225

During the year ended December 31, 2019, the Company recorded an increase in estimate for Wassa of \$1.6 million due to a revision in the timing of payments. At December 31, 2019, the rehabilitation provision for Wassa was \$17.8 million (2018- \$17.2 million). The Company expects the payments for reclamation to be incurred between 2020 and 2027.

During the year ended December 31, 2019, the Company recorded an increase in estimate for Prestea of \$3.1 million. The increase is due to a \$3.3 million increase in the expected reclamation costs relating to the non-refractory operation, slightly offset by a \$0.2 million reduction in expected reclamation costs relating to the refractory liability. The \$0.2 million (2018 - \$3.1 million) reduction in refractory obligation was recorded as other expense/(income) since the carrying value of the underlying refractory assets were \$nil after suspension of its operation in 2015. At December 31, 2019, the rehabilitation provision for Prestea was \$50.6 million (2018 - \$49.0 million). The Company expects the payments for reclamation to be incurred between 2020 and 2029.

11. DEFERRED REVENUE

The Company through its subsidiary Caystar Finance Co. completed a \$145 million gold purchase and sale agreement ("Streaming Agreement") with RGLD Gold AG ("RGLD"), a wholly-owned subsidiary of Royal Gold, Inc. Golden Star will deliver 10.5% of gold production from Wassa and Prestea at a cash purchase price of 20% of spot gold until 240,000 ounces have been delivered. Thereafter, 5.5% of gold production will be delivered from Wassa and Prestea at a cash purchase price of 30% of spot gold price. As at December 31, 2019 the Company had delivered a total of 100,181 ounces of gold to RGLD since the inception of the Streaming Agreement.

During the year ended December 31, 2019, the Company sold 21,720 ounces of gold to RGLD. Revenue recognized on the ounces sold to RGLD during the year ended December 31, 2019 consisted of \$6.0 million of cash payment proceeds and \$13.3 million of deferred revenue recognized in the period (see Note 17).

	For the Years Ended December 31,	
	2019	2018
Beginning balance	\$ 119,948	\$ 109,956
Impact of adopting IFRS 15 on January 1, 2018	—	18,980
Deferred revenue recognized before cumulative catch-up adjustment	(13,334)	(13,738)
Variable consideration adjustment	3,073	—
Interest on financing component of deferred revenue	4,288	4,750
Balance at the end of the period	\$ 113,975	\$ 119,948
Current portion	\$ 11,191	\$ 14,316
Long term portion	102,784	105,632
Total	\$ 113,975	\$ 119,948

As the Company's Streaming Agreement contains a variable component, each time there is a significant change in the underlying gold production of the Company's mines a cumulative catch-up adjustment to revenue is required. In 2019, the Company realized an adjustment to revenue and finance costs due to an increase in the Company's resource and reserve estimates related primarily to the Wassa mine. The result of the adjustment was to reduce revenue by \$9.3 million, reduce finance expense by \$6.2 million and increase deferred revenue by \$3.1 million.

12. DEBT

The following table displays the components of our current and long term debt instruments:

	As of December 31, 2019	As of December 31, 2018
Current debt:		
Lease liabilities	\$ 987	\$ 1,151
Ecobank Loan III	—	5,555
Ecobank Loan IV	—	4,000
Vendor agreement	—	16,776
Macquarie Credit Facility	15,000	—
Total current debt	\$ 15,987	\$ 27,482
Long term debt:		
Leases liabilities	\$ 1,394	\$ 532
Ecobank Loan III	—	14,380
Ecobank Loan IV	—	13,700
7% Convertible Debentures	47,002	44,612
Macquarie Credit Facility	42,386	—
Total long term debt	\$ 90,782	\$ 73,224
Current portion	\$ 15,987	\$ 27,482
Long term portion	90,782	73,224
Total	\$ 106,769	\$ 100,706

Macquarie Credit Facility

On October 17, 2019, the Company closed a \$60 million senior secured credit facility with Macquarie Bank Limited (the "Credit Facility"). The Credit Facility is repayable in equal quarterly installments of \$5 million of principal, commencing on June 30, 2020. The final maturity date is March 31, 2023. The interest rate is 4.5% plus the applicable USD LIBOR rate. The Credit Facility is subject to normal course financial covenants including a Debt Service Coverage Ratio of greater than 1.20:1 and a Net Debt to EBITDA ratio of less than 3:1. The Company is in compliance with all financial covenants of the Credit Facility as at December

31, 2019. Certain subsidiaries of the Company are guarantors under the Credit Facility, namely, Caystar Holdings, Bogoso Holdings, Wasford Holdings, Golden Star (Bogoso/Prestea) Limited, Golden Star (Wassa) Limited, and Caystar Finance Co.

Golden Star used a portion of the proceeds of the Credit Facility to repay Ecobank Loan III, Ecobank Loan IV, and the Vendor Agreement (as defined below) with Volta River Authority.

Lease liabilities

Lease liabilities include equipment lease agreements that the Company entered into during the year ended December 31, 2018 for a period of 24 months, totaling \$1.6 million as at December 31, 2019. Additionally, leases liabilities include \$1.7 million lease agreements related to the Company's corporate office space which have remaining lease terms of up to 6 years and interest rates of 6.5% - 7.5% over the terms of the lease.

Short-term lease payments for the period ended December 31, 2019 were \$6.8 million.

Ecobank Loan III

On February 22, 2017, the Company through its subsidiary Golden Star (Wassa) Limited closed a \$25 million secured Medium Term Loan Facility ("Ecobank Loan III") with Ecobank Ghana Limited. Ecobank Loan III had a term of 60 months from the date of initial drawdown and was secured by, among other things, Wassa's existing plant, and certain machinery and equipment having a specified value. The interest rate on the loan was three month LIBOR plus 8%, per annum, payable monthly in arrears beginning a month following the initial drawdown. Repayment of principal commenced six months following the initial drawdown and was thereafter payable quarterly in arrears. The Company had twelve months to drawdown the loan.

On January 24, 2018, the Company drew down \$15.0 million of the Ecobank Loan III. The full \$25.0 million had been drawn as at December 31, 2018.

As at December 31, 2019, the Ecobank III Loan had been fully repaid using the proceeds from the Credit Facility.

Ecobank Loan IV

On June 28, 2018, the Company through its subsidiary Golden Star (Wassa) Limited closed a \$20.0 million secured loan facility ("Ecobank Loan IV") with Ecobank Ghana Limited and used the facility to repay in full the \$20.0 million Royal Gold loan the Company had outstanding. The loan was secured by, among other things, Wassa's existing plant, and certain machinery and equipment having a specified value. There were no prepayment penalties associated with Ecobank Loan IV and the loan was repayable within 60 months of initial drawdown. Repayment of principal commenced September 2018 and was thereafter payable quarterly in arrears. Interest was payable monthly in arrears at an interest rate equal to three month LIBOR plus a spread of 7.5% per annum.

As at December 31, 2019, the Ecobank Loan IV had been fully repaid using the proceeds from the Credit Facility.

7% Convertible Debentures

The 7% Convertible Debentures were issued on August 3, 2016, in the amount of \$65.0 million due August 15, 2021. The Company entered into exchange and purchase agreements with two holders of its 5% Convertible Debentures due June 1, 2017 to exchange \$42.0 million principal amount of the outstanding 5% Convertible Debentures for an equal principal amount of 7% Convertible Debentures (the "Exchange"), with such principal amount being included in the issuance of the \$65.0 million total aggregate principal amount of the 7% Convertible Debentures. The Company did not receive any cash proceeds from the Exchange. The 7% Convertible Debentures are governed by the terms of an indenture dated August 3, 2016, by and between the Company and The Bank of New York Mellon, as indenture trustee.

The 7% Convertible Debentures are senior unsecured obligations of the Company, bear interest at a rate of 7.0% per annum, payable semi-annually on February 1 and August 1 of each year, beginning on February 1, 2017, and will mature on August 15, 2021, unless earlier repurchased, redeemed or converted. Subject to earlier redemption or purchase, the 7% Convertible Debentures are convertible at any time until the close of business on the third business day immediately preceding August 15, 2021 at the option of the holder, and may be settled, at the Company's election, in cash, common shares of the Company, or a combination of cash and common shares based on an initial conversion rate. The initial conversion rate of the 7% Convertible Debentures, subject to adjustment, is approximately 222 common shares of the Company per \$1,000 principal amount of 7% Convertible Debentures being converted, which is equivalent to an initial conversion price of approximately \$4.50 per common share. The initial conversion rate is subject to adjustment upon the occurrence of certain events. If the 7% Convertible Debentures are converted before August 1, 2019, the Company will, in addition to the consideration payable with the conversion, be required to make a conversion make-whole payment in cash, common shares of the Company or a combination thereof, at the Company's election, equal to the present value of the remaining scheduled payments of interest that would have been made on the 7% Convertible Debentures converted had such debentures remained outstanding from the conversion date to August 1, 2019, subject to certain restrictions. The present value of the remaining scheduled interest payments will be computed using a discount rate equal to 2.0%.

Prior to August 15, 2019, the Company could not redeem the 7% Convertible Debentures except in the event of certain changes in applicable tax law. On or after August 15, 2019, the Company may redeem all or part of the outstanding 7% Convertible Debentures at the redemption price, only if the last reported sales price of the Company's common shares for 20 or more trading days in a period of 30 consecutive trading days ending on the trading day prior to the date the Company provides the notice of redemption to holders exceeds 130% of the conversion price in effect on each such trading day. The redemption price is equal to the sum of (1) 100% of the principal amount of the 7% Convertible Debentures to be redeemed, (2) any accrued and unpaid interest to, but excluding, the redemption date, and (3) a redemption make-whole payment, payable in cash, common shares of the Company or a combination thereof, at the Company's election, equal to the present value of the remaining scheduled payments of interest that would have been made on the 7% Convertible Debentures to be redeemed had such debentures remained outstanding from the redemption date to August 15, 2021 (excluding interest accrued to, but excluding, the redemption date, which is otherwise paid pursuant to the preceding clause (2)).

The conversion feature referred to above is an embedded derivative. The Company selected to bifurcate the conversion feature from the host instrument, thereby separating it from the debt component. The debt component is recorded at amortized cost, and the embedded derivative is accounted for at fair value. At August 3, 2016, the date of the debt issuance, the fair value of the embedded derivative was \$12.3 million. At December 31, 2019, the fair value of the embedded derivative was \$5.6 million (December 31, 2018 - \$4.2 million). The revaluation loss of \$1.4 million is recorded in the Statement of Operations (year ended December 31, 2018 - revaluation gain of \$6.8 million).

There were no conversions of the 7% Convertible Debentures during 2019, therefore, as at December 31, 2019, \$51.5 million principal amount of 7% Convertible Debentures remains outstanding.

The changes in the carrying amount of the 7% Convertible Debentures are as follows:

	For the Years Ended December 31,	
	2019	2018
Beginning balance	\$ 44,612	\$ 42,515
Accretion of 7% Convertible Debentures discount	2,390	2,097
Balance at the end of the period	\$ 47,002	\$ 44,612

Vendor Agreement

On May 4, 2016, the Company entered into an agreement with Volta River Authority, a significant account creditor to settle \$36.5 million of current liabilities. Under this agreement, the Company paid \$12.0 million and deferred the payment of the remaining \$24.5 million until January 2018, after which the outstanding balance was repaid in equal installments over 24 months commencing on January 31, 2018. Interest of 7.5% accrued and was payable beginning in January 2017 (the "Vendor Agreement").

As at December 31, 2019, the Vendor Agreement had been fully repaid using the proceeds from the Credit Facility.

Debt Repayment Schedule

Schedule of payments on outstanding debt as of December 31, 2019:

	Year ending December 31, 2020	Year ending December 31, 2021	Year ending December 31, 2022	Year ending December 31, 2023	Year ending December 31, 2024	Year ending December 31, 2025	Maturity
Lease liabilities							
Principal	\$ 987	\$ 258	\$ 275	\$ 294	\$ 313	\$ 254	2025
Interest	106	81	64	45	25	5	
7% Convertible Debentures							
Principal	—	51,498	—	—	—	—	2021
Interest	3,605	3,605	—	—	—	—	
Macquarie Credit Facility							
Principal	15,000	20,000	20,000	5,000	—	—	2023
Interest	3,667	2,436	1,135	80	—	—	
Total principal	\$ 15,987	\$ 71,756	\$ 20,275	\$ 5,294	\$ 313	\$ 254	
Total interest	7,378	6,122	1,199	125	25	5	
	\$ 23,365	\$ 77,878	\$ 21,474	\$ 5,419	\$ 338	\$ 259	

13. SHARE CAPITAL

During the year ended December 31, 2018, the Company consolidated the common shares of the Company on the basis of one post-consolidation common share for every five pre-consolidation common shares. The common shares of the Company began trading on a consolidation-adjusted basis on the TSX and the NYSE American when the markets opened on October 30, 2018.

All share data and equity-based compensation plans have been retroactively adjusted to give effect to the consolidation.

	Note	Number of Common Shares	Share Capital
Balance at December 31, 2017		76,116,215	\$ 783,167
Private placement	a	32,642,100	125,672
Shares issued under DSUs		36,194	20
Shares issued under options		24,500	77
Share issue costs		—	(901)
Balance at December 31, 2018		108,819,009	\$ 908,035
Shares issued under options		437,772	2,054
Shares issued under PRSUs, net of tax		128,282	116
Balance at December 31, 2019		109,385,063	\$ 910,205

a. On October 1, 2018, the Company completed a \$125.7 million strategic investment with La Mancha Holding S.à r.l. ("La Mancha"), a Luxembourg-incorporated private gold investment company through a private placement. La Mancha was issued 32,642,100 Golden Star common shares, representing approximately 30% of the outstanding share capital (on a non-diluted basis) after giving effect to La Mancha's investment.

14. COMMITMENTS AND CONTINGENCIES

Our commitments and contingencies include the following items:

Environmental bonding in Ghana

The Ghana Environmental Protection Agency ("EPA") requires environmental compliance bonds that provide assurance for environmental remediation at our Bogoso/Prestea and Wassa mining operations. To meet this requirement the Company has environmental bonds totaling \$9.6 million and \$8.1 million for Wassa and Bogoso/Prestea respectively, with a commercial bank in Ghana. These bonds are guaranteed by Golden Star Resources Ltd. There is also a cross guarantee between Wassa and Bogoso/Prestea. The Company also held cash deposits of \$1.1 million and \$1.0 million for each operation, which are recorded as restricted cash on the consolidated balance sheets.

Government of Ghana's rights to increase its participation

Under Act 703, the Government of Ghana has the right to acquire a special share in our Ghanaian subsidiaries at any time for no consideration or such consideration as the Government of Ghana and such subsidiaries might agree, and a pre-emptive right to purchase all gold and other minerals produced by such subsidiaries. A special share carries no voting rights and does not participate in dividends, profits or assets. If the Government of Ghana acquires a special share, it may require the Company to redeem the special share at any time for no consideration or for consideration determined by the Company. To date, the Government of Ghana has not sought to exercise any of these rights at our properties.

Royalties

Government of Ghana

The Government of Ghana receives a royalty equal to 5% of mineral revenues earned by Bogoso/Prestea and Wassa.

Asikuma Properties

As part of the acquisition of the Asikuma properties in 2003, the Company agreed to pay the seller a net smelter return royalty on future gold production from Mampon mineral property which is located on the Asikuma property. As per the acquisition agreement, there will be no royalty due on the first 200,000 ounces produced from Mampon. The amount of the royalty is based on a sliding scale which ranges from 2% of net smelter return at gold prices at or below \$300 per ounce and progressively increases to 3.5% for gold prices in excess of \$400 per ounce. Since the ounces mined at Mampon were below the 200,000 ounces threshold, we are not required to pay a royalty on this property.

Mansiso Properties

Bogoso Gold Limited agreed to grant, transfer and convey to Birim Goldfields (Ghana) Limited a net smelter return royalty of 3.5% for any average gold price above \$400 per ounce in respect of all mineral products that may be produced from the land pertaining to the Ghanaian Mansiso mineral property. During the year ended December 31, 2019, the Company accrued \$0.7 million (year ended December 31, 2018 - \$nil) in royalty payments related to the Mansiso mineral property.

Legal proceedings

The Company is involved in legal proceedings, from time to time, arising in the ordinary course of its business. It is not expected that any material liability will arise from current legal proceedings or have a material adverse effect on the Company's future business, operations or financial condition.

15. SHARE-BASED COMPENSATION

Share-based compensation expenses recognized in general and administrative expense in the Statements of Operations and Comprehensive Loss, are as follows:

	For the Years Ended December 31,	
	2019	2018
Share options	\$ 1,890	\$ 1,248
Deferred share units	689	565
Share appreciation rights	(52)	(502)
Performance share units	592	(33)
	<u>\$ 3,119</u>	<u>\$ 1,278</u>

Share options

On May 5, 2016, the Fourth Amended and Restated 1997 Stock Option Plan (the "Stock Option Plan") was approved by shareholders to (i) reserve an additional 2,000,000 common shares for the Stock Option Plan, thereby increasing the total number of common shares issuable from 5,000,000 common shares to 7,000,000 common shares under the Stock Option Plan; (ii) provide for the grant of "incentive stock options" (being stock options designated as "incentive stock options" in an option agreement and that are granted in accordance with the requirements of, and that conforms to the applicable provisions of, Section 422 of the Internal Revenue Code); and (iii) to make such other changes to update the provisions of the Stock Option Plan in light of current best practices. Options granted are non-assignable and are exercisable for a period of ten years or such other period as is stipulated in a stock option agreement between Golden Star and the optionee.

Under the Plan, we may grant options to employees, consultants and directors of the Company or its subsidiaries of up to 7,000,000 shares, of which 1,202,583 are available for grant as of December 31, 2019 (December 31, 2018 - 1,917,767). The exercise price of each option is not less than the closing price of our shares on the Toronto Stock Exchange on the day prior to the date of grant. Options typically vest over periods ranging from immediately to four years from the date of grant. Vesting periods are determined at the discretion of the Compensation Committee.

The fair value of option grants is estimated at the grant dates using the Black-Scholes option-pricing model. Fair values of options granted during the years ended December 31, 2019 and 2018 were based on the weighted average assumptions noted in the following table:

	For the Years Ended December 31,	
	2019	2018
Expected volatility	51.20%	70.06%
Risk-free interest rate	1.73%	2.39%
Expected lives	5.74 years	5.68 years

The weighted average fair value per option granted during the year ended December 31, 2019 was \$2.54 CAD (year ended December 31, 2018 - \$2.82 CAD). As at December 31, 2019, there was \$0.5 million of share-based compensation expense (December 31, 2018 - \$0.6 million) relating to the Company's share options to be recorded in future periods. For the year ended December 31, 2019, the Company recognized an expense of \$1.9 million (year ended December 31, 2018 - \$1.2 million).

A summary of option activity under the Company's Stock Option Plan during the years ended December 31, 2019 and 2018 is as follows:

	Options (^{'000})	Weighted- Average Exercise price (\$CAD)	Weighted- Average Remaining Contractual Term (Years)
Outstanding as of December 31, 2017	3,326	5.93	5.9
Granted	642	4.61	9.2
Exercised	(25)	3.24	1.6
Forfeited	(116)	8.96	3.6
Expired	(329)	9.35	0
Outstanding as of December 31, 2018	3,498	5.28	6.3
Granted	806	5.21	9.2
Exercised	(438)	3.82	7.3
Forfeited	(35)	5.49	7.7
Expired	(55)	8.50	0
Outstanding as of December 31, 2019	3,776	5.39	4.7
Exercisable as of December 31, 2018	2,664	5.42	5.5
Exercisable as of December 31, 2019	3,320	5.41	4.1

The number of options outstanding by strike price as of December 31, 2019 is shown in the following table:

Range of exercise price (Cdn\$)	Options outstanding			Options exercisable	
	Number outstanding at December 31, 2019	Weighted-average remaining contractual life	Weighted-average exercise price	Number outstanding at December 31, 2019	Weighted-average exercise price
	('000)	(years)	(Cdn\$)	('000)	(Cdn\$)
1.50 to 2.50	581	3.7	1.90	581	1.90
2.51 to 3.50	373	5.7	2.82	373	2.82
3.51 to 4.50	605	3.0	4.34	588	4.35
4.51 to 5.50	1,187	7.3	5.03	782	4.96
5.51 to 7.50	482	4.6	6.46	448	6.47
7.51 to 10.50	322	2.0	9.67	322	9.67
10.51 to 17.65	226	0.6	14.92	226	14.92
	3,776	4.7	5.39	3,320	5.41

The number of options outstanding by strike price as of December 31, 2018 is shown in the following table:

Range of exercise price (Cdn\$)	Options outstanding			Options exercisable	
	Number outstanding at December 31, 2018	Weighted-average remaining contractual life	Weighted-average exercise price	Number outstanding at December 31, 2018	Weighted-average exercise price
	('000)	(years)	(Cdn\$)	('000)	(Cdn\$)
1.50 to 2.50	604	6.1	1.90	604	1.90
2.51 to 3.50	534	7.1	2.81	405	2.82
3.51 to 4.50	581	4.9	4.35	581	4.35
4.51 to 5.50	689	9.1	4.63	205	4.68
5.51 to 7.50	487	7.7	6.48	266	6.46
7.51 to 10.50	378	2.9	9.50	378	9.50
10.51 to 17.65	225	1.9	14.92	225	14.92
	3,498	6.3	5.28	2,664	5.42

Deferred share units ("DSUs")

The Company's Deferred Share Unit Plan (the "DSU Plan") was adopted on March 9, 2011 and was amended and restated as of March 14, 2016 (the "Restatement Effective Date"). Pursuant to the DSU Plan, directors may elect to receive all or part of their retainer in DSUs having a market value equal to the portion of the retainer to be received in that form, subject to such limits as the Compensation Committee may impose. The Compensation Committee may also grant to any director or executive officer, in each year, DSUs having a market value not greater than the total compensation payable to such director or executive officer for that year, including any salary or bonus but excluding any director's retainer. The number of DSUs to be issued is determined by dividing the amount of the retainer or base salary determined as the basis for the award by the volume-weighted average trading price of a Common Share (as reported by the NYSE American) for the 20 trading days immediately preceding the date the DSUs are awarded. The vesting schedule of the DSUs is determined at the discretion of the Compensation Committee, but generally in the case of DSUs granted to directors in lieu of director retainers, the DSUs vest immediately on the award date. DSUs otherwise awarded to directors and officers as part of total compensation payable generally vest one-third on each of the first three anniversaries of the award date.

At the election of the Compensation Committee in its sole discretion, each DSU granted after the Restatement Effective Date may be redeemed for: (a) cash payment equal to the market value of one Common Share on the date of redemption (the "Redemption Value"), after deduction of applicable taxes and other source deductions required by applicable laws; (b) such number of common shares purchased by the Company on the public market as having an aggregate market value equal to the Redemption Value; or (c) any combination of the foregoing, so long as the aggregate redemption price has a fair market value equal to the Redemption Value. In addition to the foregoing, the Compensation Committee in its sole discretion, may redeem DSUs granted prior to the Restatement Effective Date for common shares issued by the Company from treasury.

For the year ended December 31, 2019, the DSUs that were granted vested immediately and a compensation expense of \$0.7 million was recognized for these grants (year ended December 31, 2018 - \$0.6 million). As of December 31, 2019, there was no unrecognized compensation expense related to DSUs granted under the Company's DSU Plan.

A summary of DSU activity during the years ended December 31, 2019 and 2018:

	For the Years Ended December 31,	
	2019	2018
Number of DSUs, beginning of period ('000)	1,086	1,018
Granted	188	150
Exercised	—	(82)
Number of DSUs, end of period ('000)	<u>1,274</u>	<u>1,086</u>

Share appreciation rights ("SARs")

On February 13, 2012, the Company adopted a Share Appreciation Rights ("SARs") Plan. The plan allows SARs to be issued to executives, employees and directors that vest after a period of three years. These awards are settled in cash on the exercise date equal to the Company's stock price less the strike price. Since these awards are settled in cash, the Company marks-to-market the associated expense for each award at the end of each reporting period using a Black-Scholes model. The Company accounts for these as liability awards and marks-to-market the fair value of the award until final settlement.

As of December 31, 2019, there was approximately \$0.1 million of total unrecognized compensation cost related to unvested SARs (December 31, 2018 - \$0.3 million). For the year ended December 31, 2019, the Company recognized a recovery of \$0.1 million related to these cash settled awards (year ended December 31, 2018 - \$0.5 million).

A summary of the SARs activity during the year ended December 31, 2019 and 2018:

	For the Years Ended December 31,	
	2019	2018
Number of SARs, beginning of period ('000)	674	533
Granted	285	304
Exercised	(203)	(36)
Forfeited	(160)	(127)
Expired	(3)	—
Number of SARs, end of period ('000)	<u>593</u>	<u>674</u>

Performance share units ("PSUs")

On January 1, 2014, the Company adopted a Performance Share Unit ("PSU") Plan. Each PSU represented one notional common share that was redeemed for cash based on the value of a common share at the end of the three-year performance period, to the extent performance and vesting criteria had been met. The PSUs vested at the end of a three-year performance period. The cash award was determined by multiplying the number of units by the performance adjustment factor, which ranged from 0% to 200%. The performance adjustment factor was determined by comparing the Company's share price performance to the share price performance of a peer group of companies as listed in the PSU Plan. As the Company was required to settle these awards in cash, they were accounted for as liability awards with corresponding compensation expense recognized.

The final PSU grant vested on December 31, 2018 and, as a result, the Company did not recognize a PSU expense in 2019. For the year ended December 31, 2018 the Company recognized a \$0.4 million recovery related to PSU's. The Company paid out the final amount owing of \$6.4 million in April 2019 and as at December 31, 2019 there is no longer a PSU liability recognized on the Balance Sheet.

A summary of the PSU activity during the year ended December 31, 2019 and 2018:

	For the Years Ended December 31,	
	2019	2018
Number of PSUs, beginning of period ('000)	1,173	2,721
Settled	(1,173)	(1,548)
Number of PSUs, end of period ('000)	<u>—</u>	<u>1,173</u>

2017 Performance and restricted share units ("PRsUs")

On May 4, 2017, the Company adopted a 2017 performance and restricted share unit plan (the "2017 PRsU Plan"). Pursuant to the 2017 PRsU Plan, performance share units ("2017 PSUs") and restricted share units ("2017 RSUs" and, together with the 2017 PSUs, the "Share Units") may be issued to any employee or officer of the Company or its designated affiliates. Share Units may be redeemed for: (i) common shares issued from treasury; (ii) common shares purchased in the secondary market; (iii) a cash payment; or (iv) a combination of (i), (ii) and (iii). Under the 2017 PRsU plan, the Company may grant up to a maximum of 2,200,000 common shares. As at December 31, 2019, 1,242,155 share units were available for grant.

Each PRsU represents one notional common share that is redeemed for common shares or common shares plus cash subject to the consent of the Company based on the value of a common share at the end of the three year performance period, to the extent performance and vesting criteria have been met. The PRsUs vest at the end of a three year performance period. The award is determined by multiplying the number of Share Units by the performance adjustment factor, which ranges from 0% to 200%. The performance adjustment factor is determined by comparing the Company's share price performance to the share price performance of a peer group of companies as listed in the 2017 PRsU Plan. As the Company has a practice of settling these awards in common shares, they are accounted for as equity awards with corresponding compensation expense recognized.

PRsUs are accounted for as equity awards with a corresponding compensation expense recognized. For the year ended December 31, 2019, the Company recognized \$0.6 million expense (year ended December 31, 2018 - \$0.3 million).

A summary of the PRsU activity during the years ended December 31, 2019 and 2018:

	For the Years Ended December 31,	
	2019	2018
Number of PRsUs, beginning of period ('000)	791	339
Granted	561	480
Settled	(324)	—
Forfeited	(394)	(28)
Number of PRsUs, end of period ('000)	634	791

16. LOSS PER COMMON SHARE

The following table provides a reconciliation between basic and diluted loss per common share:

	For the Years Ended December 31,	
	2019	2018
Net loss attributable to Golden Star shareholders	\$ (67,434)	\$ (18,123)
Weighted average number of basic shares (millions)	109.0	84.3
Loss per share attributable to Golden Star shareholders:		
Basic	\$ (0.62)	\$ (0.21)
Diluted	\$ (0.62)	\$ (0.21)

17. REVENUE

Revenue includes the following components:

	For the Years Ended December 31,	
	2019	2018
Revenue - Streaming Agreement		
Cash payment proceeds	\$ 6,027	\$ 6,036
Deferred revenue recognized	13,334	13,738
Variable consideration adjustment	(9,262)	—
	10,099	19,774
Revenue - Spot sales	254,638	253,243
Total revenue	<u>\$ 264,737</u>	<u>\$ 273,017</u>

18. COST OF SALES EXCLUDING DEPRECIATION AND AMORTIZATION

Cost of sales excluding depreciation and amortization include the following components:

	For the Years Ended December 31,	
	2019	2018
Contractors	\$ 24,249	\$ 32,536
Electricity	17,598	17,663
Fuel	7,773	7,347
Raw materials and consumables	41,377	41,910
Salaries and benefits	60,943	58,501
Transportation costs	1,329	1,751
General and administrative	9,833	9,490
Other	7,047	6,830
Mine operating expenses	<u>\$ 170,149</u>	<u>\$ 176,028</u>
Severance charges	368	14,858
Operating costs (to)/from metal inventory	(353)	12,886
Inventory net realizable value adjustment and write-off	1,216	5,655
Royalties	14,960	14,302
	<u>\$ 186,340</u>	<u>\$ 223,729</u>

19. IMPAIRMENT CHARGES

In the fourth quarter of 2019, the Company completed its annual budgeting process. Management observed a decrease in the Prestea mine's cash flow reflecting adjustments to key mine planning, cost and working capital assumptions following the conclusion of the independent review of the underground operations at Prestea which resulted in a trigger for an impairment test.

The recoverable amount of the Prestea CGU of \$nil was determined based on a discounted cash flow analysis of an indicative life of mine model. This life of mine model is management's best estimate of the recoverable amount of Prestea's assets at December 31, 2019.

The impairment test concluded that the recoverable amount of the Prestea CGU using a Value In Use model was lower than its carrying value as at December 31, 2019. This resulted in an impairment charge of \$56.8 million to the consolidated statement of operations and comprehensive loss and a reduction in the carrying value of Prestea's assets.

Key Assumptions:

The key assumptions used in determining the recoverable amount of the Prestea CGU include gold price, discount rate and life of mine.

	2019 Test
Assumptions	
Gold Price per oz - short term	\$1,435 - \$1,500
Gold Price per oz - long term	\$1,400
Discount Rate	7%
Life of Mine (years)	7

Changes in gold price and the discount rate assumptions can have a material impact on the recoverable value of each CGU. A significant change in gold prices will result in a reassessment of our life of mine plans, including the determination of reserves and resources which will impact on the recoverable amount of the CGUs.

The Company ran sensitivities at Prestea assuming a +/- \$100/oz price for gold as well as a +/- 1% change in the discount rate using the existing discounted cash flow model. Management concluded that an increase of \$100/oz over the life of the mine would reduce the impairment charge to \$30.0 million. None of the other changes would have had a material impact on the impairment charge.

Gold Price - Management estimated gold prices by considering the average of the most recent market commodity price forecasts from a number of recognized financial analysts.

Discount rate - A pre-tax discount rate was based on the Company's estimated weighted average cost of capital.

Life of Mine - The life of mine was estimated using management's latest information including Prestea's latest reserves and resources estimates as well as information gathered from the independent operational review.

20. FINANCE EXPENSE, NET

Finance income and expense includes the following components:

	For the Years Ended December 31,	
	2019	2018
Interest income	\$ (1,442)	\$ (559)
Interest expense, net of capitalized interest	10,715	13,281
Interest on financing component of deferred revenue (see Note 11)	4,288	4,750
Variable adjustment component (see Note 11)	(6,189)	—
Net foreign exchange gain	(479)	(91)
Accretion of rehabilitation provision	730	691
	<u>\$ 7,623</u>	<u>\$ 18,072</u>

On February 1, 2018, Prestea Underground mine achieved commercial production, therefore no capitalized interest was recorded since.

21. OTHER EXPENSE/(INCOME)

Other expense/(income) includes the following components:

	For the Years Ended December 31,	
	2019	2018
Loss/(gain) on disposal of assets	165	(305)
Gain on reduction of asset retirement obligations	(179)	(3,080)
Corporate office relocation costs	7,221	—
Other expense/(income)	4,358	(218)
	<u>\$ 11,565</u>	<u>\$ (3,603)</u>

22. RELATED PARTY TRANSACTIONS

There were no material related party transactions for the years ended December 31, 2019 and 2018 other than the items disclosed below.

Key management personnel

Key management personnel is defined as members of the Board of Directors and certain senior officers. Compensation of key management personnel are as follows, with such compensation made on terms equivalent to those prevailing in an arm's length transaction:

	For the Years Ended December 31,	
	2019	2018
Salaries, wages, and other benefits	\$ 5,469	\$ 3,753
Bonuses	1,947	1,052
Share-based compensation	2,547	1,965
	<u>\$ 9,963</u>	<u>\$ 6,770</u>

23. PRINCIPAL SUBSIDIARIES

The consolidated financial statements include the accounts of the Company and all of its subsidiaries at December 31, 2019. The principal operating subsidiaries are Wassa and Prestea, in which the Company has a 90% ownership interest in each.

Set out below is summarized financial information for each subsidiary that has non-controlling interests that are material to the group. The amounts are disclosed on a 100% basis and disclosure for each subsidiary are based on those included in the consolidated financial statements before inter-company eliminations.

Summarized statement of financial position

	Wassa		Prestea	
	As of December 31,		As of December 31,	
	2019	2018	2019	2018
Non-controlling interest percentage	10%	10%	10%	10%
Current assets	\$ 142,603	\$ 129,656	\$ 14,623	\$ 13,633
Current liabilities	163,640	150,404	1,267,815	1,152,156
	(21,037)	(20,748)	(1,253,192)	(1,138,523)
Non-current assets	182,982	141,262	79,788	134,090
Non-current liabilities	37,327	42,588	45,871	62,737
	145,655	98,674	33,917	71,353
Net assets/(liabilities)	124,618	77,926	(1,219,275)	(1,067,170)
Non-controlling interest	<u>\$ 20,275</u>	<u>\$ 15,605</u>	<u>\$ (102,788)</u>	<u>\$ (87,578)</u>

Summarized income statement

	Wassa		Prestea	
	For the years ended December 31,		For the years ended December 31,	
	2019	2018	2019	2018
Revenue	\$ 216,678	\$ 190,016	\$ 66,820	\$ 93,134
Net income/(loss) and comprehensive income/(loss)	46,691	30,491	(152,106)	(88,332)

Summarized cash flows

	Wassa		Prestea	
	For the years ended December 31,		For the years ended December 31,	
	2019	2018	2019	2018
Cash flows provided by/(used in) operating activities	78,809	57,897	(88,883)	(77,115)
Cash flows used in investing activities	(49,622)	(34,984)	(10,685)	(11,956)
Cash flows (used in)/provided by financing activities	(26,993)	(31,112)	98,994	85,581

24. SEGMENTED INFORMATION

Segmented revenue and results

The Company has reportable segments as identified by the individual mining operations. Segments are operations reviewed by the executive management. Each segment is identified based on quantitative and qualitative factors.

For the Years Ended December 31,	Wassa	Prestea	Other	Corporate	Total
2019					
Revenue	\$ 203,820	\$ 60,917	—	—	\$ 264,737
Mine operating expenses	98,722	71,427	—	—	170,149
Severance charges	225	143	—	—	368
Operating costs from/(to) metal inventory	299	(652)	—	—	(353)
Inventory net realizable value adjustment and write-off	—	1,216	—	—	1,216
Royalties	10,877	4,083	—	—	14,960
Cost of sales excluding depreciation and amortization	110,123	76,217	—	—	186,340
Depreciation and amortization	17,134	11,920	—	—	29,054
Mine operating margin/(loss)	76,563	(27,220)	—	—	49,343
Impairment charges	—	56,762	—	—	56,762
Income tax expense	27,439	—	—	—	27,439
Net income/(loss) attributable to non-controlling interest	4,671	(15,211)	—	—	(10,540)
Net income/(loss) attributable to Golden Star	\$ 35,357	\$ (72,751)	\$ 1,190	\$ (31,230)	\$ (67,434)
Capital expenditures	\$ 60,123	\$ 13,018	—	—	\$ 73,141
2018					
Revenue	\$ 183,078	\$ 89,939	\$ —	\$ —	\$ 273,017
Mine operating expenses	86,916	89,112	—	—	176,028
Severance charges	4,970	9,888	—	—	14,858
Operating costs from metal inventory	7,184	5,702	—	—	12,886
Inventory net realizable value adjustment and write-off	3,684	1,971	—	—	5,655
Royalties	9,508	4,794	—	—	14,302
Cost of sales excluding depreciation and amortization	112,262	111,467	—	—	223,729
Depreciation and amortization	22,066	11,873	—	—	33,939
Mine operating margin/(loss)	48,750	(33,401)	—	—	15,349
Income tax expense	12,350	—	—	—	12,350
Net income/(loss) attributable to non-controlling interest	3,043	(8,991)	—	—	(5,948)
Net income/(loss) attributable to Golden Star	\$ 27,994	\$ (25,351)	\$ (8,543)	\$ (12,223)	\$ (18,123)
Capital expenditures	\$ 35,420	\$ 11,414	—	—	\$ 46,834

Segmented Assets

The following table presents the segmented assets:

	Wassa	Prestea	Other	Corporate	Total
December 31, 2019					
Total assets	\$ 233,634	\$ 94,453	\$ 2,951	\$ 43,022	\$ 374,060
December 31, 2018					
Total assets	\$ 181,446	\$ 147,815	\$ 898	\$ 87,828	\$ 417,987

Information about major customers

Currently, approximately 90% of our gold production is sold through a South African gold refinery. Except for the sales to RGLD as part of the Streaming Agreement, the refinery arranges for the sale of gold on the day it is shipped from the mine sites and we receive payment for gold sold two working days after the gold leaves the mine site. The global gold market is competitive with numerous banks and refineries willing to buy gold on short notice. Therefore, we believe that the loss of one of our current customers would not materially delay or disrupt revenue.

25. SUPPLEMENTAL CASH FLOW INFORMATION

During the year ended December 31, 2019, the Company paid \$7.7 million of income taxes and \$7.1 million of interest (the year ended December 31, 2018 - \$nil and \$7.9 million, respectively).

Changes in working capital for the years ended December 31, 2019 and 2018 are as follows:

	For the Years Ended December 31,	
	2019	2018
(Increase)/decrease in accounts receivable	\$ (3,290)	\$ 215
(Increase)/decrease in inventories	(4,861)	9,187
Increase in prepaids and other	(180)	(737)
Increase/(decrease) in accounts payable and accrued liabilities	753	(25,837)
Decrease in other liability (see Note 15)	(6,410)	—
Total changes in working capital	\$ (13,988)	\$ (17,172)

Other includes the following components:

	For the Years Ended December 31,	
	2019	2018
Loss/(gain) on disposal of assets	\$ 165	\$ (305)
Inventory net realizable value adjustment and write-off	1,216	5,544
Loss on fair value of marketable securities	9	175
Unrealized loss on non-hedge derivative contracts	211	—
Accretion of vendor agreement	731	731
Accretion of rehabilitation provisions (see Note 10)	730	691
Amortization of financing fees	642	1,322
Accretion of 7% Convertible Debentures discount	2,390	2,097
Interest on lease obligation (see Note 3)	22	—
Gain on reduction of rehabilitation provisions	(179)	(3,080)
Interest on financing component of deferred revenue (see Note 11)	4,288	4,750
Variable consideration adjustment (See Note 11)	3,073	—
PRSU settlement	(349)	—
	\$ 12,949	\$ 11,925

Reconciliation of debt arising from financing activities during the years ended December 31, 2019 and 2018:

	Equipment financing credit facility	Lease liabilities	Ecobank Loan III	Ecobank Loan IV	Vendor Agreement	7% Convertible Debentures	Royal Gold loan	Macquarie Credit Facility	Total
December 31, 2017	\$ 147	\$ 1,498	\$ 9,559	\$ —	\$ 23,069	\$ 42,515	\$ 18,817	\$ —	\$ 95,605
<i>Cash flows</i>									
Proceeds from debt agreements	—	—	15,000	20,000	—	—	—	—	35,000
Principal payments on debt	(147)	(1,714)	(4,723)	(1,999)	(7,024)	—	—	—	(15,607)
Royal Gold loan repayment	—	—	—	—	—	—	(20,000)	—	(20,000)
<i>Non-cash changes</i>									
Capitalized loan fee	—	—	—	(340)	—	—	—	—	(340)
Equipment lease	—	1,899	—	—	—	—	—	—	1,899
Accretion of debt	—	—	99	39	731	2,097	1,183	—	4,149
December 31, 2018	\$ —	\$ 1,683	\$ 19,935	\$ 17,700	\$ 16,776	\$ 44,612	\$ —	\$ —	\$ 100,706
<i>Cash flows</i>									
Proceeds from debt agreements	—	—	—	—	—	—	—	60,000	60,000
Principal payments on debt	—	(1,441)	(20,277)	(18,000)	(17,507)	—	—	—	(57,225)
<i>Non-cash changes</i>									
Capitalized loan fee	—	—	—	—	—	—	—	(2,614)	(2,614)
Corporate office lease	—	2,139	—	—	—	—	—	—	2,139
Accretion of debt	—	—	342	300	731	2,390	—	—	3,763
December 31, 2019	\$ —	\$ 2,381	\$ —	\$ —	\$ —	\$ 47,002	\$ —	\$ 57,386	\$ 106,769

26. FINANCIAL RISK MANAGEMENT

Our exposure to market risk includes, but is not limited to, the following risks: changes in interest rates on our debt, changes in foreign currency exchange rates and commodity price fluctuations.

Liquidity risk

Liquidity risk is the risk that the Company will encounter difficulty in meeting obligations associated with financial liabilities that are settled by delivering cash or another financial asset. We manage the liquidity risk inherent in these financial obligations by preparing monthly financial summaries, quarterly forecasts and annual long-term budgets which forecast cash needs and expected cash availability to meet future obligations. Typically these obligations are met by cash flows from operations and from cash on hand. Scheduling of capital spending and acquisitions of financial resources may also be employed, as needed and as available, to meet the cash demands of our obligations.

Our ability to repay or refinance our future obligations depends on a number of factors, some of which may be beyond our control. Factors that influence our ability to meet these obligations include general global economic conditions, credit and capital market conditions, results of operations, mineral reserves and resources and the price of gold.

Macquarie Credit Facility Financial Covenants

The Macquarie Credit Facility includes covenant clauses requiring the Company to maintain certain key financial ratios. The Company must maintain a Debt Service Coverage Ratio of greater than 1.20:1, tested quarterly on a rolling four-quarter basis as at the end of each of the fiscal quarters beginning with the fiscal quarter ending June 30, 2020; maintain a ratio of Net Debt to EBITDA of less than 3.00:1, tested quarterly on a rolling four-quarter basis as at the end of each of the fiscal quarters; demonstrate, on the basis of the consolidated financial statements and annual consolidated corporate budget, that from December 31, 2020 and for each fiscal quarter thereafter, the Convertible Debentures can be repaid in full in cash by the maturity in August 2021 while maintaining (after giving effect to such repayment in cash) a positive cash position (excluding restricted cash) of \$25 million; and ensure that at all times the sum of aggregate indebtedness does not exceed \$116.5 million.

The following table shows our contractual obligations as at December 31, 2019:

(Stated in thousands of U.S dollars)	Payment due (in thousands) by period				
	Less than 1 Year	1 to 3 years	4 to 5 years	More than 5 Years	Total
Accounts payable and accrued liabilities	\$ 90,842	\$ —	\$ —	\$ —	\$ 90,842
Debt ¹	15,000	91,498	5,000	—	111,498
Lease liabilities	987	533	607	254	2,381
Interest on long term debt	7,378	7,321	150	5	14,854
Purchase obligations	17,318	—	—	—	17,318
Rehabilitation provisions ²	5,826	17,749	25,877	24,316	73,768
Total	\$ 137,351	\$ 117,101	\$ 31,634	\$ 24,575	\$ 310,661

¹ Includes the outstanding repayment amounts from the 7% Convertible Debentures maturing on August 15, 2021 and the Macquarie Credit Facility.

² Rehabilitation provisions indicates the expected undiscounted cash flows for each period.

As at December 31, 2019, the Company has current assets of \$107.3 million compared to current liabilities of \$123.8 million. As at December 31, 2019, the Company had a cash balance of \$53.4 million.

The Company expects to meet its short-term financial needs through its cash on hand and cash flow from operations.

Interest rate risk

Interest rate risk is the risk that the future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Macquarie Credit Facility is 4.5% plus the applicable USD LIBOR rate. Based on our current \$60.0 million outstanding balance, a 100 basis point change in the USD LIBOR rate would result in a nominal change in interest expense. We have not entered into any agreements to hedge against unfavorable changes in interest rates, but may in the future actively manage our exposure to interest rate risk.

Foreign currency exchange rate risk

Currency risk is risk that the fair value of future cash flows will fluctuate because of changes in foreign currency exchange rates. In addition, the value of cash and cash equivalents and other financial assets and liabilities denominated in foreign currencies can fluctuate with changes in currency exchange rates.

Since our revenues are denominated in U.S. dollars and our operating units transact much of their business in U.S. dollars, we are typically not subject to significant impacts from currency fluctuations. However, certain purchases of labor, operating supplies and capital assets are denominated in Ghana cedis, euros, British pounds, Australian dollars, South African rand and Canadian dollars. To accommodate these purchases, we maintain operating cash accounts in non-US dollar currencies and appreciation of these non-US dollar currencies against the U.S. dollar results in a foreign currency gain and a decrease in non-U.S. dollar currencies results in a loss. In the past, we have entered into forward purchase contracts for South African rand, euros and other currencies to hedge expected purchase costs of capital assets. During 2019 and 2018, we had no currency related derivatives. At December 31, 2019 and December 31, 2018, we held \$6.1 million and \$1.9 million, respectively, of foreign currency.

Commodity price risk

Gold is our primary product and, as a result, changes in the price of gold can significantly affect our results of operations and cash flows. Based on our gold production in the year, a \$100 per ounce change in gold price would result in approximately a \$18.7 million and \$17.8 million change in our sales revenues and operating cash flows, respectively. To reduce gold price volatility, we have at various times entered into gold price hedges. During the year ended December 31, 2019, the Company entered into costless collars consisting of puts and calls, on 50,000 ounces of gold with a floor price of \$1,400 per ounce and a ceiling price of \$1,750 per ounce with maturity dates ranging from October 2019 to September 2020. During the year ended December 31, 2019, the Company recognized an unrealized loss of \$0.2 million on the non-hedge accounted collar contracts.

Credit risk

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. Our credit risk is primarily associated with liquid financial assets and derivatives. We limit exposure to credit risk on liquid financial assets by holding our cash, cash equivalents, restricted cash and deposits at highly-rated financial institutions. Risks associated with gold trade receivables is considered minimal as we sell gold to a credit-worthy buyer who settles promptly within two days of receipt of gold bullion.

27. CAPITAL RISK MANAGEMENT

The Company manages its capital in a manner that will allow it to continue as a going concern while maximizing the return to shareholders through the optimization of the debt and equity balance.

In the management of capital, the Company includes the components of equity, long-term debt, net of cash and cash equivalents, and investments.

	As of December 31, 2019	As of December 31, 2018
(Deficiency)/equity	\$ (32,123)	\$ 42,037
Long-term debt	90,782	73,224
	\$ 58,659	\$ 115,261
Cash and cash equivalents	(53,367)	(96,507)
	<u>\$ 5,292</u>	<u>\$ 18,754</u>

The Company manages its capital structure and makes adjustments to it in light of changes in economic conditions and the risk characteristics of the underlying assets. In doing so, the Company may issue new shares, restructure or issue new debt and acquire or dispose of assets.

In order to facilitate the management of its capital requirements, the Company prepares annual budgets that are updated as necessary depending on various factors, including successful capital deployment and general industry conditions. The Company's treasury policy specifies that cash is to be held in banks with a rating of A or higher by Moody's Investors Service or Standard & Poor's Financial Services LLC. In addition, the Company's investment policy allows investment of surplus funds in permitted investments consisting of US treasury bills, notes and bonds, government sponsored agency debt obligations, corporate debt or municipal securities with credit rating of at least AA. All investments must have a maximum term to maturity of one year.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on form S-8 (Nos. 333-105820, 333-105821, 333-118958, 333-169047, 333-175542, 333-211926 and 333-218064) and Registration Statement No. 333-220478 on Form F-10 of Golden Star Resources Ltd. (Golden Star) of our report dated February 18, 2020 relating to the consolidated financial statements and the effectiveness of internal control over financial reporting of Golden Star as at December 31, 2019, appearing in this Form 6-K of Golden Star.

(Signed) "PricewaterhouseCoopers LLP "

Chartered Professional Accountants, Licensed Public Accountants

Toronto, Canada
February 18, 2020