



Gold Mine Economics *Production Costs, Margins & Cash Flows to 2030*

A new service from GFMS

This service provides gold miners, financial institutions, governments and other industry stakeholders with detailed forward-looking insight into the underlying drivers of gold mine economics.

High quality independent support to investment/lending decisions, risk/reward analysis, peer group comparisons and mine benchmarking.

Background

Despite high gold prices, the gold mining industry still faces very significant challenges. Output continues to stagnate and production costs remain high, as established mines mature and exploration fails to fill the gap.

This study clearly identifies and quantifies:

- » Which mines are profitable under different market outcomes?
- » What is the impact of different price outcomes and input cost scenarios on the future production profile?
- » What gold prices are needed for projects to generate acceptable financial returns?
- » Which mines and projects present the best growth and profit opportunities?

Analysis based on highly detailed, rigorous mine-by-mine analysis of production costs, broken down to \$/tonne mining, ore processing and on-site administration costs, plus benchmarking of fuel, power, labour productivity and other key inputs. The study includes forecasts of gold mine production, operating costs and cash flows to 2030.

About GFMS

GFMS is widely acknowledged as the world's foremost precious metals consultancy.

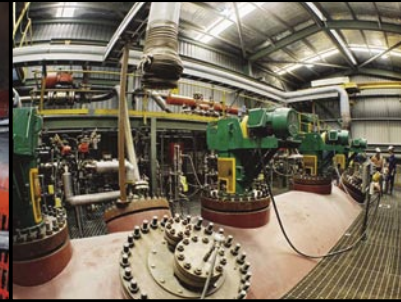
- » GFMS Mine Economics' objective is to deliver high quality insight into the economics of mine production, across a broad range of metals and minerals.
- » The GFMS Mine Economics team is growing rapidly, and already has nearly forty years of combined mine cost analysis experience. We are developing a range of multi-client mine cost studies.

GFMS believes that a renewed industry debate into mine production cost reporting is now vital.

The former Gold Institute last revised its cost standard in early 2002. GFMS is embarking upon a high profile initiative to engage gold miners and financial analysts in a dialogue about cost reporting, with a view to creating a widely accepted, credible gold industry cost standard which is actively promoted and maintained.

Log on to minecoststandard.org to participate in this dialogue.

Main Features of the Study



Mine: HEMLO (WILLIAMS & DAVID BELL)	Country: CANADA	Mine ID: 279	Status: Operating
Start Year: 2003	Mining: UGOp	Close Year: 2013	Process: L&P
Forecast: Jul-09	2008 US\$		

Reserves	2008	2007	net change
(Mt)	12.84	13.47	+5%
(g/t Au)	2.74	2.91	+6%
(Moz)	1.13	1.26	+12%

Life-of-Mine (LOM) averages	2008	2007	net change
Average Ore Production	2.6	2.12	+21%
Average Gold Production	212	196	+8%
Cash Operating Cost	598	612	-2%
Total Cash Cost	612	696	-13%
Total Production Cost	696	795	-12%
All-in Cost	795	894	-11%

PRODUCTION & COSTS SUMMARY	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Total Ore Treated (kt)																			
Average Grade (g/t)																			
Gold Production (t/y Au)																			
Paid Gold Production (koz/y)																			
Cash Cost Ex-Mine (\$/t ore)																			
Cash Operating Cost (\$/oz)																			
Total Cash Cost (\$/oz)																			
Total Production Cost (\$/oz)																			
All-in Cost (\$/oz)																			

UNIT COSTS	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Open Pit Material Mining Cost (\$/t rock)																			
Stripping Ratio																			
Open Pit Ore Mining Cost (\$/t ore)																			
Underground Mining Cost (\$/t ore)																			
Mill Processing Cost (\$/t ore)																			
Heap Leach Processing Cost (\$/t ore)																			

CASH FLOW ANALYSIS	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Net Revenue (\$M)																			
Cash Charged to Production (\$M)																			
Indirect Cash Costs (\$M)																			
Capital Expenditure (\$M)																			
Cashflow (\$M)																			

Mine-by-Mine Profiles
Highly detailed analysis
Forecasts to 2030

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GFMS Mine Economics: Gold Mine Operating & Cost Trends to 2030

Mine-by-Mine Analysis or [Analytical Methodology](#)

Cost Curves & Leagues OR jump to latest quarterly cost analysis: [2009 Q2 Gold Mine Costs](#)

Benchmarking Analysis Competitive analysis of mines and companies, benchmarking key resource, operating and financial parameters

Flexing Models **Spreadsheet-based scenario analysis tool** "Flex" mine cost forecasts incorporating your own metal price and cost inflation assumptions, assessing impact on the global cost curve OR open a ready-prepared model using GFMS' own forward-looking assumptions: [2009: 2009 forecast dollars \(updated 15/08/09\)](#) [2010: 2009 forecast dollars \(updated 25/08/09\)](#)

Global Industry Analysis Latest global analysis of gold mining, exploration, operating and financial trends [Mine Economics: Our Approach](#)

Reserves & Resources Global gold mine resource trend analysis: [PDF \(2.3Mb\)](#) [XLS \(1.2Mb\)](#) [\(updated 15/06/09\)](#)

Exploration Expenditure, companies and projects: [PDF \(2.3Mb\)](#) [XLS \(1.2Mb\)](#) [\(updated 15/06/09\)](#)

Operating Trends Throughput, grade, mining rates, technology: [PDF \(2.3Mb\)](#) [XLS \(1.2Mb\)](#) [\(updated 15/06/09\)](#)

\$/tonne Mine Site Operating Costs Mining, processing and on-site G&A; energy, manpower [PDF \(2.3Mb\)](#) [XLS \(1.2Mb\)](#) [\(updated 15/06/09\)](#)

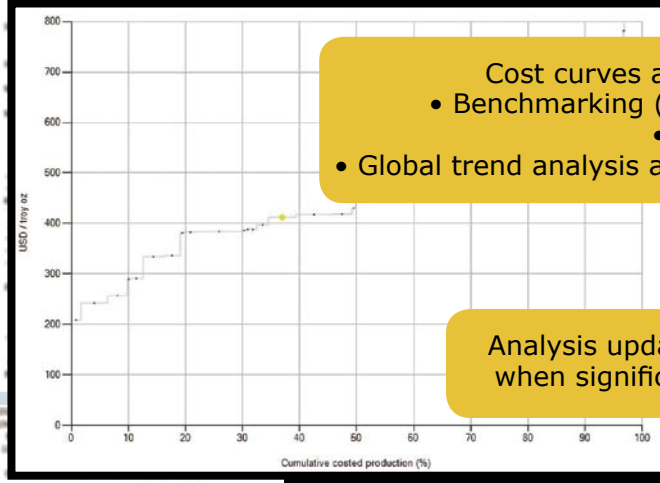
\$/oz Costs & Margins Gold Institute, C1-3 and Other \$/oz parameters [PDF \(2.3Mb\)](#) [XLS \(1.2Mb\)](#) [\(updated 15/06/09\)](#)

Capital Expenditure Projects, Expansions, "stay in business" costs [PDF \(2.3Mb\)](#) [XLS \(1.2Mb\)](#) [\(updated 15/06/09\)](#)

Projects DCFs, IRRs, incentive prices [PDF \(2.3Mb\)](#) [XLS \(1.2Mb\)](#) [\(updated 15/06/09\)](#)

All analysis delivered via webs

- Cost curves and cost leagues
- Benchmarking (SWOT) analysis
- Flexing models
- Global trend analysis and commentary



Analysis updated quarterly, or when significant events occur



Based on a stringent methodology for analysing mine economics, the analysis in this study is derived from “bottom-up” analysis of mine productivity, energy use, mining and processing costs, making it ideal for asset benchmarking purposes.

GFMS Mine Economics is undertaking a programme of global mine visits in order to gather the technical and operating data included in this study.

Besides an in-depth production cost breakdown, revenues, margins and forward-looking cash flows are presented for each operation.

- » Global coverage: Analysis of over two hundred operating gold mines, each with annual gold production greater than 50koz, plus around one hundred projects at prefeasibility stage or later.
- » Mine-by-mine analysis to 2030: Detailed reserves/resources, production, operating cost, capital cost and cash flow analysis.
- » Global Analysis: Distilling the mine-by-mine data into analysis of global trends; production and industry cost structure, cost and margin curves, competitive analysis.
- » Electronic Product: Web-based, mine and project profiles and notes available to download. Flexing model allowing clients to assess the impact of different exchange rate, input cost and gold price scenarios on mine economics.

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Interactive web-based analytical and reporting functionality

Mines & Projects Included in the Study*

Asia/Oceania

Batu Hijau
Chatree
CSH 217
Frieda River Project
Gosowong
Grasberg
Hidden Valley Project
Hishikari
Jinfeng
Kainantu
Lepanto
Lihir
Maco Project
Macraes
Maoling Project
Martabe Project
Masbate Project
Ok Tedi
Porgera
Reefton
Sepon
Siana Project
Simberi
Tanjianshan
Toka Tindung Project
Vatukoula
Waihi
White Mountain Project
Zhaojin
Zijinshan

Australia

Agnew
Aldiss-Randalls Project
Ballarat
Boddington Project
Cadia Hill
Carosue Dam Project
Challenger
Cowan
Cracow
Fosterville
Henty
Higginsville
Jundee
Kalgoorlie Super Pit
Kanowna Belle
Kirkalocka
Laverton Project
Leonora
Mt Morgan Tails Project
Mount Rawdon
New Bendigo
Norseman
Osborne
Paddington
Pajingo
Paulsens
Peak
Plutonic
Ravenswood
Ridgeway

Southern Cross
St Ives
Stawell
Sunrise Dam
Tanami
Telfer
Tropicana Project
Union Reefs Project
Yilgarn South

Canada

Afton UG Project
Black Fox Project
Casa Berardi
Detour Lake Project
Doyon
Eskay Creek
Galore Creek Project
Goldex
Hemlo
Hope Bay Project
Kemess
Kirkland Lake
La Ronde
Lapa Project
Meadowbank Project
Meliadine West Project
Musselwhite
Porcupine
Red Lake
Seabee
Sleeping Giant
Troilus
Westwood Project
Young-Davidson Project

Europe

Copler Project
Efemçukuru Project
Kisladag
Kittila
Nalunaq
Olympias Project
Perama Project
Skouries Project
Svartliden

Former Eastern Bloc

Aksu
Amantaytau
Asacha Project
Berezitovy
Bestobe
Blagodatnoye Project
Boroo
Buryatzoloto
Chelopech
Darasun
Jerooy Project
Julietta
Kremnica Project
Kumtor
Kupol

Kuranakh
Malomir Project
Mayskoye Project
Mnogovershinnoe
Natalka Project
Nezhdaninskoye Project
Novoshirokinskoye
Project
Olympiada
Oyu Tolgoi Project
Pioneer
Pokrovskiy
Rosia Montana Project
Sukhoi Log Project
Varvarinskoye
Veduga Project
Verninskoye Project
Zapadnoye
Zeravshan
Zholymbet

Latin America

Amapari
AngloGold Mineracao
Antapite
Ares
Bajo de la Alumbrera
Brisas Project
Camp Caiman Project
Candelaria
Cerro Bayo
Cerro Casale Project
Cerro Corona
Cerro Crucitas Project
Cerro San Pedro
Cerro Vanguardia
Chapada
Choco 10
Crixás (Serra Grande)
Dolores
Don Mario
El Chanate
El Dorado Project
El Peñon
El Sauzal
Fazenda Brasileiro
Gualcamayo Project
Horizonte
Jacobina
Kori Kollo
La Camorra
La Cienega
La Coipa
La Herradura
Lagunas Norte
Las Cristinas Project
Los Filos
Manantial Espejo Project
Maricunga
Marlin
Minera Florida
Molejon Project
Mulatos

Ocampo Project
Orcopampa
Orosi
Palmarejo Project
Paracatu
Paredones Amarillos
Project
Pascua-Lama Project
Pensaquito
Pierina
Pinos Altos Project
Poracota
Pueblo Viejo Project
Quimsacocha Project
Rosebel
Retamas
San Andres
San Dimas
San Martin (Honduras)
Santa Luz
Sao Francisco
Sao Vicente Project
Veladero
Yanacocha

Other Africa

Ahafo
Akyem Project
Amesmesa
Bibiani
Bogosu
Bonikro
Buckreef Project
Bulyanhulu
Buzwagi Project
Chirano
Damang
Essakane Project
Geita
Golden Pride
Iduapriem
Inata Project
Kiniero
Léro
Loulo
Mana
Morila
Moto Project
Mupane
Namoya Project
Navachab
North Mara
Obuasi
Passendro Project
Sabodala
Sadiola
Samira Hill Project
Sigui
Southern Ashanti Project
Sukari Project
Syama
Taparko
Tarkwa

Tasiast
Tongon Project
Tulawaka
Wassa
Yatela
Youga

South Africa

Beatrix
Blyvooruitzicht
Buffelsfontein
Burnstone Project
Crown Consolidated
Driefontein
Elandskraal
Ergo
ERPM
Evander
Free State
Freegold
Great Noligwa
Grootvlei
Joel
Kalgold
Kloof
Kopanang
Moab Khotsong
Modder East Project
Mponeng
Orkney
President Steyn
Randfontein
Savuka
Target
Tau Lekoa
TauTona
Vaal River Surface
South Deep

USA

Bald Mountain
Bingham Canyon
Buckhorn
Cortez
Cripple Creek
Donlin Creek Project
Fort Knox
Golden Sunlight
Goldstrike
Hollister Project
Jerritt Canyon
Kensington Project
Marigold
Mesquite
Newmont Nevada
Pebble Project
Pogo
Rochester
Round Mountain
Ruby Hill
Turquoise Ridge
Wharf

* provisional list

» The service will be available in Q3 2009, priced at £20,000. For details contact:

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