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F METALS FOCUS

Country-of-Origin Analysis

PREPARED FOR LBMA



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1. Introduction

This is the fourth gold and silver country-of-origin (COO) report prepared by Metals Focus for LBMA and has two main objectives. First, to highlight some of the key points arising from LBMA's 2023 COO datasets. And second, to compare and contrast the COO data on mining and recycling with that published in the most recent edition of our annual Gold Focus, and the World Silver Survey, for the year in question.

Before comparing the Metals Focus and LBMA statistics it is important to clarify three things, the first that differences are to be expected between Metals Focus and LBMA data, with LBMA being limited to capturing COO data from Good Delivery London (GDL) refiners. The second concerns each organisation's recycling definitions and, finally, how the origin of mined concentrates are identified. In terms of the latter, quite often the GDL refiner will identify the country-of-origin as being where the concentrate was first refined, rather than where it was mined, with some of this material then re-classified as being recycled. The second point means that Metals Focus' large-scale mining (LSM) total will exceed the LSM captured in the COO data, for both gold and, to a much greater extent, silver (as mined concentrates are far more common in the silver market).

In terms of recycling, and in keeping with previous COO reports, the Appendix breaks down in some detail the respective definitions of recycling. In short, Metals Focus' definition includes gold recovered from end-of-life consumer / industrial products and unsold fabricated products, but excludes production scrap, the melting of GDL bars, and coins and bars sold back by investors (which we classify as disinvestment); other nuances are covered in the Appendix. In summary, LBMA's current definition of recycling brings together all of the above segments. Notably, since the 2022 COO survey, these have been split out into five categories, that are detailed below.

Even though there is a considerable gap between the two recycling definitions, LBMA's new categories help to understand some of these differences. The other challenge is that the LSM figures are also not directly comparable. For example, as touched on above, not all LSM drops into the "LSM" COO category. Instead, some is captured in at least one of the new COO categories, including "Unprocessed". As well as therefore making it difficult to compare LSM activity across LBMA and Metals Focus, it also creates challenges in interpreting, for example, the "Unprocessed" segment in its own right.

It is also worth noting that LBMA's definitions continue to evolve, partly in the context of wider chain of custody requirements. For example, while recycling had been cited in previous versions of LBMA's Responsible Gold Guidance (RGG), the introduction of RGG V9 in 2021 first aligned due diligence requirements of processing recycled materials with the OECD. Furthermore, RGG V10 (in draft phase) looks set to amend LBMA's definition of recycling, to align more closely with the recently published ISO standard, a draft of which was also used in the Responsible Jewellery

LBMA COO & Metals Focus: Global Gold Mine Production & Recycling, 2023

Tonnes	LBMA	y/y (%)	Metals Focus	y/y (%)	MF less LBMA
LSM*	1,824	-2%	2,566	2%	742
ASM	44	-14%	751	-2%	707
Russian Mine Production	na	na	322	-2%	322
Total Mine Production	1,868	-2%	3,640	-0.2%	1,772
Recycling**	3,507	2%	1,234	9%	-2,273
Overall Totals	5,376	1%	4,874	2%	-502

Source: Metals Focus, LBMA

*COO/Metals Focus excludes Russia; **COO excludes Russia, which is included in Metals Focus' data

Council's (RJC) December 2024 definition (as part of the RJC's latest Chain of Custody Standard).

For clarity, LBMA may therefore revise its recycling definition shown in the Appendix, once RGG V10 is published, which will mean an updated version of this report being made available on LBMA's website. The final point to note concerns the expanded COO categories introduced by LBMA last year. The explanation of these relatively new segments is set out below:

- **Unprocessed Recyclable:** Gold/silver in their original form, or as fabrication scrap, such as bullion bars, jewellery pieces, coins, or machine turnings, before being returned for processing and refining.
- **Melted Recyclable Precious Metals:** Gold/silver that have been melted as the initial recycling process and cast into rudimentary bars or other forms with undefined dimensions and varying purity levels.
- **Industrial By-products:** Materials generated while processing another primary material, but still holding value, examples of which are furnace flue dust, spent crucibles, and floor sweepings.
- **Mixed Materials:** Materials that combine multiple sources, such as mined and recycled metals.
- **Legacy Stocks:** Precious metal investment products (e.g., ingots, bars, coins, and grains in sealed containers) held in vaults of bullion banks, central banks, exchanges, and refineries with a verifiable date before 1st January, 2012. These stocks do not require a determination of origin and include those held by third parties on behalf of the listed entities.

Breakdown of LBMA COO Recycling, 2023

Tonnes	Gold	Silver
Unprocessed Recyclable	2,426	7,052
Melted Recyclable	758	2,608
Industrial By-Product	183	9,038
Mixed Material	63	623
Legacy Stocks	78	183
Total Recycling	3,507	19,504

Source: LBMA

2. Gold

Looking first at mine supply, this report now has the benefit of six years of COO data. Even so, there appears little commonality between LBMA and

LBMA COO & Metals Focus: Global Gold Mine Production

Tonnes	LBMA Total*	LBMA Total excl ASM	MF Total excl ASM	MF Russia	MF excl Russia	MF Total
2018	2,313	2,287	2,951	295	3,363	3,658
2019	2,291	2,270	2,893	327	3,279	3,606
2020	2,483	2,467	2,810	332	3,151	3,483
2021	2,247	2,181	2,812	331	3,244	3,575
2022	1,915	1,863	2,879	330	3,315	3,645
2023	1,868	1,824	2,888	322	3,319	3,640

Source: Metals Focus, LBMA

*COO includes Russia for 2019-2021

Metals Focus' series, even allowing for different coverage. That, however, still offers a useful place to start, in terms of understanding some of the differences between the two.

- **Large-scale mining:** The table above indicates that Metals Focus' LSM total is 742t higher than that of the COO LSM. However, a large part of the difference consists of mined gold concentrates, which in 2023 totalled 555t. As explained below, most of this is not captured in the COO LSM segment. Although we cannot be certain what portion is included it does suggest a small share of LSM is processed by non-GDL refineries.

- **Mined gold concentrates:** In terms of analysing the COO data, pinpointing the origin of mined concentrates is more challenging for silver than gold (see the analysis below on silver) because of the relative volumes

Gold Mine Production*: A Comparison of LBMA COO and Metals Focus Data, Selected Markets, 2023

Tonnes	LBMA	y/y (%)	Metals Focus	y/y (%)	MF less LBMA
Burkina Faso	50	-2%	98	-7%	48
Côte d'Ivoire	35	20%	51	15%	16
Ghana	88	-9%	131	10%	43
Mali	68	14%	103	1%	35
Tanzania	41	4%	52	1%	11
Zimbabwe	0	na	45	6%	na
Indonesia	16	-56%	132	2%	96
Brazil	46	-20%	81	-7%	35
Colombia	20	-7%	67	-4%	47
Dominican Republic	18	-22%	18	-12%	0
Guyana	3	-3%	13	1%	10
Peru	74	4%	129	-1%	55

Source: Metals Focus, LBMA; *LSM plus ASM

involved. To put this into context, in the silver market 56% of global mine supply was a by-product of base metals in 2023. For gold, just 16% of mined supply was in concentrate form that year, totalling 555t.

- **Artisanal & small-scale mining:** The COO survey asks the GDL operations to detail their intake of ASM material. However, the reported volumes have always been trivial and 2023 was no exception; just 44t was reported, a drop of 2% year-on-year.

To put the COO ASM total into perspective, Metals Focus' research of ASM volumes, based on our analysis of trade flows and feedback from our contact network across global supply chains, points to an estimate of 751t in 2023 for global ASM output. This indicates that most ASM is treated by non-GDL refiners (see below for more on this).

- **Russian mine supply:** Following Russia's invasion of Ukraine its six gold and silver GDL operations were suspended by LBMA in March 2022. As a result, the COO data no longer includes Russian activity from that year onwards, which creates another gap between the two organisations' mine supply series. According to Metals Focus' estimates, Russian gold mine supply in 2023 totalled 322t. During 2018-23, the timeframe for which global COO data is available, Russian mine output averaged 323t.

- **Non-GDL refining:** The COO data captures activity at 66 gold and 82 silver GDL refiners. It therefore excludes mined (both LSM and ASM) and recycled material that is treated at non-GDL operations. For example, while there are no GDL entities in the UAE, there are around 16 non-GDL refiners active there, with an estimated refining capacity of 2,000t. In India, there is one GDL gold refiner (and four silver), out of roughly 55 registered Indian gold refiners, with a combined capacity of perhaps 1,500-2,000t.

Even so, at the country level, one notable change arising from the new COO categories (introduced for the 2022 survey), was a sharp drop in LSM feed reported by Chinese-based GDL refiners for the COO survey. In particular, their 2022 and 2023 volumes were 191t and 157t lower, respectively, compared with the 243t reported for the 2021 COO survey. The combined "Unprocessed" and "Melted" categories for 2023 totalled 693t for the Chinese GDL entities, against 465t reported in 2021, which does indicate that some of their feedstock has been re-categorised as "Unprocessed" and/or "Melted". However, it is worth bearing in mind that Metals Focus also reported a sharp jump in Chinese gold recycling in 2023, which makes it difficult to make a direct comparison.

Mine Production

As noted above, there are several reasons why LBMA and Metals Focus mine supply data cannot be directly compared at the global level. To summarise, Metals Focus reported just a 0.2% drop to 3,640t for global mine supply in 2023. This compares with a 2% drop for the combined ASM/LSM total in the COO dataset to 1,868t. Even so, there is merit in comparing the two series at the country level, as this can highlight the

Gold Recycling: A Comparison of LBMA COO and Metals Focus, Selected Markets, 2023

Tonnes	Unprocessed/ Melted/Mixed	Industrial/ Legacy	Total LBMA Recycling	y/y (%)	Metals Focus	y/y (%)	MF less LBMA
Germany	96	1	98	18%	27	8%	-71
Italy	133	3	136	-5%	85	2%	-17
Switzerland	637	28	669	-15%	2	4%	-667
UK	209	1	210	-23%	17	1%	-193
United States	166	8	174	-43%	71	4%	-103
India	22	1	22	8%	117	20%	95
Egypt	>1	>1	>1	8%	39	-8%	39
Turkey	178	>1	178	33%	51	-6%	-127
China	693	26	718	27%	210	36%	-508

Source: Metals Focus, LBMA

importance of ASM in a given market, or provide an indication of the relative importance of GDL and non-GDL refiners in processing LSM and ASM output in each location.

Looking first at **Australia**, the 253t of LSM reported in the COO series compares well with Metals Focus' 296t for 2023. Some of the difference reflects how some Australian base metals concentrates are first treated and how, in turn, the origin of that semi-refined gold is then assessed.

Turning to African gold mine supply, the COO data reveals 469t treated by GDL refiners in 2023, against a regional total of 997t estimated by Metals Focus. Importantly, the Metals Focus total for LSM production comes to 505t for 2023, which indicates that the vast majority of African LSM is treated by GDL refiners. Interestingly, the COO ASM total stands at just 2t, which suggests this material is mostly processed by non-GDL operations.

Looking at some of the key African gold producers, **Ghana** offers a good example of the gap between the two series. The 2023 COO total reveals 87t of LSM and 0.6t for ASM. This compares with Metals Focus' total for Ghana of 131t. The LSM COO total almost matches the 89t captured by Metals Focus across 14 projects operating in 2023, the most noteworthy being Newmont's Ahafo operation (18t) and the Gold Fields/Government of Ghana Tarkwa joint venture (17t). The balance consists of Metals Focus' ASM estimate, none of which it seems was processed by GDL refiners.

A similar dynamic occurs in **Burkina Faso**. The COO LSM total of 50t actually falls short of Metals Focus' 66t of LSM output in 2023. For context, this spans 12 operations, most notably the IAMGOLD/Government of Burkina Faso joint venture Essakane mine (13t) and the Endeavour Mining/Government of Burkina Faso joint venture Houndé operation (10t). However, the main difference concerns ASM, none of which is captured in the COO data suggesting this is entirely processed by non-GDL refineries.

The COO mining breakdown for South America reads as 228t of LSM and 25t of ASM, against a global total estimated by Metals Focus of 534t (combining ASM and LSM). Metals Focus' primary gold and silver LSM database generated a total of 278t of gold mine output in 2023. Taken at face value, this suggests that 82% of LSM supply was treated by GDL refineries in 2023, while very little ASM was processed by a GDL operation as Metals Focus' estimated this at around 250t. There is also some gold concentrate production in the region. As a reminder, this could potentially be treated outside South America. The refinery taking the processed gold doré may decide that the origin is the plant where the concentrate is first treated, not where the concentrate was mined. This is another reason why the COO LSM total falls short of Metals Focus' gold mine production estimate for the region.

Peru is also worth highlighting in this report. With 20t of ASM it accounted for 45% of the total COO ASM processed in 2023. In terms of LSM, Peru's outturn of 55t is a little higher than the 45t estimated by Metals Focus. Overall, Metals Focus estimates that total Peruvian gold mine supply in 2023 stood at 129t, well in excess of the COO mining total of 74t.

Finally, the **Indonesian** LSM data requires a closer look, given that the COO survey shows a 56% year-on-year decline against a 2% lift reported by Metals Focus in 2023. Neither appears related to changes in concentrate versus doré output, with respective year-on-year changes of -4% (to 74t) and +11% (58t), for a country total of 132t, according to Metals Focus. As such the reported COO total of 15t suggests that an increasing share of the country's mining outturn was processed at non-GDL operations. (It is worth noting that the "unprocessed" COO category, of 26t in 2023, was unchanged year-on-year, a volume that we also believe is mine supply.)

Recycling

Turning to recycling, as Metals Focus pointed out in last year's COO report, their scrap series excludes some of LBMA's relatively new recycling categories, "Industrial By-Products" and "Legacy stocks". The former captures material generated and recycled within the industry, known as closed loop recycling. With regards to legacy stocks, this covers the melt of GDL bars. Both the manufacture and melt of these bars are excluded from Metals Focus' supply/demand analysis as re-melts are a conversion of pre-existing above-ground stocks into units of smaller denominations.

Separately, as touched on above, it is also not a straightforward exercise to compare the two organisations' scrap supply data, even if we exclude the above two factors, as there can be occasions when LSM is allocated to one of the COO recycling headings, such as "Unprocessed". Finally, the "Unprocessed" segment also contains investment products sold back by retail investors, which is also excluded from Metals Focus' recycling series and is instead defined as disinvestment. The "Unprocessed" category alone far exceeds Metals Focus' global scrap supply total, which confirms the extent to which bars and coins were sold back in 2023.

LBMA COO & Metals Focus: Global Silver Mine Production & Recycling, 2023

Tonnes	LBMA	y/y (%)	Metals Focus	y/y (%)	MF less LBMA
Mining*	15,021	-16%	24,088	-3%	9,067
Russian Mine Production	na	na	1,191	-7%	na
Recycling	19,504	24%	5,708	-5%	13,796
Overall Totals	34,525	3%	30,986	-4%	3,539

Source: Metals Focus, LBMA; *excludes Russia

That aside, some 2023 COO recycling activity is worth highlighting. From a global standpoint, Metals Focus estimated a close to 9% year-on-year rise in 2023 to a three-year high of 1,234t. This compares with a 2% overall lift for the five COO recycling categories. Excluding "Industrial By-Products" and "Legacy stocks" reveals a 2023 total of 3,247t, unchanged on 2022. It is also worth remembering that the "Legacy Stocks" bucket captures the melt of pre-1st January 2012 GDL bars, while the melt of large bars that were made after then fall into the "Melted" heading.

In terms of some of the key GDL gold recycling locations **China** stands out. At first sight, the "Melted" category of 230t compares well with Metals Focus' 2023 estimate of 210t. However, the year-on-year changes vary massively, with the COO data double that of 2022, against a 36% rise reported by Metals Focus. This reiterates the point made above, that some of the material processed by Chinese GDL operations may have been re-categorised between the 2022 and 2023 COO surveys. The **Hong Kong** data offers another example of a massive discrepancy with Metals Focus. Once again, the "Unprocessed" segment is revealing, with a 2023 total of 132t, up sharply on the 82t reported the year before. This is set against

Silver Recycling: A Comparison of LBMA COO and Metals Focus, Selected Markets, 2023

Tonnes	Unprocessed/ Melted/Mixed	Industrial/ Legacy	Total LBMA Recycling	y/y (%)	Metals Focus	y/y (%)	MF less LBMA
China	1,751	1,784	3,535	65%	1,081	11%	-2,454
Hong Kong	1,287	3	1,290	84%	5	5%	-1,285
Japan	1,188	1,096	2,284	22%	282	-5%	2,002
Canada	158	379	537	11%	50	-0.4%	-487
United States	716	285	1,001	12%	1,287	1%	286
Germany	1,313	134	1,447	12%	304	1%	-1,143
Belgium	233	83	316	133%	20	-3%	-296
Switzerland	308	11	319	52%	9	-3%	-310
Global Total*	10,283	9,221	19,504	24%	5,506	2%	-13,998

Source: Metals Focus, LBMA; *Includes Russia

Metals Focus' 2023 estimate for Hong Kong gold recycling of just 3t, highlighting the extent to which GDL operations there are melting bars.

In Europe, the **Italian** and **German** figures are worth mentioning for different reasons. For the former, the COO "Melted" gold of 99t in 2023 is only modestly higher than Metals Focus' 85t; both are also up on 2022. By contrast, the level of disinvestment in 2023 in Germany goes some way to explaining why the combined "Unprocessed" and "Melted" categories, of 96t, far exceeds the 27t reported by Metals Focus.

The melting of Good Delivery bars in **Switzerland**, home to five gold GDL and four silver GDL operations, explains some of the reported COO activity there. Processing captured in "Melting" fell sharply from 314t in 2022 to 63t a year later, reflected how strong investment demand had been in 2022, requiring the sizeable melt of Good Delivery bars. By contrast, the treatment of "Unprocessed" gold in Switzerland over the same period rose by 24%, partly reflecting the treatment of liquidated retail investment products. This category is also likely to include activity linked to the country's watch making and jewellery industry, in the form of process (or production) scrap that is returned to the GDL refiners. Our information is that both Swiss gold watch hallmarking and high-end gold jewellery fabrication rose in 2023, which would have boosted "Unprocessed" recycling volumes.

3. Silver

The Introduction highlighted why differences can occur between LBMA and Metals Focus' mine production and recycling data. For silver, the emphasis is a little different compared with gold. In particular, there is no ASM to speak of in the silver market. Instead, the differences largely reflect how the country-of-origin of silver recovered from base metals concentrates is determined. Ultimately, the metal is still captured in the

Silver Mine production: A Comparison of LBMA COO and Metals Focus, Selected Markets, 2023

Tonnes	LBMA Mine Production	MF Primary/ Gold By-Product	MF Base Metals By-Product	Total MF less LBMA
China	3,060	304	3,184	428
Mexico	4,543	4,940	717	1,114
Peru	1,800	945	2,443	1,588
Chile	552	376	1,241	1,065
Bolivia	754	242	1,102	590
Argentina	629	808	-	179
United States	584	691	337	444
Global Total	15,021	9,742	9,501	4,222

Source: Metals Focus, LBMA

COO data, but quite often it is identified as recycling, rather than mine supply. This is why it often makes sense to look at combined COO LSM and “Unprocessed” silver against the total for Metals Focus’ recycling and mine supply statistics. (This explains why the “Silver” portion of this COO report features a combined “Mine Production/Recycling” section” below.)

The other differentiator is specific to silver, and concerns the recovery of this metal from spent ethylene oxide (EO) catalysts. These contain silver oxide, most of which is treated by non-GDL companies.

Mine Production/Recycling

The observation about where spent EO catalysts are processed applies especially to the **US**. Looking first though at mine supply, the COO figure of 584t falls well short of Metals Focus’ 1,028t for 2023. However, the consultancy’s combined primary silver and silver mined as a by-product of gold comes to 691t. Of note, this includes: Coeur Mining’s Rochester primary silver mine (106t), and the Andean Precious Metals Soledad Mountain by-product operation (24t; a Gauss/Thomas M Clay joint venture until mid-2024).

By contrast, the by-product base metals mining activity, which delivered 337t of silver in 2023, may partly be captured in the “Unprocessed” COO total for the US of 112t. Equally, it may form part of the “Melted” category of 600t, given that some material may have been mis-classified as recycling, this being a frequent occurrence for the silver COO data. Even if we take the “Melted” total at face value as being scrapped material, and bring this together with the 285t of “Industrial” COO scrap, their combined total of 884t is still below Metals Focus’ US recycling of 1,486t. As touched on above, an important share of this consists of silver recovered from spent EO catalysts, which is processed by a non-GDL operation in the US.

Staying with the Americas, the **Mexican** LSM COO total of 4,543t falls short of Metals Focus’ mine supply of 5,658t. The other COO categories for Mexico are also relatively modest, the largest being 266t of “Mixed” recycling. As such, it appears that an important share of Mexican silver mine supply is initially treated by non-GDLs operations, or not classified as being of Mexican origin.

A closer look at the Metals Focus data seems to bear this out. Combined primary silver and by-product gold mining stood at 4,940t in 2023, so roughly 500t higher than the COO LSM figure above. This consists of several large operations: Newmont’s Peñasquito polymetallic mine (604t); the Fresnillo/Pan American Silver joint venture Juanicipio primary silver mine (523t; previously a Fresnillo/MAG joint venture in the context of this 2023 analysis); Fresnillo’s San Julián primary silver operation (415t) and also their Fresnillo mine (405t). In total, Metals Focus tracked 48 primary and by-product operating mines in Mexico in 2023. 717t of Mexican silver mine supply was also derived from base metals production. It is this material which may instead be captured in the Japanese or Chinese silver COO recycling data, if some of the concentrate was processed there.

Silver Recycling: A Comparison of LBMA and Metals Focus Data, Selected Markets, 2023

Tonnes	LBMA	Metals Focus	MF less LBMA
China	3,535	1,162	-2,373
Hong Kong	1,290	4	-1,286
Japan	2,284	270	-2,014
Canada	537	51	-486
United States	1,001	1,486	485
Germany	1,447	321	-1,126
Belgium	316	18	-298
Switzerland	319	9	-310
Global Total*	19,504	5,708	-13,796

Source: Metals Focus, LBMA; *Includes Russia for Metals Focus

Before looking at East Asia, it is worth reviewing another major silver producer, **Peru**. The COO LSM 2023 total of 1,797t is barely half of Metals Focus' silver mine production total of 3,388t. Interestingly, the gap is much smaller than our estimate of base metals by-product supply, of 2,443t, with the consultancy's primary silver/by-product gold totalling 945t in 2023. This suggests that an important share of the silver-bearing base metals concentrate was correctly identified as being Peruvian. For the record, of the 30 operating mines in the Metals Focus database, the most notable include: the Teck Resources, BHP, Glencore, and Mitsubishi Corporation joint venture Antamina copper mine (361t); the Volcan Yauli zinc operation (243t), and Chinalco's Toromocho copper mine (222t).

Switching to East Asia, four countries dominate the COO data: China, Japan, South Korea and Hong Kong. The **Chinese** COO LSM total of 3,060t is relatively close to Metals Focus' 3,471t, suggesting that around 12% is treated by non-GDL refineries in the country. (As a reminder, there are 27 silver GDL and 40-50 non-GDL silver refineries in China.) The other noteworthy point in the Chinese COO series is the sizeable 1,552t of "Unprocessed" and 1,742t of "Industrial" material recorded in the 2023 COO dataset. These far exceed Metals Focus' Chinese silver recycling total of 1,162t. This is because China imports a large volume of silver-bearing base metals concentrates, and as explained earlier it is quite common for a GDL entity, in this case ones in China, to classify much of this material as both being recycled and of Chinese origin.

A similar dynamic plays out in **Japan**, which in fact has almost no silver mine production of its own. Instead, the sizeable 1,150t of "Unprocessed" and 1,081t of "Industrial" material denote silver recovered from imported base metals concentrates and industrial recycling, treated in part by the country's 13 silver GDL entities. With regards to **South Korea**, despite having just two silver GDLs operations, the country's COO footprint, captured mostly in its 1,988t of "Industrial" recycling, runs quite close to the above Japanese figures. In both cases though, Metals Focus' silver recycling totals are some way behind those highlighted in the COO report.

Finally, turning to Europe, several COO data points are worth highlighting. For the **UK**, the slight 61t of "Legacy" silver is interesting, suggesting that much of the pre-2012 has already been processed. By contrast, 302t of "Unprocessed" silver might largely relate to GDL bars from 2012 or later. A similar figure is reported as being of "Unprocessed" **Swiss** origin, totalling 258t, which may have been divested by Swiss investors. For both countries, Metals Focus estimated trivial levels of silver recycling in 2023. With regards to **Germany**, the 187t of COO LSM is surprising, given the absence of domestic silver mining. In terms of recycling, the three categories apparently of German origin are worth highlighting: 752t of "Unprocessed", 528t of "Melted" and 134t of "Industrial". However, an important share of this consists of imported material, be that silver-bearing mining concentrates or industrial scrap. By way of comparison, Metals Focus' German silver scrap supply stood at an estimated 321t in 2023; as a reminder, Germany is home to five silver GDL operations.

4. Appendix

Gold and Silver Recycling Definitions

Recycling has always been pivotal in the gold and silver markets. In terms of the headline figures collated by Metals Focus, it will account for around 26% and 18% respectively of global supply in 2024. Furthermore, as the precious metals markets have placed greater emphasis on responsible sourcing, chain of custody and ESG, so recycling has increasingly found itself in the spotlight. This in turn has fostered a debate, as to what recycling actually constitutes. In the context of this note, Metals Focus' and LBMA's definitions are laid out below. These vary considerably and reflect the different objectives of each organisation.

LBMA is focussed on the integrity of the supply chain within the GDL orbit, whose primary goals are "to combat money

laundering, terrorist financing and human rights abuses, and respect the environment globally."

Metals Focus' approach has been developed over many years to provide as close an understanding as possible of the broad dynamics of the entire precious metals market, including the impact of each area of supply and demand. In the context of recycling, this means that the consultancy focuses on the recovery of gold and silver from old fabricated products. By definition, this will therefore not include the melting down, upgrading (where applicable) and recasting of 400oz gold and 1,000oz silver "Good Delivery London" (GDL) bars, which account for a noteworthy portion of LBMA's COO gold and silver recycling series.

Metals Focus Definition ¹	LBMA Definition
Includes old jewellery and silverware that are sold back into the supply chain, either by consumers or retailers.	There is no distinction between jewellery and silverware that is sold back by consumers, or exchanged for a new piece: both streams are included in the COO "unprocessed" or "melted" recycling datasets.
Includes coins that have been fabricated, but never sold, that are subsequently melted down.	Gold and silver recovered from industrial products, in the "industrial by-products" segment
Excludes: old jewellery that is exchanged for a new product, where the consumer pays the labour charge (this is common across Asia).	The LBMA COO data includes gold and silver process scrap collected from manufacturers; forms part of "unprocessed" recycling
Excludes: "production" or "process" recycling, that is collected from jewellery, investment, industrial and dental manufacturers.	Includes all coins and bars, irrespective if they have been sold back by investors, returned unsold by the trade or delivered from a vault. As such, this includes the reprocessing of GDL bars (e.g. into smaller bar sizes) which forms part of the COO recycling dataset, either in "unprocessed" or "legacy stocks".
Excludes: the selling back of small investment bars and coins into the supply chain - these are categorised as disinvestment, not recycling.	Note: the COO statistics for recycling can include gold and/or silver that is recovered from base metals mining concentrates (instead Metals Focus report this as a component of mine production).
Excludes: the melting down of GDL bars, of both gold and silver, for the purposes of e.g. small bar production.	
¹ Where possible the recycled gold and silver is counted in the region where it is generated, rather than where it is refined.	

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