

## **Gold mine production data**

### **Methodology Note**

#### **Overview**

The gold market is broad and complex, so producing statistics on demand and supply is challenging. But having such statistics is crucial to understanding the fundamentals of the market. The World Gold Council overcomes the complexity to produce a robust, comprehensive and well-researched series of global gold demand and supply data. We publish these data and supporting commentary in our quarterly Gold Demand Trends report.

#### **1 Mine production data provider**

Our core mine supply data are provided by Metals Focus, a leading independent precious metals consultancy. Metals Focus meets our strict criteria for the provision of demand and supply data, which includes the need for an extensive global network, an experienced team, and a robust methodology. These elements combine to create a framework for collecting accurate, granular and transparent estimates for gold demand and supply.

#### **2 Data collection framework**

The following are the essential components of the gold mine production data collection framework:

##### **2.1 Global network of contacts**

With regard to the gold mining industry, this network includes exploration-stage companies, mining companies, financial institutions, investors, industry associations, governments, NGOs and suppliers of goods and services. The latter includes suppliers of consumables such as cyanide, lime, explosives, fuel, power and grinding media; technical consultants, mining contractors and transport companies.

Field research involves frequent communication with contacts. Face-to-face meetings are vital when seeking proprietary, non-public information. This entails regular travel to major mining countries.

##### **2.2 Access to data from a wide range of publicly available/subscription-based sources**

To obtain the best estimates, quantitative data from a variety of public and subscription-based sources must be combined with the private, confidential quantitative and qualitative information gathered through extensive field research. This includes, but is not limited to, the company reports of mining companies, trade association disclosures and international customs and trade statistics.

##### **2.3 Mining sector expertise**

An experienced team of research analysts with sector expertise is an essential component of the data collection framework, providing deep insight into the gold mining industry. Interpreting data and competently extrapolating from limited, or contradictory information are vital skills. Analysts must be able to conduct field research in an effective way, using sensitivity and discretion, with careful regard to confidentiality. The analyst team must have a broad skill set, encompassing resource geology, mineral economics, mine engineering, ore processing, Social Licence to Operate (SLTO) and governance. Experience of working in the industry is invaluable.

## **2.4 Comprehensive, clear, methodical approach**

A clearly-defined methodology is essential in collating, estimating and analysing mine production data. This requires an understanding of the limitations of data sources; publicly-available information must be interrogated for accuracy, integrity and completeness. An ability to correctly interpret such data considering quantitative and qualitative information from private sources is essential. And finally, the data must be subject to consistent overview and approval.

A collaborative, team-based approach to market analysis is similarly vital. Accurate, continuous communication between the mine supply analysts and the broader market research team ensures cross-referencing of data from multiple sources and market perspectives; for instance, in correlating between gold mine production data provided by miners and flows reported by governments, transport companies, traders and refiners. Given the highly interconnected, global nature of the gold market it is important that the knock-on effects on other areas of the market due to developments relating to mine production are fully appreciated.

## **3 Data collection process**

Metals Focus' global gold mine production data series are constructed using a 'bottom up' approach, augmented by "top down" comparison with other available data. As a starting point, mine-by-mine production data is collected wherever available. This mine-by-mine data is collated and cross-referenced against figures published by governments and industry associations, trade statistics, and data from other sources, such as refiners and transport companies. In this way, an estimate of mine production is established at the individual country level, before being aggregated up to a global number.

Published reports from publicly-listed mining companies provide a significant portion of the mine-by-mine production data collected. The analyst team systematically captures this data, usually on a quarterly basis, depending on companies' reporting schedules. Other data required for cross-referencing country-level production totals is usually collected by means of direct communication with the sources mentioned above, which involves international travel for face-to-face meetings.

## **3 Data collection process**

The following issues are important with respect to the interpretation of mine production data.

### **4.1 "Contained" gold, versus "refined" or "paid" gold**

When considering gold mine production data, it is important to understand the basis of the number being reported. In some cases, miners may report the amount of gold contained in the intermediate product (usually doré but sometimes a lower grade concentrate) delivered to the trader, smelter or refiner. Alternatively, they may report the quantity of metal for which they are paid by the smelter or refiner, which in the case of doré is usually 99.9% of the contained gold, but somewhat lower in the case of gold in concentrate. Metals Focus report mine production on a paid, or refined basis, as this facilitates more consistent, accurate reconciliation with gold miners' revenues.

### **4.2 Gold produced versus gold sold**

Due to the timing of sales and build-up or draw-down of gold in the ore processing circuit, there can be significant differences between the amount of gold produced by a mine in a given period and the amount sold to refiners. Consistency in reporting these figures is

therefore important. Metals Focus reports mine production on a produced, rather than sold basis.

#### **4.3 Artisanal and small-scale mining (ASM)**

Artisanal and small-scale mining (ASM) is characterised by its informal nature and a lack of mechanisation. It is often carried out in developing countries as an alternative to subsistence farming, using simple, low-productivity extractive processes, with minimal capital investment. ASM provides a livelihood for an estimated 40 million people globally across a range of commodities, predominantly in Africa, Latin America and Asia. Given its dispersed, sometimes illegal nature, quantifying production from ASM sources is difficult. Metals Focus includes estimates of ASM output in its country production statistics, by cross-referencing information from numerous sources, including government statistics, reports by development agencies, and personal contact with fieldworkers and exploration company personnel. Insight is also received from refiners, traders and transport companies.

#### **4.4 Accuracy**

Given the opacity and complexity of the gold market, supply and demand statistics are best thought of as estimates, with some estimates being more accurate than others. For example, mine production data from publicly-listed mining companies are very accurate. As described above, data relating to ASM production are inherently more uncertain and are more likely to be revised. The data collection framework and process are, however, designed to ensure that each estimate is as accurate as possible based on the information available at that point in time.

#### **4.5 Revisions**

Revisions to statistics are common place and are to be welcomed as a sign of improved market intelligence. Many macroeconomic indicators, such as gross domestic product estimates, are revised. Gold statistics are no different. The first estimate of the supply and demand data will capture a certain amount of information. But over time new information may come to light which is incorporated into the data. The World Gold Council is committed to publishing the most accurate, up-to-date gold demand and supply data available. We are transparent with revisions to our data series, which will be updated to reflect any new information that comes to light or if new measurement methods are introduced.