

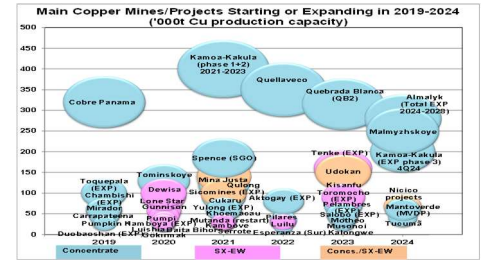
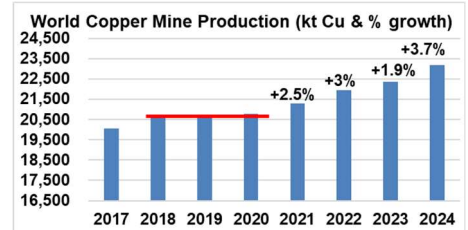


Copper Market Forecast 2023/2024

The International Copper Study Group (ICSG) met in Lisbon, Portugal, on 3-4 October 2023. Government delegates and industry advisors from most of the world's leading copper producing and using countries participated to discuss key issues affecting the global copper market. In the meeting of the Statistical Committee, the ICSG view of the world balance of refined copper production and use was developed.

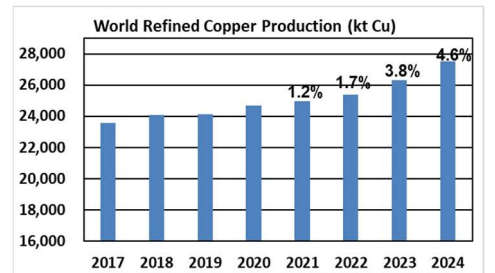
World copper mine production is expected to increase by 1.9% in 2023 with growth of about 3.7% forecast in 2024:

- The rate of growth of world copper mine production in 2023 has been revised downwards vis-à-vis ICSG's April 2023 expectations from 3% to 1.9%, mainly due to geotechnical issues, equipment failure, adverse weather, community actions, a slower than expected ramp-up of projects, revised company guidance and lower grades.
- Despite this, world mine production this year will benefit from additional output from new or expanded mines, mainly in the D.R. Congo, Peru and Chile. In addition, output in a number of countries will be higher due to the fact that production at the beginning of 2022 remained restricted as a result of Covid-19-related problems.
- World mine production in 2024 is forecast to rise by 3.7%. Besides additional output from new or expanded mines, production rates are expected to improve in countries affected by operational constraints in 2023, namely Chile, China, Indonesia, Panama and the USA.
- Major projects starting or expanding in the period 2022 to 2024 include Kamo-a Kakula and Tenke in the D.R Congo, Quellaveco and Torromocho in Peru, Quebrada Blanca QB2 in Chile and Malmyzhskoye and Udokan in Russia. A number of medium and small projects, as well as expansions, will also add to output. Most of the projects starting in this period are concentrate producing mines.



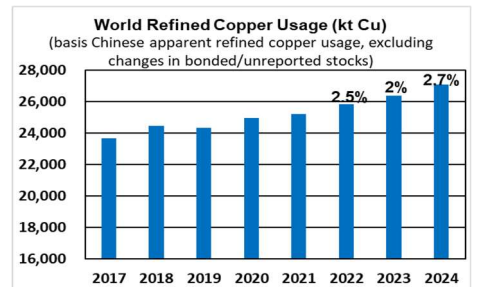
World refined copper production is forecast to rise by about 3.8% in 2023 and 4.6% in 2024:

- 2023 projected refined copper output is expected to be limited by operating constraints/maintenance works in Chile, Indonesia, Sweden and the United States.
- World growth in 2023 and 2024 will be mainly sustained by the continued expansion of Chinese electrolytic capacity. However, 2024 will also see the startup of new or expanded smelters/refineries in Indonesia, India and the United States that will also contribute to higher production.
- World primary refined output from concentrates will benefit from additional availability arising from the start-up of new mine projects.
- World electrowinning (SX-EW) output is expected to remain essentially unchanged as growth from new or expanded capacity in the DRC is offset by a further fall in production in Chile.
- World secondary production (from scrap) is expected to increase in both 2023 and 2024 supported by the development of new secondary smelter and refinery capacity.



World apparent refined copper usage is expected to increase by about 2% in 2023 and 2.7% in 2024:

- In 2023, a world usage growth rate of 2% is mainly due to a strong Chinese apparent usage growth of about 4.3%.
- World ex-China usage in 2023 is expected to decrease by about 1%, mainly impacted by declines in refined usage in the EU countries and North America.
- Although the global economic outlook is challenging, an expected improvement in manufacturing activity, the ongoing energy transition and the development of new semis production capacity in various countries should support higher growth in world refined usage in 2024.
- Overall, growth in world refined usage of about 2.7% is forecast for 2024.
- Copper is essential to economic activity and the modern technological society. Additionally, infrastructure developments in major countries and the global trend towards cleaner energy and electric cars will continue to support copper demand in the longer term.



World refined copper balance projections indicate a deficit of about 27,000t for 2023 and a surplus of 467,000t for 2024:

- ICSG recognizes that global market balances can vary from those projected owing to numerous factors that could alter projections for both production and usage. In this context, it should be noted that actual market balance outcomes have on recent occasions deviated from ICSG market balance forecasts due to unforeseen developments.
- In developing its global market balance, ICSG uses an apparent demand calculation for China that does not consider changes in unreported stocks (State Reserve Bureau (SRB), producer, consumer, merchant/trader, bonded) which can be significant during periods of stocking or de-stocking and which can markedly alter global supply-demand balances. Apparent copper demand for China is based only on reported data (production + net trade +/- SHFE stock changes).
- ICSG expects a deficit of about 27,000 t for 2023 compared to a deficit of about 114,000t forecast last April mainly due to a higher anticipated growth rate in Chinese apparent usage. A surplus of about 467,000t is expected in 2024 as a consequence of additional supply compared to a surplus of 298,000t previously predicted in April 2023.

The next Meetings of the International Copper Study Group will be held in Lisbon in April 2024.

(Supply and Demand forecast table on next page)

World Refined Copper Usage and Supply Forecast

Thousand metric tonnes, copper

REGIONS (^{'000 t Cu})	COPPER MINE PRODUCTION			REFINED COPPER PRODUCTION			REFINED COPPER USAGE		
	2022	2023	2024	2022	2023	2024	2022	2023	2024
Africa	3,274	3,436	3,683	2,183	2,292	2,484	177	184	192
N.America	2,534	2,418	2,590	1,649	1,603	1,690	2,267	2,227	2,264
Latin America	8,556	8,975	9,376	2,580	2,383	2,361	384	384	392
Asean-10	1,078	1,065	1,104	494	461	633	1,182	1,183	1,264
Asia ex Asean/CIS	2,649	2,689	2,938	13,825	14,857	15,742	17,770	18,362	18,845
Asia-CIS	945	969	1,021	515	505	524	107	106	107
EU	782	762	759	2,571	2,507	2,505	3,098	3,039	3,101
Europe Others	1,229	1,242	1,431	1,156	1,305	1,376	845	866	897
Oceania	895	915	935	401	437	465	5	5	5
TOTAL	21,941	22,471	23,836	25,374	26,351	27,779	25,835	26,357	27,066
World adjusted 1/ 2/	21,941	22,360	23,195	25,374	26,329	27,534	25,835	26,357	27,066
% change	3.0%	1.9%	3.7%	1.7%	3.8%	4.6%	2.5%	2.0%	2.7%
World Refined Balance (China apparant usage basis)							-461	-27	467

1/ Based on a formula for the difference between the projected copper availability in concentrates and the projected use in primary electrolytic refined production.

2/ Allowance for supply disruptions based on average ICSG forecast deviations for previous 5 years.