In *Growth in a Time of Reckoning*, IAMGOLD’s Steve Letwin talks about how after a lengthy hiatus, the gold industry has emerged from the deep freeze more resilient and cost disciplined than ever. Ready to expand production, it seeks new avenues for growth, but does so in a time of reckoning. Due to cutbacks in exploration and declining grades, new gold discoveries are replacing only half of every ounce produced. If the industry is to reverse the trend, it needs to favour reserve replacement strategies that increase the global pot, rather than pour reserves from one pot to another.

**Growth in a Time of Reckoning**

*The Need for Sustainable Gold Replacement Strategies*

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April 2017
THE NEED FOR SUSTAINABLE GOLD REPLACEMENT STRATEGIES

For every ounce of gold produced the industry is discovering half that
The average life of a gold mine is 12 years compared to 19 years in 2009
The world’s mineable gold reserves fell 17% from 2013 to 2015
The world may have no more than 20 years remaining of mineable gold reserves
It takes ~20 years to bring a new discovery to production compared to 12 years a decade ago

I. INTRODUCTION

After a lengthy hiatus, the gold industry has emerged from the bottom of the gold cycle more resilient and cost disciplined than ever. Ready to expand production, we seek new avenues for growth, but do so at a time of reckoning. There have been so few gold discoveries of late due to declining grades and exploration cutbacks, that new discoveries are replacing only half of what we produce. At this rate, gold production is expected to peak in 2019 followed by a steady decline. As it is, the average life of a producing gold mine today is only 12 years, compared to 19 years in 2009. It’s possible that known mineable gold reserves may give us only 20 years of production, if that.

In the 1970’s, new gold discoveries outpaced production by more than two and a half times. This changed with a drop in the number of high-grade gold deposits being discovered, later compounded by increased cut-off grades in a falling gold price environment and massive cutbacks in exploration spending. It’s disconcerting enough that the world’s mineable gold reserves fell 17% from 2013 to 2015, but it can take 20 years to bring a new discovery to production compared to 12 years a decade ago.

Knowing the world’s mineable gold reserves are being depleted at a faster rate than they are being replenished, the industry needs to carefully consider its plans for increasing production. Only through strategies that increase the global pot of reserves can the industry reverse the global trend of declining production. Although the global resource base is massive, it’s low grade and in many cases requires sustained high gold prices for a meaningful portion to be converted into reserves. If the trend in new discoveries doesn’t improve, then the industry will be forced to work with only low grade, or otherwise mine challenging deposits. The industry needs to place greater emphasis on replacing reserves through exploration leading to new discoveries. At the same time, it can achieve growth in reserves by converting existing resources to reserves, expanding resources at existing mines, partnering to reduce costs and share risks to move projects forward, and acquiring resources that for whatever reason might not make it to reserves. Strategies focused on acquiring reserves, although benefiting the acquiring company, will do nothing to increase global reserves.

While acquisitions are not completely off the table at IAMGOLD, they are not necessary for us to grow. Our strategy is to grow organically, and in so doing contribute to the replacement of reserves at a global level. During the downturn we reduced exploration spending, but not to the extent that future growth from new discoveries would be jeopardized. In fact, over the past four years we made three greenfield discoveries which added 1.6 million indicated ounces and 1.4 million inferred ounces to our resources. This was accomplished by maintaining our greenfield exploration program, even though our primary focus was on brownfield exploration to maximize the potential of our existing assets. Our commitment to both brownfield and greenfield exploration has provided us with multiple avenues for achieving organic growth. The opportunities at our existing assets alone are expected to lead to 20-25% growth in...
production over the next four years. Beyond that, we have a major development project in the one of the friendliest mining jurisdictions in the world and a diverse portfolio of attractive greenfield projects.

II. THE CHALLENGE

Gold Reserves and Resources Have Fallen Sharply

Gold investors will tell you their number one concern is the shortage of significant discoveries over the past few years. Without meaningful discoveries, reserves will continue to decline as will production. From 2013 to 2015, when the industry was in the midst of a significant downturn, gold reserves for the industry fell by 17% to 1.3 billion ounces, and resources, excluding reserves, fell 14% to 2.5 billion ounces⁶.

Source: S&P Global Market Intelligence (September 2016) and SNL Metals and Mining (June 2014). IAMGOLD.
The following chart shows the decline in gold reserves by stage of development over the two-year period. Most concerning are the declines in reserves under development and at advanced projects, expanding mines and new start-ups. Together, reserves in these categories fell 29%, compared to a 9% drop in reserves at producing mines.

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<tr>
<th>Gold Reserves by Stage of Development ( Millions of Ounces)</th>
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<tbody>
<tr>
<td>Producing Mines</td>
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<td>1,042</td>
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Source: S&P Global Market Intelligence (September 2016) and SNL Metals and Mining (June 2014). IAMGOLD.

Based on the industry’s current rate of production, it’s been estimated that the world’s known mineable gold reserves may last no more than 20 years. If reserves continue declining at the rate they have been since 2011, we may be looking at less than that. A recent report by TD Securities, highlights this bleak scenario for large cap producers. In 2016, reserves fell for the fifth year in a row to a level 34% below 2011. Their combined reserve life at year end 2016 (including greenfield projects) was just over 15 years, down from nearly 22 years in 2011.

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<th>Large Cap* Gold Reserves</th>
<th>Large Cap* Total Reserve Life Index ( # of Years)</th>
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*Large Cap Producers: Barrick, Goldcorp, Newmont, Kinross, Agnico-Eagle

Source: TD Securities Inc. March 29, 2017. IAMGOLD.

Surely these numbers should be a wake-up call for the industry to focus on growth strategies that will lead to the sustainable replacement of global gold reserves.
Reserve Replacement Not Keeping Pace with Production

In the 1970’s, the industry discovered 2.6 ounces of gold for every ounce produced\textsuperscript{12}. Today, the replacement rate through new discoveries is a scant half an ounce. In 2015, the world’s top 20 producers accounted for 97% of the reserves at producing mines and 60% of the world’s total reserves\textsuperscript{13}. From 2006 to 2015, they produced just over 400 million ounces of gold - accounting for 50% of global production - and added 671 million ounces to reserves\textsuperscript{14}. Exploration accounted for 62% of the addition with acquisitions accounting for a not insignificant 38%\textsuperscript{15}. Acquiring ounces is not a sustainable reserve replacement strategy, nor is it cost effective. The average cost of acquiring reserves during this period was $241 an ounce - six times the cost of adding reserve ounces through exploration\textsuperscript{16}.

Ore Grades Trending Downwards for Decades

Replacing gold reserves has become increasingly challenging as grades have been trending downwards for decades. Many of the deposits being discovered are lower grade and located in regions with significant geographical, political and regulatory challenges. A comparison of the reserve grades of producing mines with those of undeveloped deposits tells us that the industry will be replacing its depleted reserves with reserves that are significantly lower in grade. At the end of 2016, the average reserve grade for 266 producing primary gold mines (excluding by and co product mines), which accounted for 55% of the reserves of global primary gold deposits, was 1.47 g/t Au. The average reserve grade for 310 undeveloped deposits, on the other hand, was 30% lower at 1.02 g/t Au. Although primary gold deposits which did not yet have reserve estimates had a somewhat better average grade, they were still 24% lower than the 1.47 g/t average reserve grade at producing gold mines\textsuperscript{17}.

Prolonged Exploration Cutbacks Have Led to a Drought in New Discoveries

From 2012 to 2015, exploration budgets across the industry, including grassroots and 75% of late-stage, were cut from $6 billion to $2 billion\textsuperscript{18}. That we are seeing a trickle of new discoveries is not surprising. Even with the six-fold increase in exploration spending from 2002 to 2012, the number of major discoveries in the past six years has rapidly declined - the “easy” gold discoveries are a thing of the past.
Gold Discovery Trails Far Behind Production

Source: SNL Metals & Mining

The combination of declining grades and prolonged cutbacks in exploration spending presents a major problem. If we don't spend enough money on exploration there will be few new discoveries, leaving the industry dependent on trying to develop a global portfolio of marginal deposits. Without a dramatic increase in the gold price increase, it will be hard to avoid a slowdown in the construction of new mines.

The Time Between Discovery and Production is Increasing

To make matters worse, the gap between discovery and production is growing wider. Even with the resurrection of projects delayed during the downturn, not all deposits make it to production. It’s estimated that only a third of gold resources will ever see a mill; there are just too many hurdles to overcome. And if they do make it, it’s often after a long, long haul. Deposits coming into production today have taken on average 20 years from discovery, whereas deposits found today will on average take much longer - some are predicting as much as 30 years. So not only are discoveries becoming increasingly rare, they’re taking longer to be put into production.

Source: SNL Metals & Mining. U.S. Global Investors IAMGOLD.
Low Inventory of Development Projects

Consequently, the low rate of discovery and the industry’s cutbacks in capital spending over the past few years have left the industry with a low inventory of development projects. Of the new mines being built, most are lower in grade than what they were in the past. Given the steep drop in grade, newer mines, as shown in the following chart, are contributing far less to global gold production than they once did.

New Mines Making Smaller Contribution to World Production

Source: Metals Focus. GFMS. Thomson Reuters. WGC. U.S. Global Investors

The Industry Faces Declining Production in the Years Ahead

This year, it’s estimated that global gold production will reach 98 million ounces, up 2% from 2016. A main reason behind the expected increase is the commissioning of a number of new mines in 2017. Although global mine supply is expected to increase until 2019 as a result of the new mines coming on stream, the impact on growth will be short-lived. This is because, for the most part, the modest scale of deposits coming into production will not replace the production lost from mine closures following the depletion of reserves. Additionally, the increase in cut-off grades in a falling gold price environment has diminished the life span of existing mines. According to Scotiabank, the average mine life of the companies it covers, based on company reported proven and probable reserves, is estimated at 12 years - the shortest in 30 years - and off its peak of 19 years in 2009. With a weak pipeline of new discoveries, few new development projects, and decreased mine lives, the industry will not be able to maintain current global production levels. By 2020, global mine production should drop by 3% to 95 million ounces, falling precipitously thereafter. By 2025, it’s estimated that production will be one-third lower than what it was in 2020.
The gold industry has turned to growth, but it does so at a time of reckoning. Growth strategies need to support sustainable growth in reserves.

The Gold Industry is Ready to Resume Growth

There is a renewed sense of confidence in our industry, tempered by some degree of caution. While volatility in the gold market continues, the price has risen more than $200 an ounce since the end of 2015. With gold up, many producers either returned to profitability in 2016 or narrowed their losses. IAMGOLD increased its operating cash flow by 721% and ended the year with $723 million in cash. With improving balance sheets, gold producers began unveiling 2017 plans to address flat to declining gold production profiles and shrinking mine lives.

The turnaround actually began during 2016, particularly in the junior sector. As shown in the chart below, exploration announcements spiked in 2016, which will hopefully translate into an improvement in the rate of discoveries and ultimately project development.
More feasibility studies are being published and there’s been an increase in positive project milestones and mine expansions, with previously stalled deposits advancing towards feasibility. The industry is also seeing an increase in exploration budgets, with Barrick expecting to spend 40-70% more, Eldorado 34%, Eldorado 34%, Endeavour 21% and IAMGOLD 22%.

The industry is also seeing a developing trend towards the partnership model when it comes to developing large-scale, low-grade or otherwise challenging deposits. A current example of this is Barrick Gold’s partnership with Shandong Mining. This agreement will see Barrick sell 50% of its Valadero project in Chile to Shandong for $960 million and together they will own and operate the mine. The partners also intend to explore the possibility of developing the Pascua Lama project on the Argentine-Chile border, which has been suspended since 2013, and they will look at possibly developing projects on the El Indio Gold belt.

Partnerships can bring multiple benefits - particularly the sharing of technical and financial risks and greater financial flexibility it affords. Both partners can benefit from the experience and expertise that the other partner brings to the table. Not all partnerships will work, thus it’s critical that both partners get to know the other on multiple levels - managerial, operating, technical. Barrick and Shandong, for example, spent a year getting to know each other and visiting each other’s operations.
Beware the Life of Sisyphus

There’s no question that in the face of declining gold production the gold industry needs to invest in growth. But we need to be smart about it. Having spent the past few years trying to reduce long-term debt, the pursuit of strategies requiring more debt would be like digging yourself out of a hole only to turn around and jump back in. We’ve also spent years driving costs lower, so were costs to creep back up again it would be like living the life of Sisyphus in reverse. The industry should be able to avoid a Sisyphean sentence, for surely it’s learned by now that it can get by with less. But this will require continued cost discipline and the refusal to run out of cash.

The Industry Needs to Focus on Increasing Reserves

There are multiple ways for the industry to increase reserves - it can discover new resources through exploration, it can increase the rate at which it is converting resources to reserves, with cost reductions enabling lower cut-off grades, and it can acquire reserves from someone else. It may be easier and faster for a gold producer to increase its reserves by buying someone else’s gold, but that does not drive long-term value creation for the industry as a whole. The exception is acquiring resources from juniors, whose reason for being is to discover new ounces. The gold industry needs to increase investment in exploration if it is going to make the discoveries and grow the resources that will ultimately increase the world’s supply of mineable reserves. We need to resurrect development projects delayed during the downturn, which in some cases will require partnering to meet capital requirements and share the risks. We need to expand existing resources at our existing mines, convert resources to reserves, and place greater emphasis on near-mine exploration. The good news is that we are seeing a shift in that direction. In 2015, near mine exploration for the top 20 gold producers accounted for 54% of total exploration budgets, up from 44% in 2005.

Source: SNL Metals & Mining, an offering of S&P Global Market Intelligence
IAMGOLD’s Sustainable Growth Strategy

When the gold price fell in 2013, IAMGOLD was no newcomer to tackling costs; the downturn only fostered a renewed sense of urgency. We tightened our belt, but without jeopardizing our future prospects for growth. We increased our exploration focus on the expansion of existing resources and near mine exploration. As a result of cultivating growth opportunities in our own backyard, we are now entering one of the most important phases in this company’s history - a period where we will realize the full potential of IAMGOLD. The opportunity can be summed up as an underground mine in Quebec with a 20-year mine life that’s heading for full production in 2019, open pit mines in West Africa and South America that are on the cusp of major transformations, one of Canada’s largest undeveloped gold projects in Ontario, and an impressive portfolio of greenfield exploration projects.

Westwood Ramping up to Full Production
Our Westwood Mine in Quebec has been focused on underground development over the past several years. This year we expect to double production. In 2019, the mine should be in full production, with a life-of-mine cost profile that’s the lowest of any of our operations.

Transformation for Rosebel
Our Rosebel Mine in Suriname has a remaining mine life of six years or so. With the increasing hard rock, we’ve been after soft rock resources that could not only be milled faster and at a lower cost, but would extend the life of the mine. We’ve had incremental success drilling and adding resources in the “saddles” between the existing pits. However, we have been looking to discover or acquire significant new deposits with soft rock close enough to feed the Rosebel mill. In 2016, we acquired the rights to the Saramacca property, where drilling by previous owners indicated potentially .5 to 1.4 million ounces of gold with grades between 1.0 and 1.8 grams per tonne. Our 2016-2017 drilling program is well advanced and has provided some better than expected results, including intersections of 60.5 metres at 40.9 grams of gold per tonne and 52.6 metres at 5.3 grams of gold per tonne. We expect to declare a resource estimate by the end of the third quarter this year. With Saramacca only 25 kilometres from the Rosebel mill, there will be no need to build a new mine if we convert a Saramacca resource to a reserve.

Rebirth for Sadiola
Our Sadiola joint venture in Mali presents another significant growth opportunity for IAMGOLD. Sadiola has produced more than 7 million ounces in the last 20 years, but the plant was built to process only soft rock. Oxide reserves are nearly depleted, but a three million ounce sulphide reserve lies beneath the oxide pit capable of extending Sadiola by 10 years. We plan to begin construction to accommodate hard rock sulphide once agreements, including the renewal of fiscal terms and the operating permit, with the Malian government are finalized.

Resource Expansion for Essakane
At our Essakane Mine in Burkina Faso, we’re focused on highly prospective targets on a land package of more than 1,200 square kilometres. The most promising prospect to date, Falagountou, is a satellite deposit eight kilometers east of the mill. We began mining the western portion of the Falagountou deposit in 2015 and expect to declare a resource for the eastern portion this year.
**Beyond 2020 - Partnering to Build Côté Gold**

The Côté Gold project is one of the largest undeveloped deposits in Canada located six hours north of Toronto on the southwestern extension of the Abitibi greenstone belt. We acquired the deposit in 2012 when the outlook for gold was $2,000 an ounce. Although we had to delay the project following the drop in the gold price, we continued drilling. This led to an eight-fold increase in the indicated resource to 8.4 million ounces, with 1.2 million ounces of inferred resource remaining to be potentially upgraded. Additionally, we have received positive decisions from both the provincial and federal governments on the environmental assessments, and completed a preliminary economic assessment showing Côté has the potential to be a low-cost mine with a 21-year life. We expect to publish a pre-feasibility study this summer, with a significant portion of the indicated resource converting to reserves. A project the scale of Côté is one where partnering has to be considered and is likely the route that IAMGOLD will take.

**Investing in Exploration**

Since 2012, we have upgraded > 9 million ounces of resources to an indicated category, and added nearly 1.7 million indicated and 1.9 million inferred ounces. Three of our projects which we own outright - Boto in Senegal, Siribaya-Diakha in Mali and Pitangui in Brazil - have declared resources. At our two other projects, Monster Lake in Quebec and Eastern Borosi in Nicaragua, both joint ventures with IAMGOLD operating, we expect to declare initial resources at the end of 2017.

**Growth in a Time of Reckoning**

The industry is ready to resume growth, but let’s do it the right way. Strategies that continue to see global reserve increases replacing only half of production will not create long-term value for the gold industry. Growth strategies in the industry should be those that expand resources at existing mines, identify near mine deposits that can leverage existing infrastructures and lead to new greenfield discoveries. Only through strategies that increase the global pot of mineable reserves can we reverse the trend in reserve replacement. Acquisitions play a role, but unless for the purpose of developing an asset that otherwise might not happen, they accomplish little but a change in ownership. Some believe the trend can’t be reversed; let’s prove them wrong.
Growth in a Time of Reckoning

Footnotes


15 Ibid., p.8.


17 The $723 million includes cash, cash equivalents and restricted cash as at December 31, 2016.


Growth in a Time of Reckoning

References

Endeavour Mining website. https://www.endeavourmining.com/
Cautionary Statement on Forward-looking Information

All information included in this paper, including any information as to the Company’s future financial or operating performance, and other statements that express management’s expectations or estimates of IAMGOLD’s future performance, other than statements of historical fact, constitute forward looking information or forward-looking statements and are based on expectations, estimates and projections as of the date of this presentation. Forward-looking statements contained in this presentation include, without limitation, statements with respect to: the Company’s guidance for production, cash costs, all-in sustaining costs, depreciation expense, effective tax rate, and operating margin, capital expenditures, operations outlook, cost management initiatives, development and expansion projects, exploration, the future price of gold, the estimation of mineral reserves and mineral resources, the realization of mineral reserve and mineral resource estimates, the timing and amount of estimated future production, costs of production, permitting timelines, currency fluctuations, requirements for additional capital, government regulation of mining operations, environmental risks, unanticipated reclamation expenses, title disputes or claims and limitations on insurance coverage. Forward-looking statements are provided for the purpose of providing information about management’s current expectations and plans relating to the future. Forward-looking statements are generally identifiable by, but are not limited to the, use of the words “may”, “will”, “should”, “continue”, “expect”, “anticipate”, “estimate”, “believe”, “opportunities”, “intend”, “plan”, “possible”, “suggest”, “guidance”, “outlook”, “potential”, “prospects”, “seek”, “targets”, “strategy” or “project” or the negative of these words or other variations on these words or comparable terminology. Forward-looking statements are necessarily based upon a number of estimates and assumptions that, while considered reasonable by management, are inherently subject to significant business, economic and competitive uncertainties and contingencies. The Company cautions the reader that reliance on such forward-looking statements involve risks, uncertainties and other factors that may cause the actual financial results, performance or achievements of IAMGOLD to be materially different from the Company’s estimated future results, performance or achievements expressed or implied by those forward-looking statements, and the forward-looking statements are not guarantees of future performance. These risks, uncertainties and other factors include, but are not limited to, changes in the global prices for gold, copper, silver or certain other commodities (such as diesel and electricity); changes in U.S. dollar and other currency exchange rates, interest rates or gold lease rates; risks arising from holding derivative instruments; the level of liquidity and capital resources; access to capital markets, and financing; mining tax regimes; ability to successfully integrate acquired assets; legislative, political or economic developments in the jurisdictions in which the Company carries on business; operating or technical difficulties in connection with mining or development activities; laws and regulations governing the protection of the environment; employee relations; availability and increasing costs associated with mining inputs and labour; the speculative nature of exploration and development, including the risks of diminishing quantities or grades of reserves; adverse changes in the Company’s credit rating; contests over title to properties, particularly title to undeveloped properties; and the risks involved in the exploration, development and mining business. With respect to development projects, IAMGOLD’s ability to sustain or increase its present levels of gold production is dependent in part on the success of its projects. Risks and unknowns inherent in all projects include the inaccuracy of estimated reserves and resources, metallurgical recoveries, capital and operating costs of such projects, and the future prices for the relevant minerals. Development projects have no operating history upon which to base estimates of future cash flows. The capital expenditures and time required to develop new mines or other projects are considerable, and changes in costs or construction schedules can affect project economics. Actual costs and economic returns may differ materially from IAMGOLD’s
estimates or IAMGOLD could fail to obtain the governmental approvals necessary for the operation of a project; in either case, the project may not proceed, either on its original timing or at all. For a more comprehensive discussion of the risks faced by the Company, and which may cause the actual financial results, performance or achievements of IAMGOLD to be materially different from the company’s estimated future results, performance or achievements expressed or implied by forward-looking information or forward-looking statements, please refer to the Company’s latest Annual Information Form, filed with Canadian securities regulatory authorities at www.sedar.com, and filed under Form 40-F with the United States Securities Exchange Commission at www.sec.gov/edgar.shtml. The risks described in the Annual Information Form (filed and viewable on www.sedar.com and www.sec.gov/edgar.shtml, and available upon request from the Company) are hereby incorporated by reference into this presentation.

The Company disclaims any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise except as required by applicable law.

**Technical Information and Qualified Person**

The mineral resource estimates contained in this paper have been prepared in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101"). The “Qualified Person” responsible for the supervision of the preparation and review of all resource and reserve estimates for IAMGOLD is Lise Chenard, Eng., Director, Mining Geology. Lise has worked in the mining industry for more than 30 years, mainly in operations, project development and consulting. She joined IAMGOLD in April 2013 and acquired her knowledge of the Company’s operations and projects through site visits, information reviews and ongoing communication and oversight of mine site technical service teams or consultants responsible for resource and reserve modeling and estimation. She is considered a “Qualified Person” for the purposes of NI 43-101 with respect to the mineralization being reported on. The technical information has been included herein with the consent and prior review of the above noted Qualified Person. The Qualified person has verified the data disclosed, and data underlying the information or opinions contained herein.

Drilling results referred to in this paper have been prepared in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Projects. The sampling of, and assay data from, drill core is monitored through the implementation of a quality assurance - quality control (QA-QC) program designed to follow industry best practice. The “Qualified Person” responsible for the supervision of the preparation, verification, and review of these results is Craig MacDougall, P.Geo., Senior Vice President, Exploration for IAMGOLD. Mr. MacDougall is a Qualified Person as defined by National Instrument 43-101.

*(All monetary amounts in this paper are in U.S. dollars unless otherwise noted.)*