



**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](http://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

		Three Months Ended December 31,		For the Years Ended December 31,	
		2019	2018	2019	2018
<b>OPERATING SUMMARY</b>					
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 <sup>1</sup>	\$/oz	1,410	1,185	1,342	1,225
Cost of sales per ounce - Consolidated <sup>2</sup>	\$/oz	1,080	1,351	1,055	1,156
Cost of sales per ounce - Wassa <sup>2</sup>	\$/oz	799	836	813	898
Cost of sales per ounce - Prestea <sup>2</sup>	\$/oz	2,101	3,054	1,848	1,681
Cash operating cost per ounce - Consolidated <sup>2</sup>	\$/oz	831	905	832	847
Cash operating cost per ounce - Wassa <sup>2</sup>	\$/oz	615	614	633	629
Cash operating cost per ounce - Prestea <sup>2</sup>	\$/oz	1,616	1,867	1,484	1,292
All-in sustaining cost per ounce - Consolidated <sup>2</sup>	\$/oz	1,227	1,218	1,159	1,107
All-in sustaining cost per ounce - Wassa <sup>2</sup>	\$/oz	959	933	922	886
All-in sustaining cost per ounce - Prestea <sup>2</sup>	\$/oz	2,202	2,164	1,937	1,558

<sup>1</sup> 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.

<sup>2</sup> 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 <sup>3</sup>	2019	2018 <sup>3</sup>
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 <sup>1</sup>	\$'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 <sup>1</sup>	\$/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 <sup>2</sup>	\$'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 <sup>2</sup>	\$/share	0.09	(0.09)	0.34	0.11
Capital expenditures	\$'000	26,296	15,280	73,381	46,834

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> 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
<b>Consolidated</b>	<b>195 - 210</b>	<b>790 - 850</b>	<b>1,080 - 1,180</b>

### 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
<b>Consolidated</b>	<b>29.5 - 32.5</b>	<b>25.0 - 27.5</b>	<b>54.5 - 60.0</b>

## 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
<b>Assumptions</b>	
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
<b>Total</b>	<b>273,999</b>	<b>204,189</b>	<b>\$ 1,342</b>

## 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 Owiredi, 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, CDI.D 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 Stopping ("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 <sup>1</sup>	\$/oz	799	836	813	898
Cash operating cost per ounce <sup>1</sup>	\$/oz	615	614	633	629
All-in sustaining cost per ounce <sup>1</sup>	\$/oz	959	933	922	886

<sup>1</sup> 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 <sup>1</sup>	\$/oz	2,101	3,054	1,848	1,681
Cash operating cost per ounce <sup>1</sup>	\$/oz	1,616	1,867	1,484	1,292
All-in sustaining cost per ounce <sup>1</sup>	\$/oz	2,202	2,164	1,937	1,558

<sup>1</sup> 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 <sup>2</sup>	Q3 2018 <sup>2</sup>	Q2 2018 <sup>2</sup>	Q1 2018 <sup>2</sup>
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 <sup>1</sup>	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 <sup>1</sup>	0.05	0.06	0.01	0.09	(0.05)	0.04	0.03	(0.03)

<sup>1</sup> 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.

<sup>2</sup> 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 <sup>1</sup>	(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

<sup>1</sup> 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				
	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 <sup>1</sup>	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 <sup>2</sup>	5,826	17,749	25,877	24,316	73,768
<b>Total</b>	<b>137,351</b>	<b>117,101</b>	<b>31,634</b>	<b>24,575</b>	<b>310,661</b>

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

<sup>2</sup> 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)				
<b>Cost of sales excluding depreciation and amortization</b>	49,232	57,565	186,340	223,729
Depreciation and amortization	8,464	7,824	29,054	33,939
<b>Cost of sales</b>	<u>57,696</u>	<u>65,389</u>	<u>215,394</u>	<u>257,668</u>
<b>Cost of sales excluding depreciation and amortization</b>	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)
<b>Cash operating costs</b>	<u>44,390</u>	<u>43,804</u>	<u>169,796</u>	<u>188,914</u>
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
<b>All-in sustaining costs</b>	<u>65,535</u>	<u>58,965</u>	<u>236,718</u>	<u>246,871</u>
<b>Ounces sold<sup>1</sup></b>	53,413	48,401	204,189	222,930
<b>Cost of sales per ounce</b>	\$ 1,080	\$ 1,351	\$ 1,055	\$ 1,156
<b>Cash operating cost per ounce</b>	\$ 831	\$ 905	\$ 832	\$ 847
<b>All-in sustaining cost per ounce</b>	\$ 1,227	\$ 1,218	\$ 1,159	\$ 1,107

<sup>1</sup> 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)			
<b>Cost of sales excluding depreciation and amortization</b>	28,828	20,404	49,232
Depreciation and amortization	4,657	3,807	8,464
<b>Cost of sales</b>	<u>33,485</u>	<u>24,211</u>	<u>57,696</u>
<b>Cost of sales excluding depreciation and amortization</b>	28,828	20,404	49,232
Severance charges	—	(31)	(31)
Royalties	(3,060)	(1,586)	(4,646)
<b>Cash operating costs</b>	<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
<b>All-in sustaining costs</b>	<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)			
<b>Cost of sales excluding depreciation and amortization</b>	110,123	76,217	186,340
Depreciation and amortization	17,134	11,920	29,054
<b>Cost of sales</b>	<u>127,257</u>	<u>88,137</u>	<u>215,394</u>
<b>Cost of sales excluding depreciation and amortization</b>	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)
<b>Cash operating costs</b>	<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
<b>All-in sustaining costs</b>	<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**

(Stated in thousands of U.S dollars except cost per ounce data)

	<b>Wassa</b>	<b>Prestea</b>	<b>Combined</b>
<b>Cost of sales excluding depreciation and amortization</b>	25,498	32,067	57,565
Depreciation and amortization	5,593	2,231	7,824
<b>Cost of sales</b>	<b>31,091</b>	<b>34,298</b>	<b>65,389</b>
<b>Cost of sales excluding depreciation and amortization</b>	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)
<b>Cash operating costs</b>	<b>22,833</b>	<b>20,971</b>	<b>43,804</b>
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
<b>All-in sustaining costs</b>	<b>34,668</b>	<b>24,297</b>	<b>58,965</b>
<b>Ounces sold</b>	<b>37,171</b>	<b>11,230</b>	<b>48,401</b>
<b>Cost of sales per ounce</b>	<b>\$ 836</b>	<b>\$ 3,054</b>	<b>\$ 1,351</b>
<b>Cash operating cost per ounce</b>	<b>\$ 614</b>	<b>\$ 1,867</b>	<b>\$ 905</b>
<b>All-in sustaining cost per ounce</b>	<b>\$ 933</b>	<b>\$ 2,164</b>	<b>\$ 1,218</b>

**For the For the Years Ended  
December 31, 2018**

(Stated in thousands of U.S dollars except cost per ounce data)

	<b>Wassa</b>	<b>Prestea</b>	<b>Combined</b>
<b>Cost of sales excluding depreciation and amortization</b>	112,262	111,467	223,729
Depreciation and amortization	22,066	11,873	33,939
<b>Cost of sales</b>	<b>134,328</b>	<b>123,340</b>	<b>257,668</b>
<b>Cost of sales excluding depreciation and amortization</b>	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)
<b>Cash operating costs</b>	<b>94,100</b>	<b>94,814</b>	<b>188,914</b>
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
<b>All-in sustaining costs</b>	<b>132,589</b>	<b>114,282</b>	<b>246,871</b>
<b>Ounces sold<sup>1</sup></b>	<b>149,568</b>	<b>73,362</b>	<b>222,930</b>
<b>Cost of sales per ounce</b>	<b>\$ 898</b>	<b>\$ 1,681</b>	<b>\$ 1,156</b>
<b>Cash operating cost per ounce</b>	<b>\$ 629</b>	<b>\$ 1,292</b>	<b>\$ 847</b>
<b>All-in sustaining cost per ounce</b>	<b>\$ 886</b>	<b>\$ 1,558</b>	<b>\$ 1,107</b>

<sup>1</sup> 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 <sup>1</sup>	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 <sup>2</sup>	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) <sup>3</sup>	109.4	108.5	109.0	84.3

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> 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](http://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](http://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](http://www.sedar.com).